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# Open Research Data – Bright New Future or Just a Flash in the Pan?

Workshop in the context of the Frankfurt Open Science Initiative

1<sup>st</sup> July 2024, Goethe University

<https://doi.org/10.21248/gups.85527>

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# Speaker

- Yves Vincent Grossmann
- Team Lead since March 2024 for
  1. Research Data Management and
  2. Library of Natural Sciences at the Goethe University
- 2020 to 2024 Research Data Management Officer at the Max Planck Digital Library
- October 2022 RDM Consultant with Goethe Institute fellowship at Ilia state University Tbilisi, Georgia
- (Art) Historian by training
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# Objectives

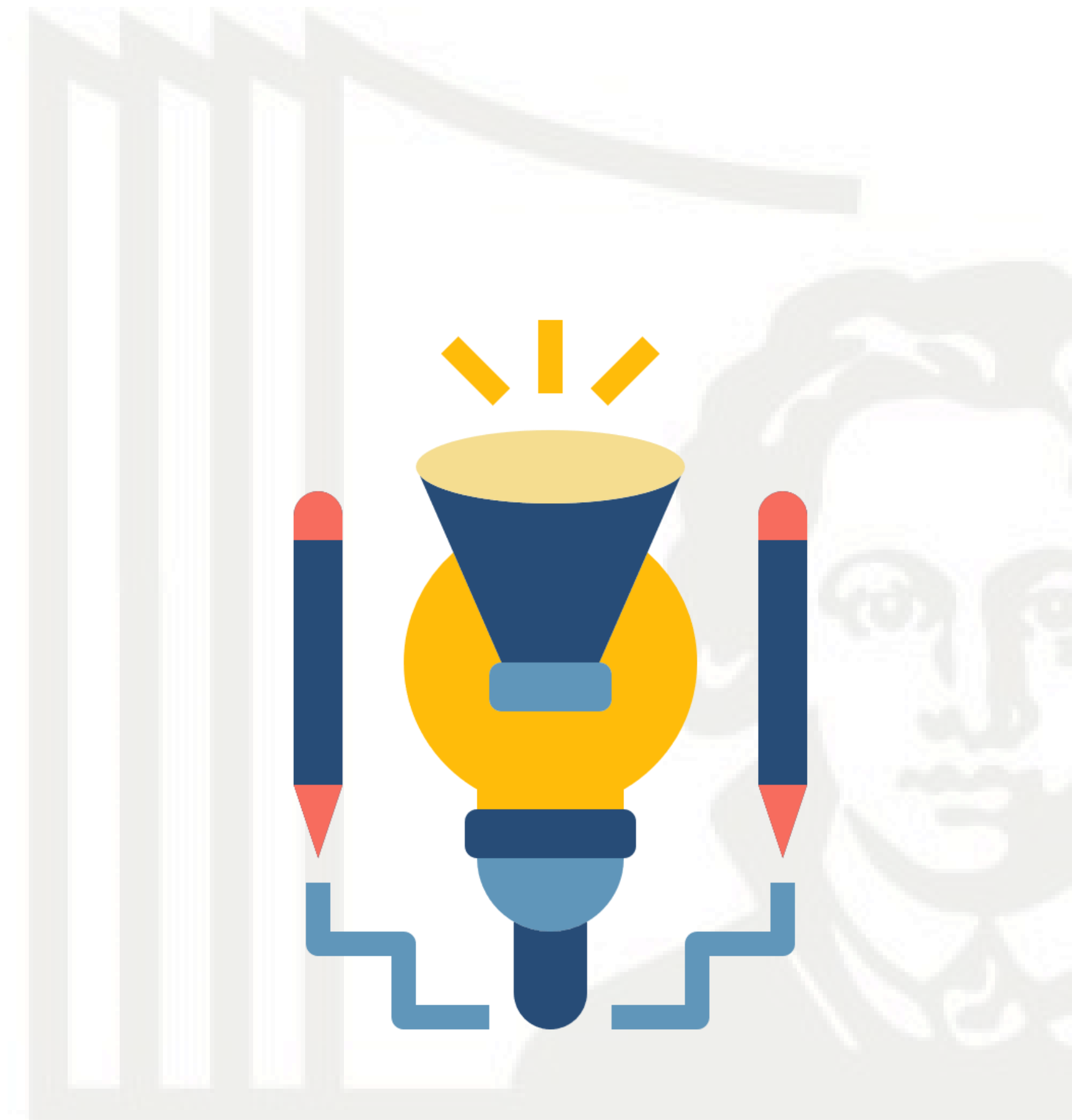
- Understanding Open (Research) Data
- Recognizing that Open Research Data is not rocket science (except in rocket science)
- Discuss challenges connected to Open Research Data



# Slido

1. Have you published research data openly?
2. Have you re-used research data (either your own or from others)?

**Join at [slido.com](https://slido.com)**  
**Code: 3373 209**



# 1. Changing “Views” with Open Science

## 2. Looking Closer at Research Data

## 3. Why Sharing Data Open?

## 4. Start Sharing Data Open

## 5. Struggle and Repeat



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# Open Science



UNESCO,  
<https://www.unesco.de/wissen/wissenschaft/open-science>, CC BY 4.0.

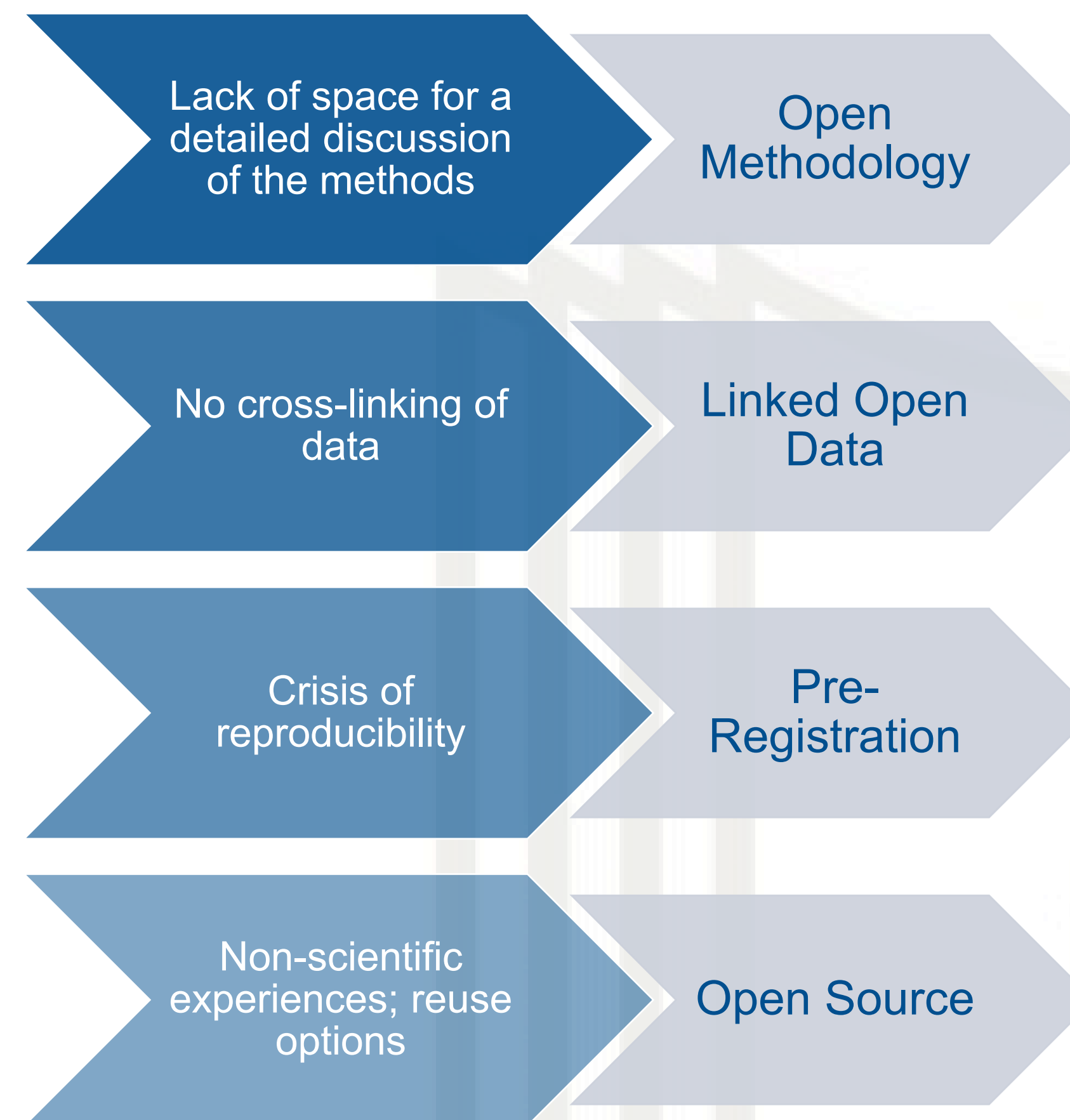
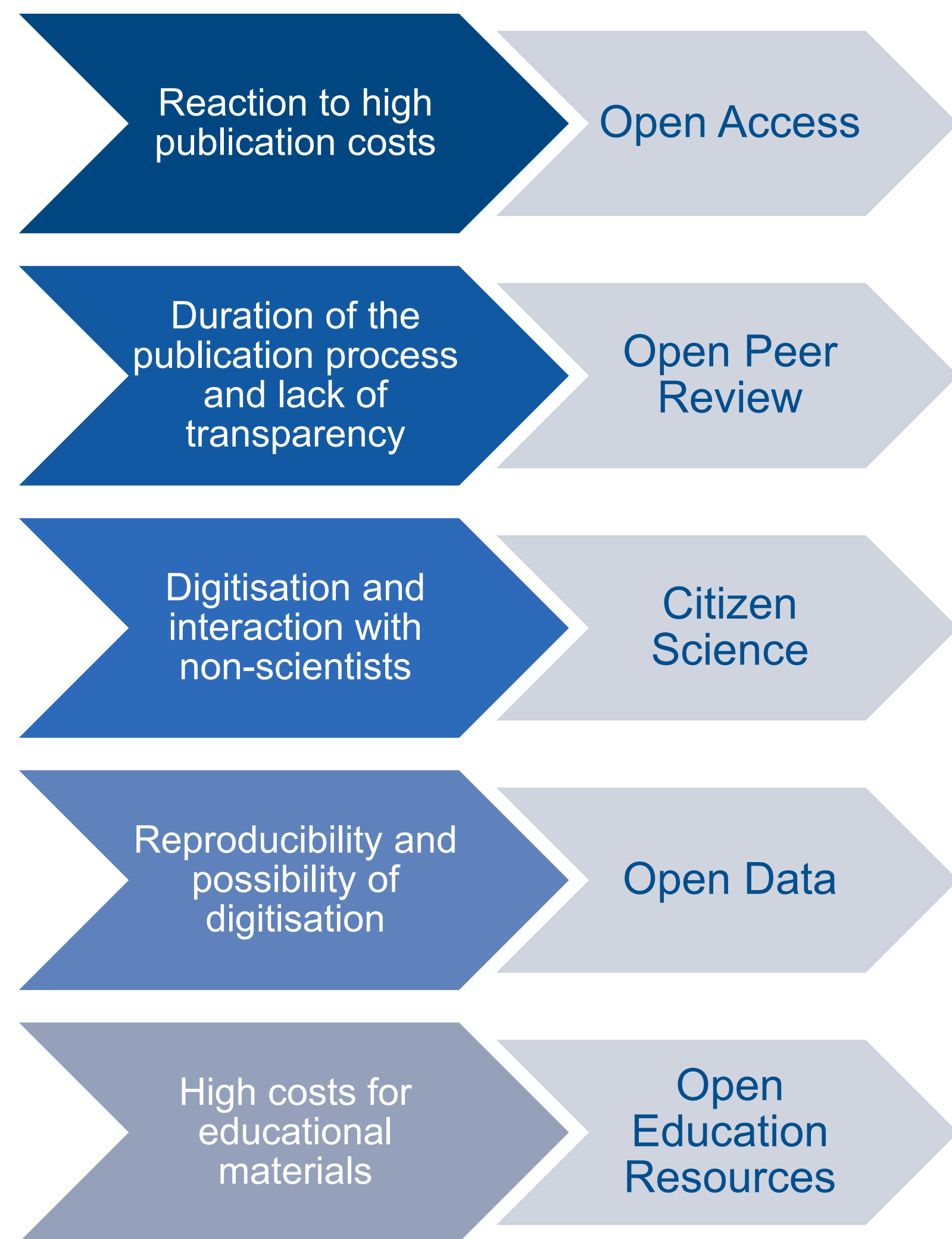
# UNESCO Recommendation on Open Science

- Adopted in November 2021
- <https://www.unesco.org/en/open-science>
- Increases scientific collaborations and sharing of information for the benefit of science and society
- Makes multilingual scientific knowledge openly available, accessible and reusable for everyone
- Opens the processes of scientific knowledge creation, evaluation and communication to societal actors beyond the traditional scientific community



UNESCO,  
<https://unesdoc.unesco.org/ark:/48223/pf000379949.locale=en>, CC BY-SA 3.0.

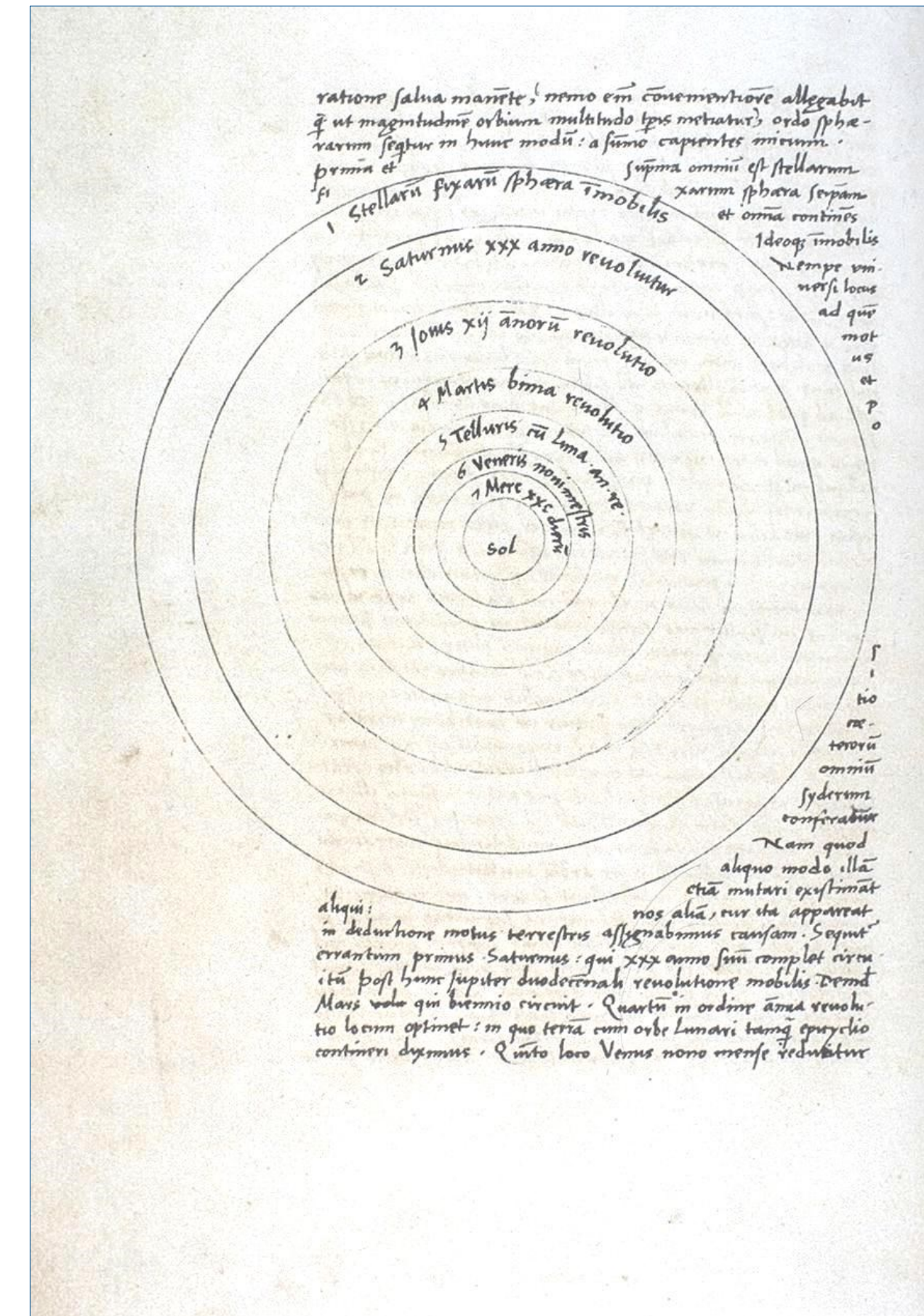
# Hypothesis: Open Science is a Reaction





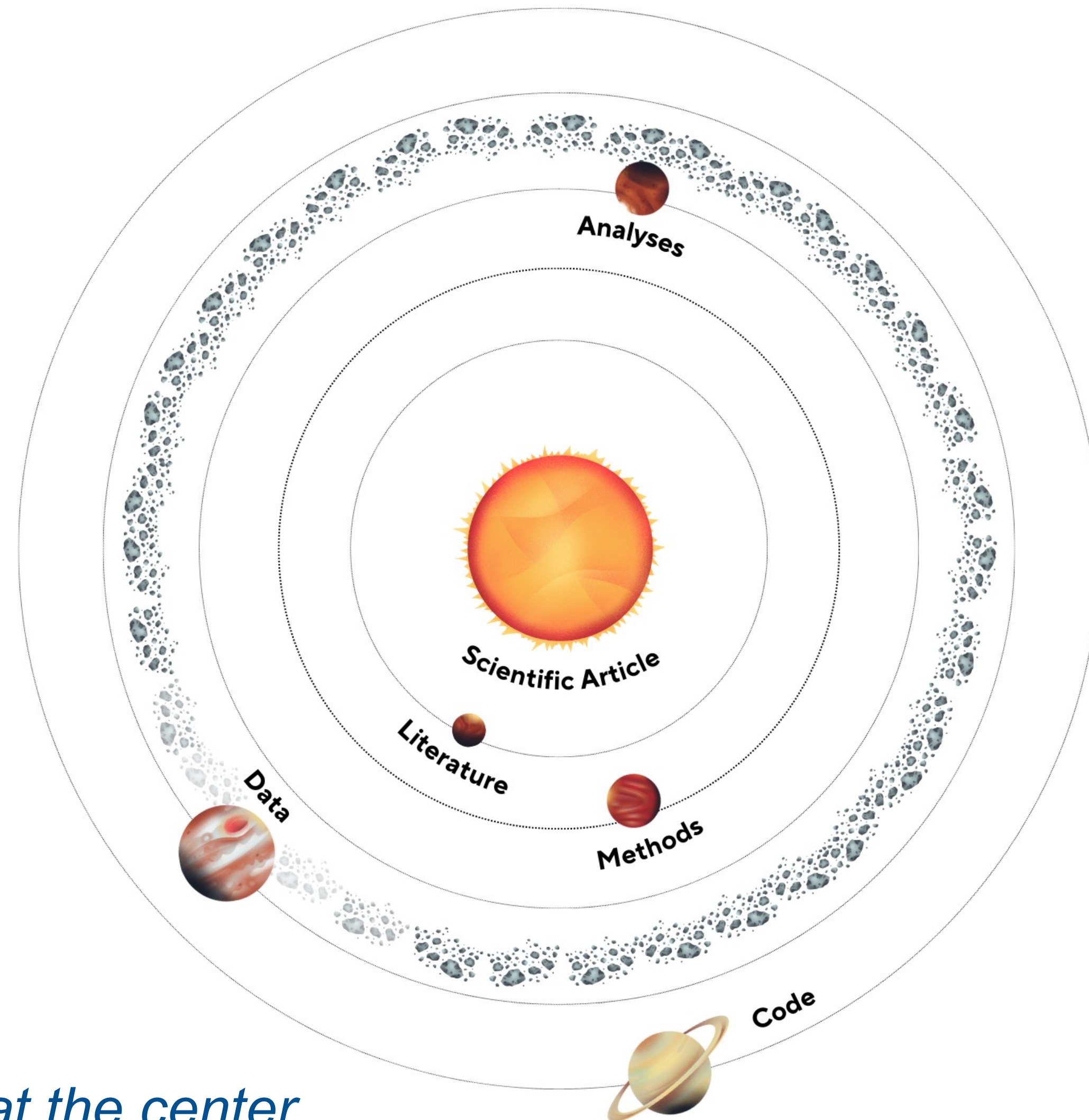
# Changing “World View”

- Similar to the Copernican revolution (shifting from the geocentric to the heliocentric world view)
- Transferred to Open Science:
  - Shift from an **article-centered view** (publication at the end of research)
  - to a **process-orientated view** (transparency and reproducibility of all steps, from the beginning with preregistration to the final publication)



Nicolaus Copernicus (1473–1543), “De revolutionibus”, fol. 9 verso, Jagiellonische Bibliothek, Krakau, public domain.

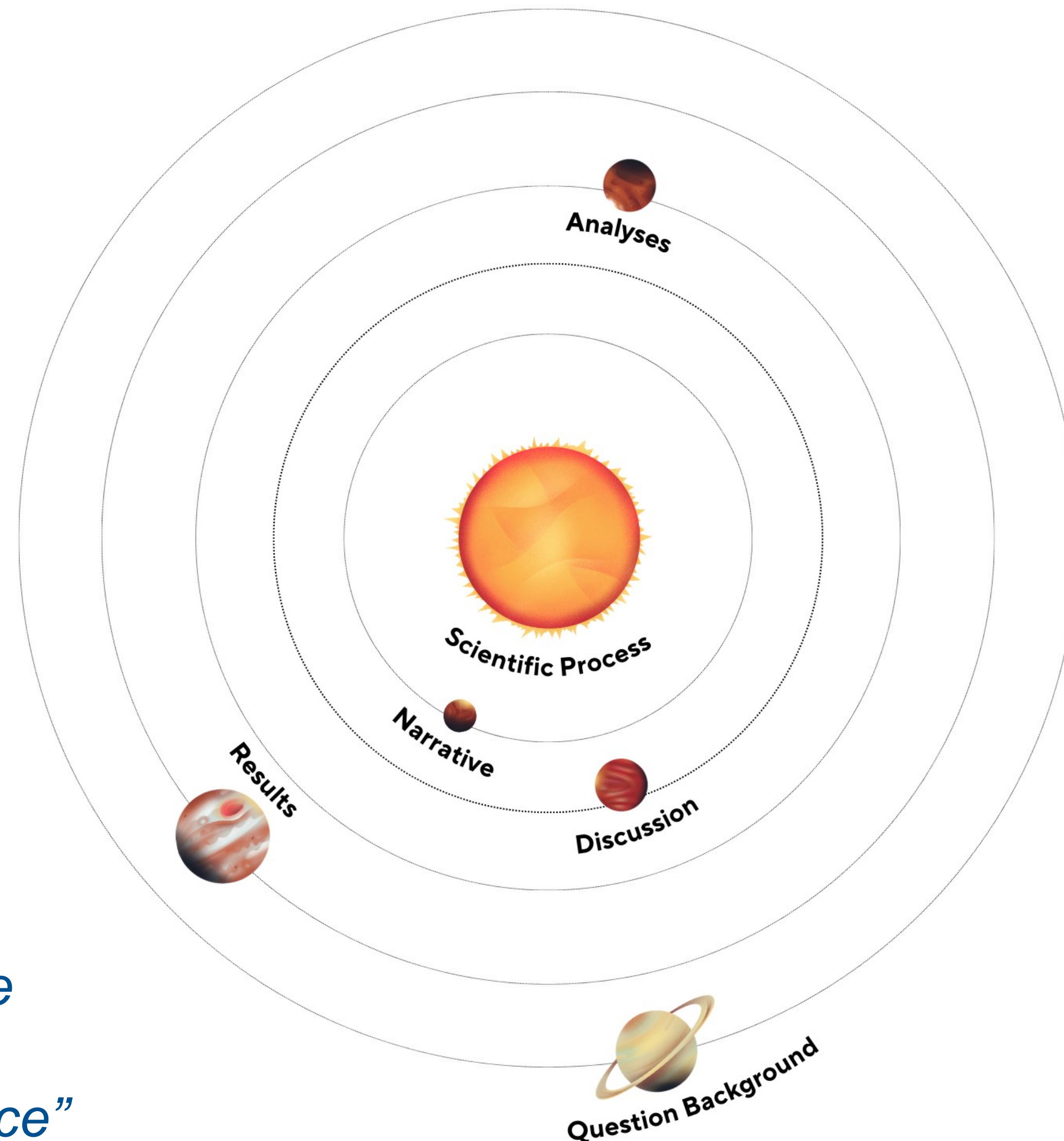
# Comparison 1: Geocentric Worldview



*Scientific Article is at the center*

Designed by Merette Abdelmalak,  
based on Gonzalez-Marquez, M.  
(2023, November 15). Transitioning  
to a Human-User-Centered Model of  
Scientific Documentation. Zenodo.  
<https://doi.org/10.5281/zenodo.10139461>, pp. 12-14, CC BY 4.0.

# Heliocentric Worldview



*Scientific process  
moved to the centre  
→ transition maybe  
called “Open Science”*

Designed by Merette Abdelmalak,  
based on Gonzalez-Marquez, M.  
(2023, November 15). Transitioning  
to a Human-User-Centered Model of  
Scientific Documentation. Zenodo.  
<https://doi.org/10.5281/zenodo.10139461>, pp. 12-14, CC BY 4.0.

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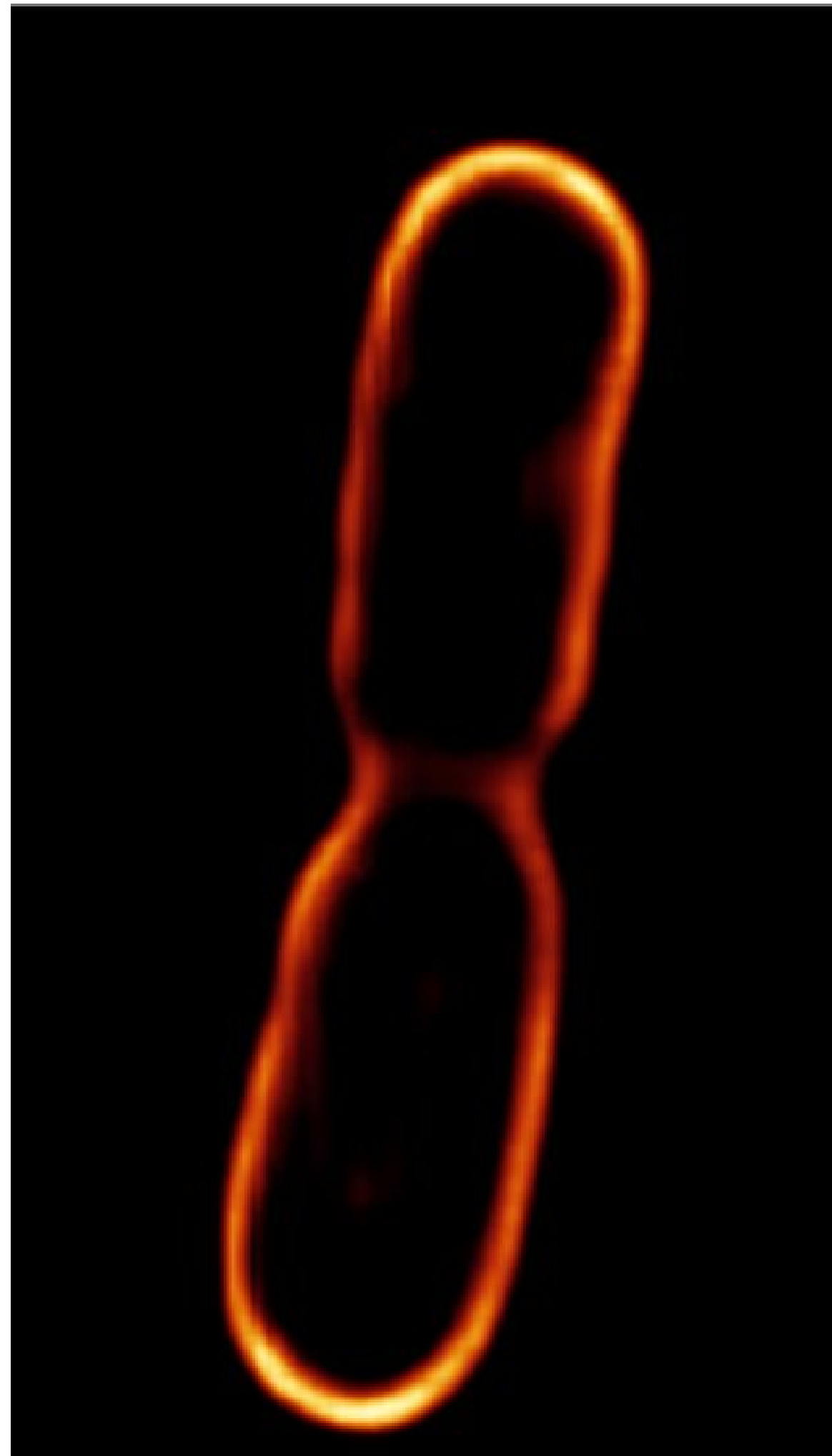
5. Struggle and Repeat



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# Short Data Quiz



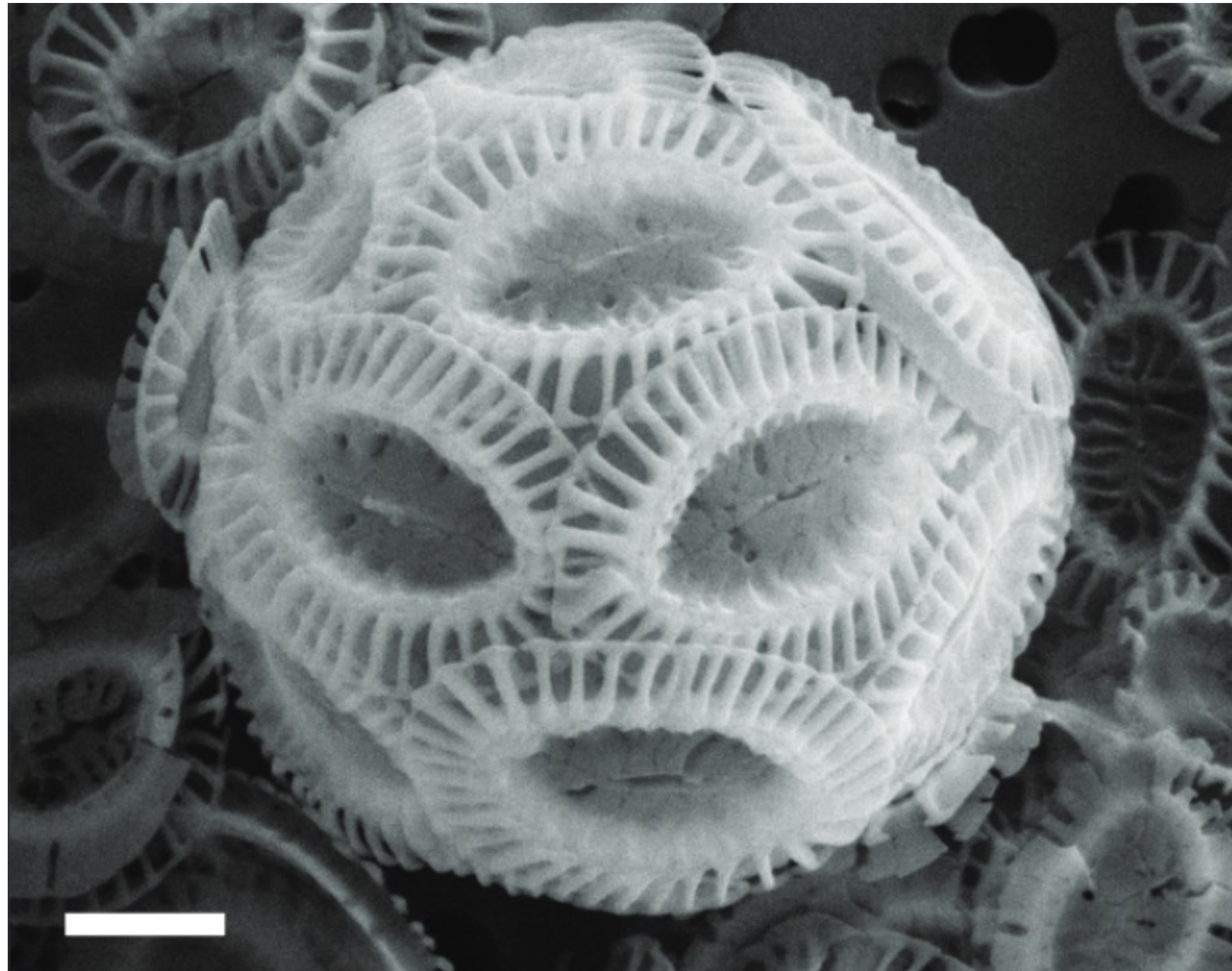
- Escherichia coli membrane
- Spahn, C., & Heilemann, M. (2021). DeepBacs – Artificial labeling of E. coli membranes dataset and fnet/CARE models [Data set]. Zenodo. <https://doi.org/10.5281/zenodo.5551123>
- From the Institute of Physical and Theoretical Chemistry, GU Department 14

# Short Data Quiz



- File “MDH-KF00016 \_DSC\_5329” from
- Döpfer et al. (2023) in “MDH\_SmallFindPhotos”, GUDe, CC BY 4.0, <https://doi.org/10.25716/gude.07ct-v20q>.
- The object is an arrowhead from Oman discovered during archaeological excavations.
- From the Institute for Archaeological Sciences, Department 09, GU

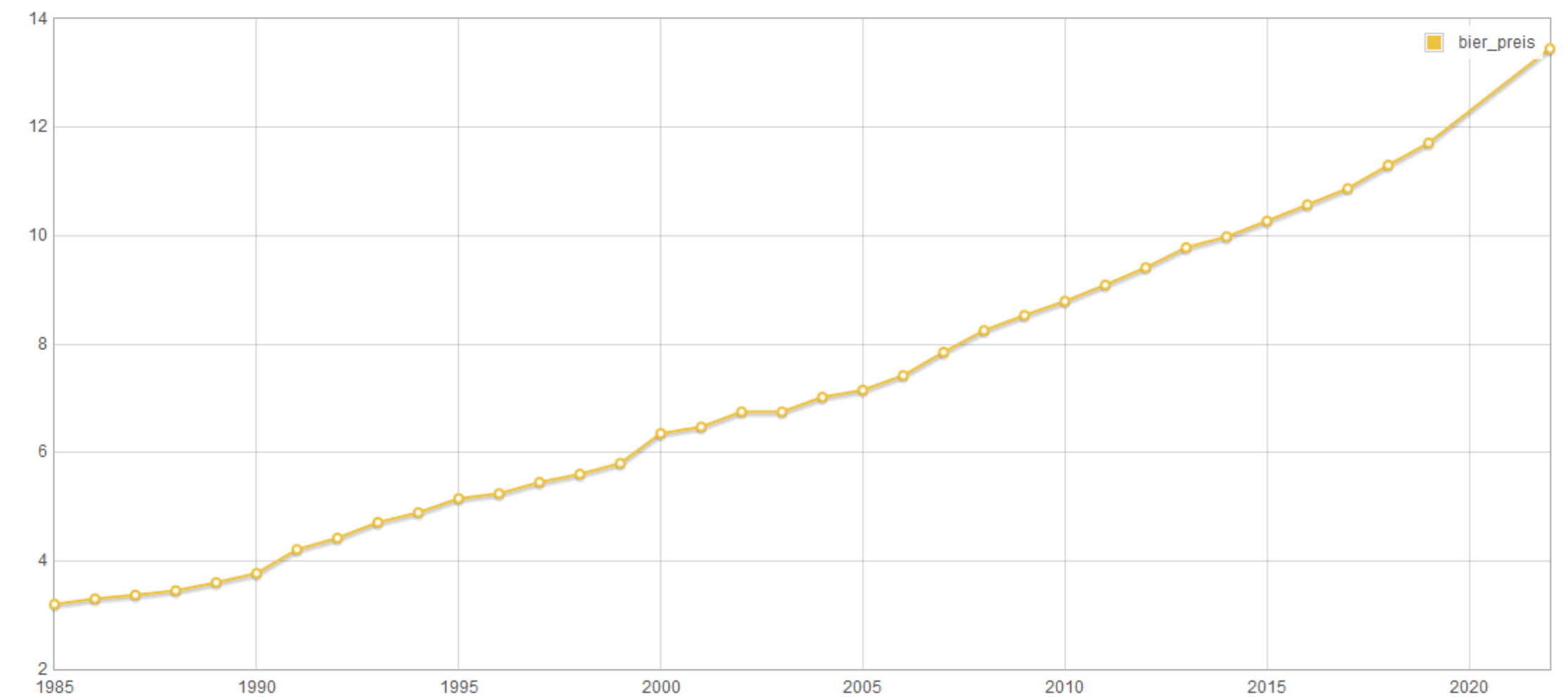
# Short Data Quiz



- Gebühr, C., Sheward, R., & Herrle, J. O. (2024). Growth and morphological measurements of the coccolithophore *Emiliana huxleyi* under three salinity conditions [Data set]. Zenodo.  
<https://doi.org/10.5281/zenodo.11186906>, CC BY 4.0.
- Image detail of an alga (coccolithophore *Emiliana huxleyi*)
- From the working group “Micropaleontology & Paleoceanography Group” in Department 11, GU

# Short Data Quiz

_id	jahr	dauer	besuch...	besuch...	bier_pr...	bier_ko...	hendl_p...	hendl_k...
1	1985	16	7.1	444	3.2	54541	4.77	629520
2	1986	16	6.7	419	3.3	53807	3.92	698137
3	1987	16	6.5	406	3.37	51842	3.98	732859
4	1988	16	5.7	356	3.45	50951	4.19	720139
5	1989	16	6.2	388	3.6	51241	4.22	775674
6	1990	16	6.7	419	3.77	54300	4.47	750947
7	1991	16	6.4	400	4.21	54686	4.81	807710
8	1992	16	5.9	369	4.42	48888	5.11	725612
9	1993	16	6.5	406	4.71	51933	5.25	733517
10	1994	16	6.6	413	4.89	52108	5.39	663135
11	1995	16	6.7	419	5.15	50162	5.54	628890
12	1996	16	6.9	431	5.24	52622	5.45	595580
13	1997	16	6.4	400	5.45	55891	5.38	699562
14	1998	16	6.5	406	5.6	54782	5.34	603746
15	1999	16	6.5	406	5.8	60054	5.38	609661
16	2000	18	6.9	383	6.35	64591	7.85	681242
17	2001	16	5.5	344	6.47	48698	8.12	351705
18	2002	16	5.9	369	6.75	57614	8.1	459259
19	2003	16	6.3	394	6.75	62294	8.14	487487
20	2004	16	5.9	369	7.02	61163	8.28	481649
21	2005	17	6.1	359	7.15	61772	8.35	479610
22	2006	18	6.5	361	7.42	68617	8.5	494135
23	2007	16	6.2	388	7.85	69406	8.87	521872



Beer prices at the Oktoberfest 1985-2022, [Datenlizenz Deutschland Namensnennung 2.0](https://datensatz.de/dataset/8d6c8251-7956-4f92-8c96-f79106aab828/resource/e0f664cf-6dd9-4743-bd2b-81a8b18bd1d2/download/oktoberfestgesamt19852022.csv),  
<https://opendata.muenchen.de/dataset/8d6c8251-7956-4f92-8c96-f79106aab828/resource/e0f664cf-6dd9-4743-bd2b-81a8b18bd1d2/download/oktoberfestgesamt19852022.csv>.



## Some Definition Attempts

- Open Data = Open Governmental Data
- Open Data ↔ Open Research Data
- Open Research Data ↔ Research Data with Restricted Access
- Open Research Data ↔ FAIR Research Data
- Open Research Data ↔ Linked Open Data



# Open (Governmental) Data

EU Directive: *“Open data as a concept is generally understood to denote data in an open format that can be freely used, re-used and shared by anyone for any purpose.”*

Directive (EU) 2019/1024 of the European Parliament and of the Council of 20 June 2019 on open data and the re-use of public sector information, <http://data.europa.eu/eli/dir/2019/1024/oj>.

Examples for Open Governmental Data:

- [Open Data Portal Offene Daten Frankfurt](#)
- [Kompetenzzentrum für Open Data des Bundes](#)
- [Portal for European data](#)
- ...



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# Reasons for Open Research Data

- Intrinsic motivation
- Best practices within the research community
- Instructions from supervisors
- Requirements from publishers, funders, and stakeholders
- Open Research Data policies
- ...



# Horizon Europe

“The beneficiaries must manage the digital research data generated in the action ('data') responsibly, in line with the FAIR principles and by taking all of the following actions:

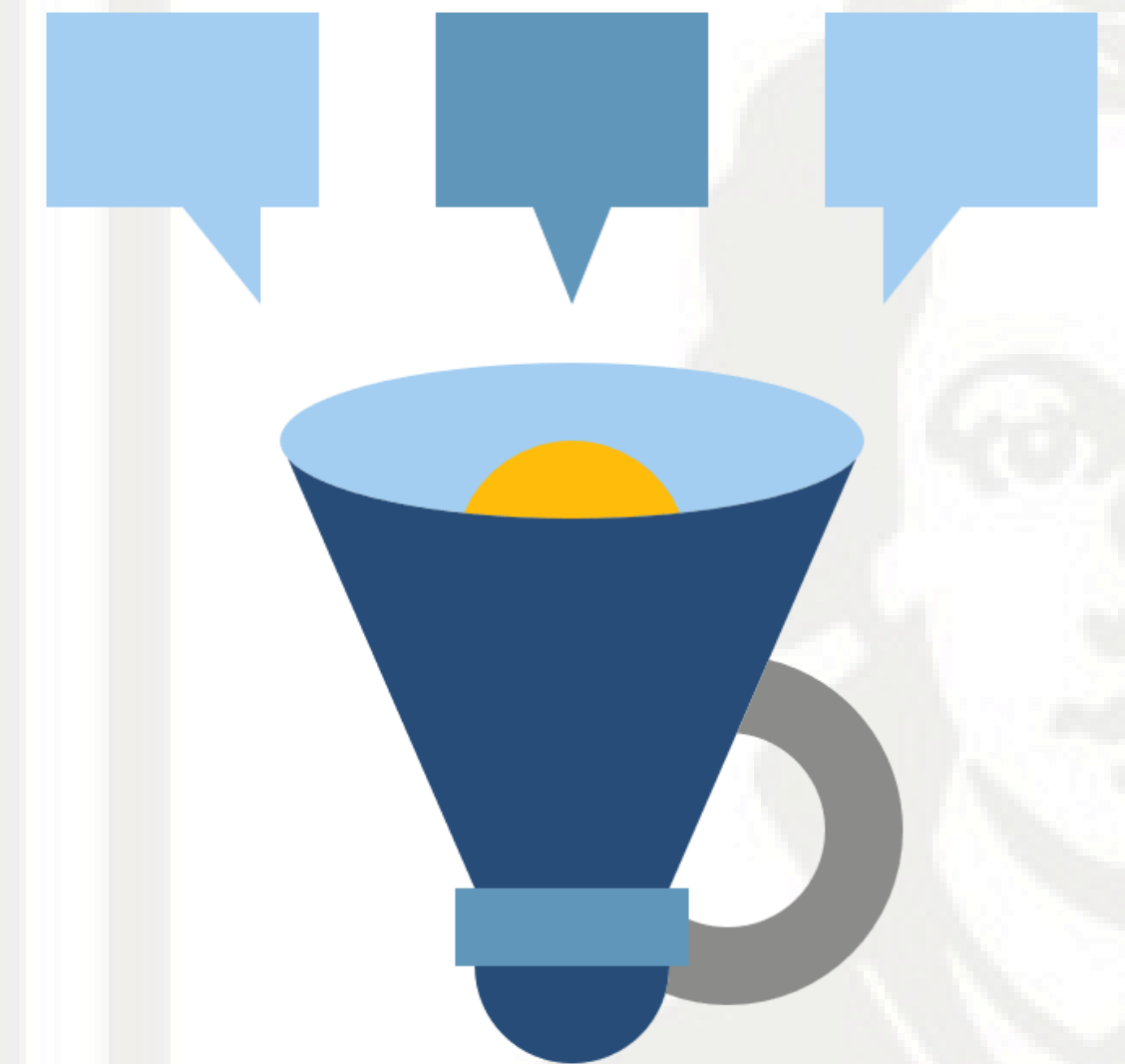
- establish a data management plan ('DMP') (and regularly update it)
- as soon as possible and within the deadlines set out in the DMP, **deposit** the **data** in a trusted repository [...].
- as **soon as possible** and within the deadlines set out in the DMP, **ensure open access** – via the repository – to the deposited data [plus CC0, CC BY or equivalent].“

Horizon Europe and Euratom: General Model Grant Agreement, Version 1.1, 15<sup>th</sup> April 2022, p. 109, [https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/common/agr-contr/general-mga\\_horizon-euratom\\_en.pdf](https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/common/agr-contr/general-mga_horizon-euratom_en.pdf).



# Volkswagen Foundation

- [Open Science Policy](#) since 2021
  - “The Volkswagen Foundation encourages researchers to store the data generated within funded projects in public, non-commercial repositories [..]” (p. 4)
  - “In the application process, data generating and data using projects working in disciplines lacking a clear data workflow are asked to upload a digital concept with a data management plan”. (pp. 4-5)
  - “In the application process, the applicants are asked to mark separately the already generated Open Data in the CV for the review and decision process.” (p. 5)
- (New) funding opportunity: “[Data Reuse – Additional Funding for the Preparation and Storage of Research Data \(Open Science\)](#)”



# Deutsche Forschungsgemeinschaft (DFG)

*“Making research data available, developing methods and standards and building data infrastructures are important contributions to the re-use of research findings as well as integrated part of the good research practice and **should be listed** as part of a researcher’s preliminary work or academic profile.”*

DFG Handling of Research Data, [www.dfg.de/proposal\\_process/research\\_data](http://www.dfg.de/proposal_process/research_data).

*“Aspects relevant to ensuring that open science is advantageous to research and scholarship include **open access to and legally protected re-use** of publications and research data, and also if possible and reasonable research and infrastructure software (open code).”*

DFG (2022): Open Science as Part of Research Culture. Positioning of the German Research Foundation, <https://doi.org/10.5281/zenodo.7194537>, p. 5.



## „Open Research Data

*All Centers will establish detailed procedures for managing research data in publicly available policies, and will regularly examine and if necessary adapt these procedures.*

*In 2023, a basic indicator for the presentation of citable research data publications will be established as an incentive within the framework of the PoF [“program-oriented funding”].*

*By 2024, a Helmholtz quality indicator for research data publications will be developed and established, which will be deployed within the framework of the PoF and will replace the aforementioned basic indicator.“*

HELMHOLTZ

Open Science

Helmholtz Open Science  
Policy

Version 1.0

Helmholtz-Gemeinschaft (2022): Helmholtz Open Science Policy. Version 1.0, CC BY 4.0, <https://doi.org/10.48440/os.helmholtz.056>.



## Guidelines on the Handling of Research Data within the Leibniz Association

*“[T]here has been only a slow increase in open access options for research data in recent years. The reasons often given are a lack of (research) policy requirements, the pressure of competition in academia and a lack of incentive systems”. (p. 4.)*

*“The Leibniz institutions support the reusability of research data, provided there are no legal or ethical constraints, in line with the principle ‘as open as possible, as closed as necessary’ ”. (p. 4)*

### Guidelines on the Handling of Research Data within the Leibniz Association

Adopted by the General Assembly of the Leibniz Association on 29 November 2018.



#### I. Preamble

Research data forms the basis of scientific work. The increasing digitalisation of scientific processes calls for new approaches in the area of research data handling. Simply publishing the conclusions resulting from the analysis of collected research data is no longer sufficient. Instead, access to research data is becoming an increasingly important resource for researchers making use of the new opportunities offered by digital tools. Ensuring data access and interpretability creates a range of challenges on a number of different levels (for research funding bodies, research institutions and researchers and research support staff) and often requires a specific approach for each discipline. As a network of German research institutions in a range of different disciplines, the Leibniz Association emphasises the importance of a responsible and transparent approach to handling research data as part of a sustainable and quality-oriented research process. The proposals and measures set out below aim to promote the development of structures and processes within the Leibniz Association that meet this requirement.

#### II. Research data

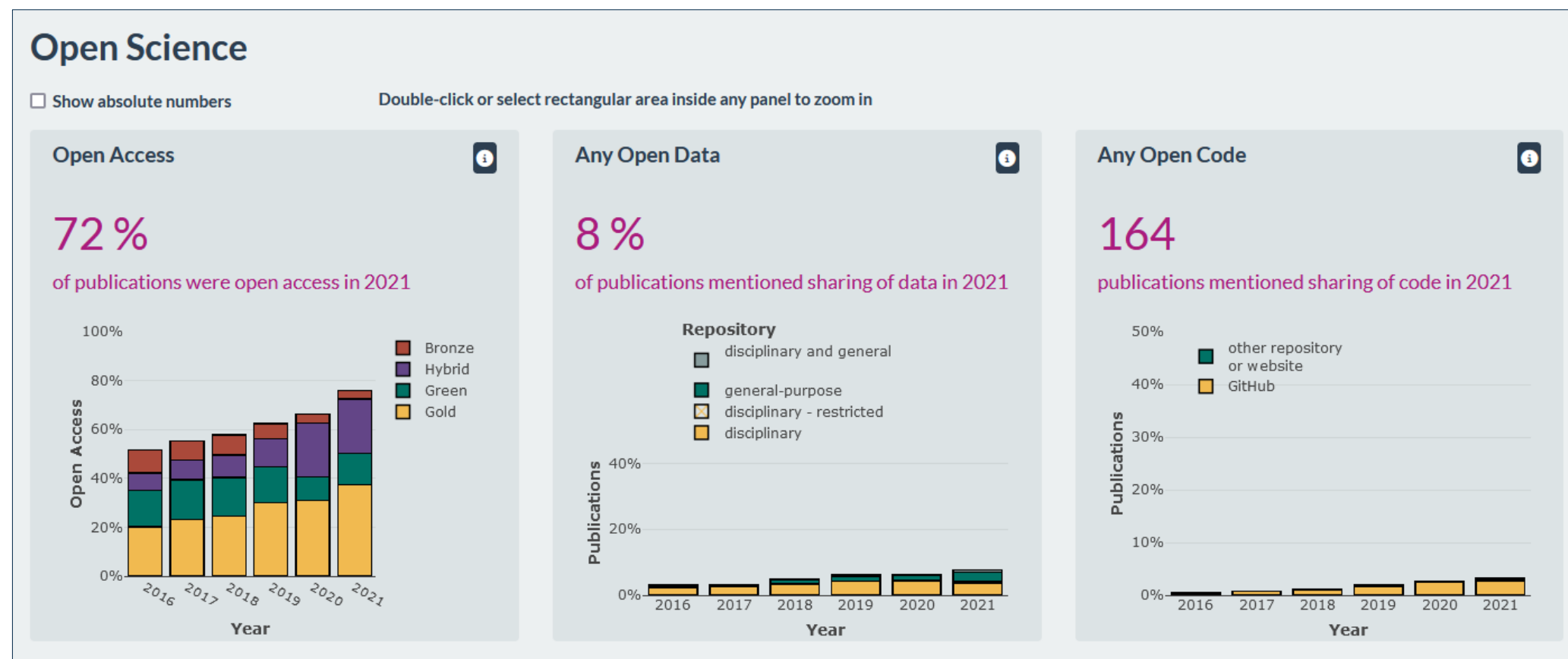
Research data includes all data that is produced during research and that can be processed digitally. It takes a range of forms – depending in particular on the domain in question. It may include, for instance, measurement, (ongoing) survey and observational data, process-produced data, texts, data from polls, graphic visuals, software and simulations. Among other things, this research data includes raw data, aggregated data, metadata and descriptions of data structures.

Research data management is an active task and supports the activities linked to scientific discovery: the planning, generation, documentation, processing, archiving and, where relevant, publishing, of the data. Research data management is part of good scientific practice and ensures the quality, reproducibility, availability and reuse of research data and results. This kind of systematic management of research data is therefore a basis for scientific discourse and for maximising the data's reuse potential.

Leibniz Association, 2018, [https://www.leibniz-gemeinschaft.de/fileadmin/user\\_upload/Bilder\\_und\\_Downloads/Forschung/Open\\_Science/Leitlinie\\_Forschungsdaten\\_2018\\_EN.pdf](https://www.leibniz-gemeinschaft.de/fileadmin/user_upload/Bilder_und_Downloads/Forschung/Open_Science/Leitlinie_Forschungsdaten_2018_EN.pdf)

# Open Research Data Dashboards

Charité Dashboard on Responsible Research (<https://quest-dashboard.charite.de>)



French Open Science Monitor (<https://frenchopensciencemonitor.esr.gov.fr>)



OPEN LICENCE 2.0/LICENCE OUVERTE 2.0, <https://github.com/etalab/licence-ouverte/blob/master/open-licence.md>.

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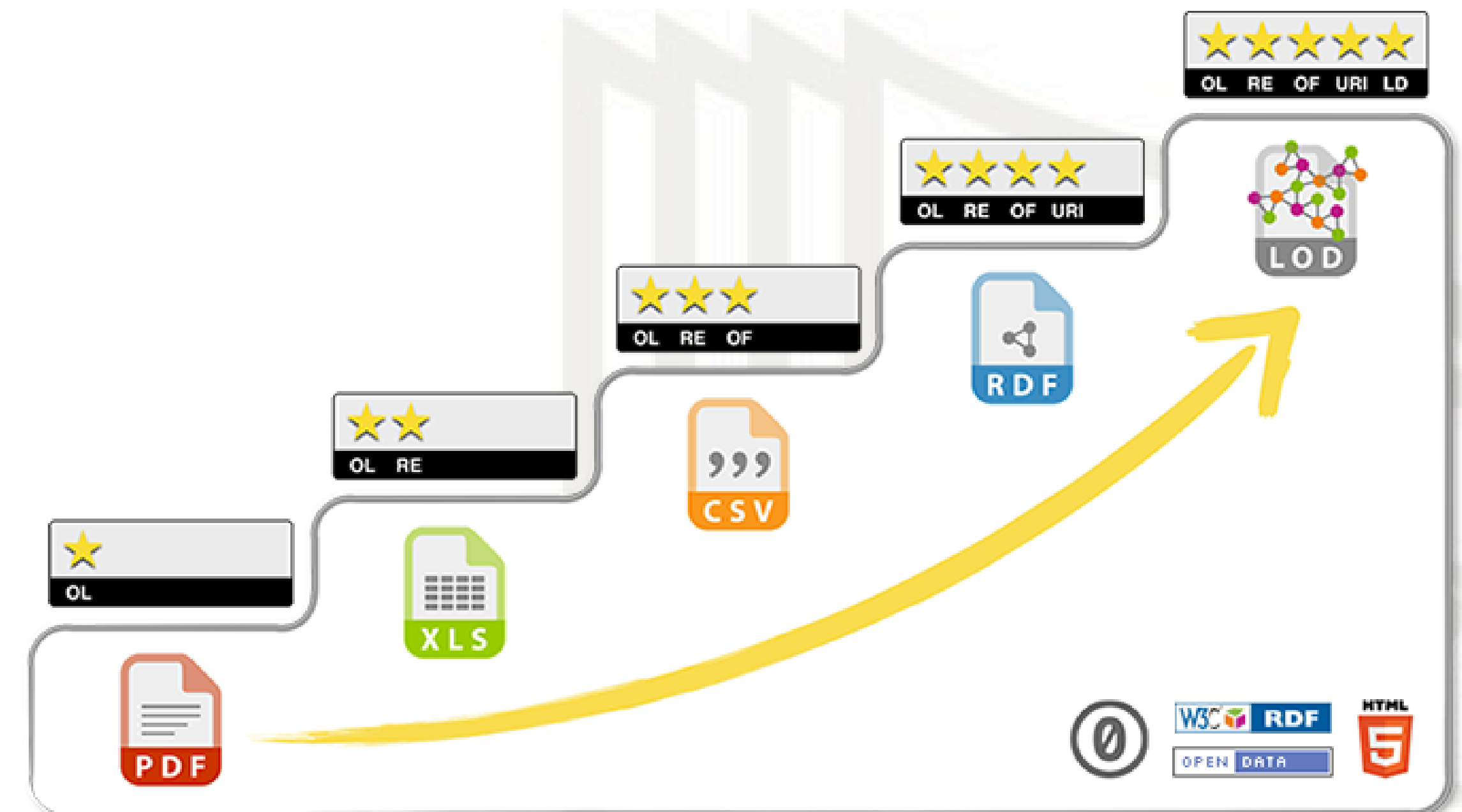
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# 5 ★ Model for Open Data by Tim Berners-Lee

- ★ Data online
- ★★ Data online available as structured data
- ★★★ Data online available in a non-proprietary open format
- ★★★★ Use identifiers to denote things, so that people can point at your data
- ★★★★★ Link your data to other data to provide context

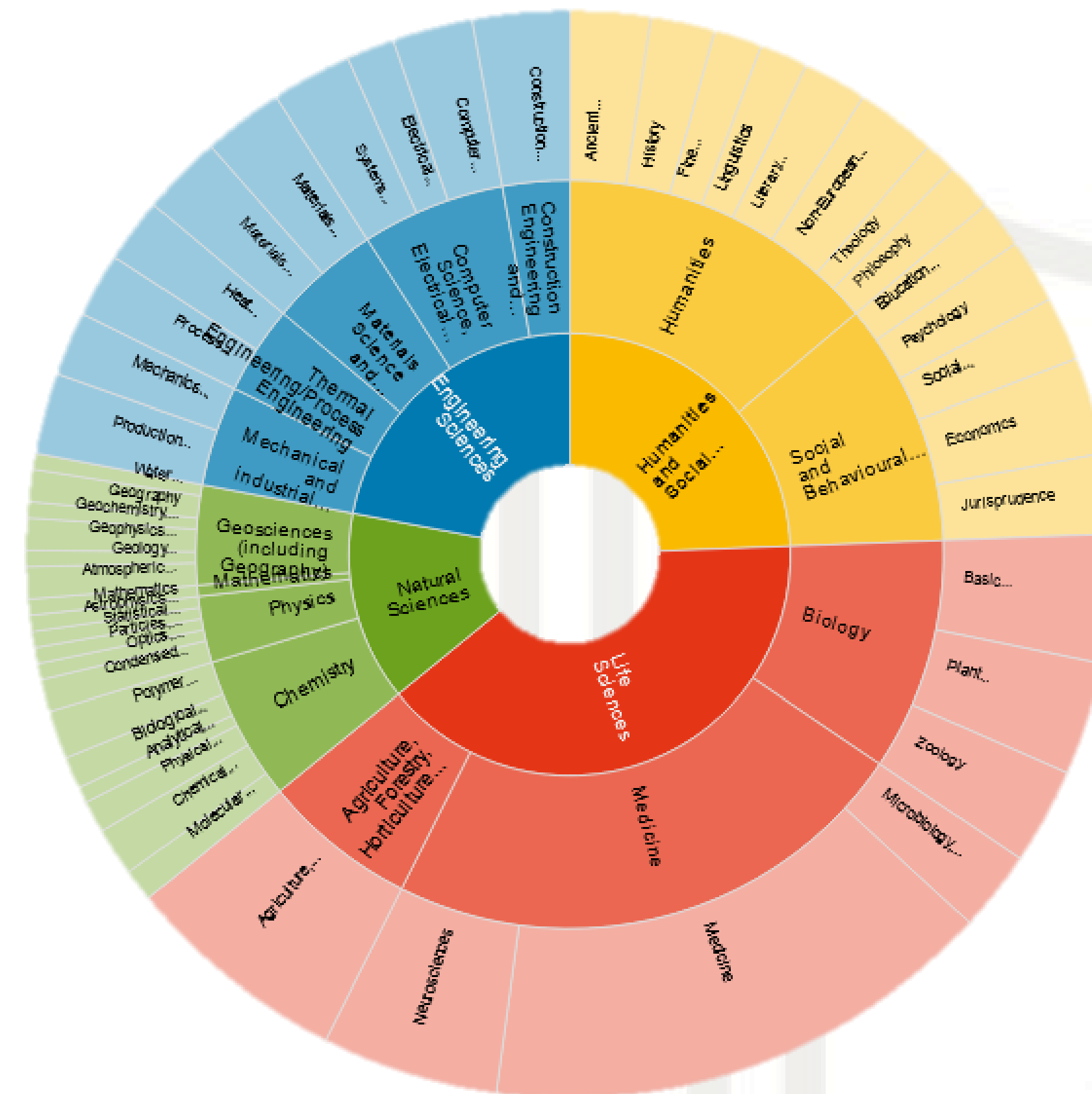
<https://5stardata.info>



<https://5stardata.info/en/>, CC0.

# Find a (Open) Research Repository

- Registry of Research Data Repositories (= re3data)
- <https://www.re3data.org>
- best starting point for finding a suitable place for data publication



re3data: Search by Subject, CC BY 4.0, <https://www.re3data.org>.

# Recommendation for Data Repositories

## 1. Community Specific

- i.e. [Pangea for Earth & Environmental data](#)

## 2. Institutional

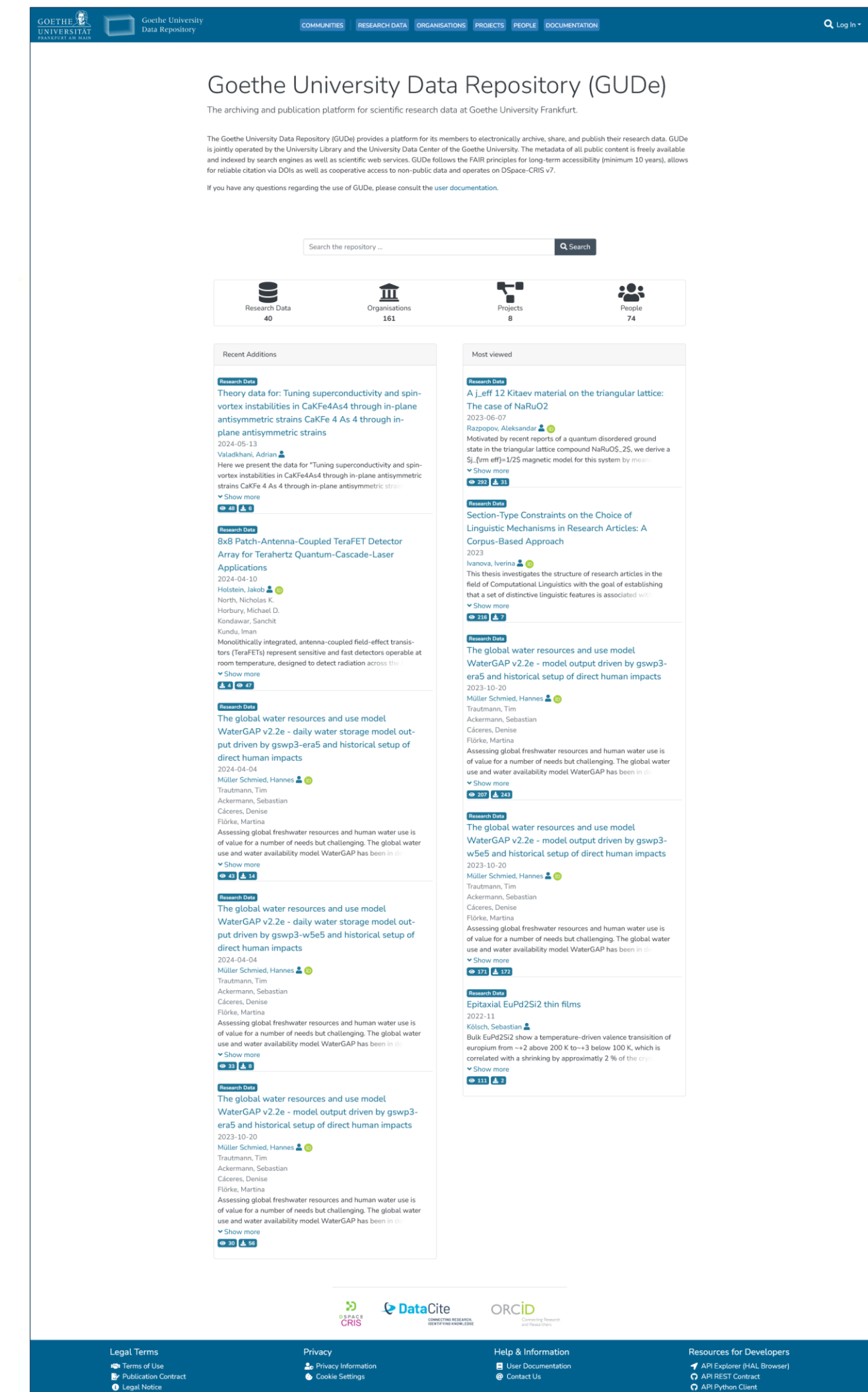
- i.e. [GUDe](#)

## 3. Generic

- i.e. [Zenodo](#)



- Goethe University Data Repository
- Hosted at the GU
- <https://gude.uni-frankfurt.de>
- A service to:
  - Publish research data (open)
  - Meet the FAIR Data Principles
  - Keep research data for at least ten years
  - Share your research data with enriched metadata and PIDs
  - ...



The screenshot shows the homepage of the Goethe University Data Repository (GUDe). The header includes the university logo and navigation links for 'COMMITTEES', 'RESEARCH DATA', 'ORGANISATIONS', 'PROJECTS', 'PEOPLE', and 'DOCUMENTATION'. The main content area features a search bar and a navigation menu with icons for 'Research Data' (40), 'Organisations' (161), 'Projects' (8), and 'People' (74). Below this, there are two columns of 'Recent Additions' and 'Most viewed' items, each with a title, date, authors, and a 'Show more' link. The footer contains legal terms, privacy information, help & information, and resources for developers.

# Data Journals

## Examples:

### Psychology

- [Journal of Open Psychology Data](#)

### Humanities

- [Journal of Open Humanities Data](#)
- Research Data Journal for the Humanities and Social Sciences

### Life Sciences

- [Gigascience](#)
- [Biodiversity Data Journal](#)
- [Open Health Data](#)

### Software

- [Journal of Open Research Software](#)

For more see [https://www.forschungsdaten.org/index.php/Data\\_Journals](https://www.forschungsdaten.org/index.php/Data_Journals)

Attig et al. *Journal of Open Psychology Data* DOI: 10.5334/jopd.81 4

WAVE	INTERVIEW-MODE	DIRECT ASSESSMENTS OF CHILD AND HOME LEARNING ENVIRONMENT (HLE)	YEAR	CHILD (TARGET) AGE	PARTICIPATING FAMILIES	CHILDCARE			SUF RELEASE
						EDUCATOR	INSTITUTION MANAGER	CHILDMINDER	
1	CAPI	Standardized and semi-standardized observational measures (incl. HLE)	Aug-2012–Mar 2013	7 months	3,481				2015
2	CATI, PAPI		Apr-Oct 2013	14 months	2,862	171		73	2015
	CAPI (half sample)	Standardized and semi-standardized observational measures (incl. HLE)	July-Dec 2013	17 months	1,510				2015
3	CAPI, PAPI	Semi-standardized observational measures (incl. HLE)	Apr-Nov 2014	25 months	2,609	449		110	2016
4	CAPI, PAPI	Tabled-based competence tests	Apr-Nov 2015	3 years	2,478	625	571		2017
5	CAPI, PAPI	Tabled-based competence tests	Apr-Sep 2016	4 years	2,381	628	521		2018
6	CAPI, PAPI	Tabled based competence tests	Mar-Aug 2017	5 years	2,209	683	543		2019
7	CAPI, PAPI	Tabled-based competence tests	Apr-Sep 2018	6 years	2,116	546	444		2020
8	CAPI, PAPI	Tabled-based competence tests	Mar-Aug 2019	7 years (mainly grade 1)	2,070				2021
9	CATI Remote <sup>1</sup> / CAPI by phone <sup>2,3</sup>	Online Tests	June <sup>1</sup> -Sep 2020	8 years (mainly grade 2)	1,848				2022

**Table 1** Overview of all waves, used modes, target age of the child, participating families and childcare institution.

Notes: CAPI = Computer-assisted personal interview; CATI = Computer-assisted telephone interview; PAPI = Paper-and-pencil-Questionnaire; SUF = Scientific use file; HLE = Home learning environment; Each year, beginning with wave 3, there was also a small CATI –field for all families who did not take part in the CAPI. <sup>1</sup>Due to the Covid-19 pandemic, in wave 9 nearly all interviews with the parents were administered via telephone from the regular CAPI-interviewers from their homes. <sup>2</sup>The competence tests for the children were administered online with support of an interviewer by telephone. <sup>3</sup>The field of the original CAPI started in March 2020 before it stopped due to the pandemic. The field was re-opened in June 2020 with telephone interviews and the online testing.

Hence, across the waves, for 1,563 children of the SC1 information from early child care personnel are available (at least one questionnaire available from childminders, educators, or head of institution).

**2.2 TIME OF DATA COLLECTION**  
The first assessment wave started in August 2012, the so far latest assessment included in this paper took place in 2020 (assessments in the SC1 are still continued). Table 1 gives an overview of the duration of the field for each wave.  
For further information see study overview <https://www.neps-data.de/Data-Center/Data-and-Documentation/Start-Cohort-Newborns/Documentation>.

**2.3 LOCATION OF DATA COLLECTION**  
Data was collected at various sample points in Germany (see also 2.4.). In most waves, data collection took place in the households of the families.

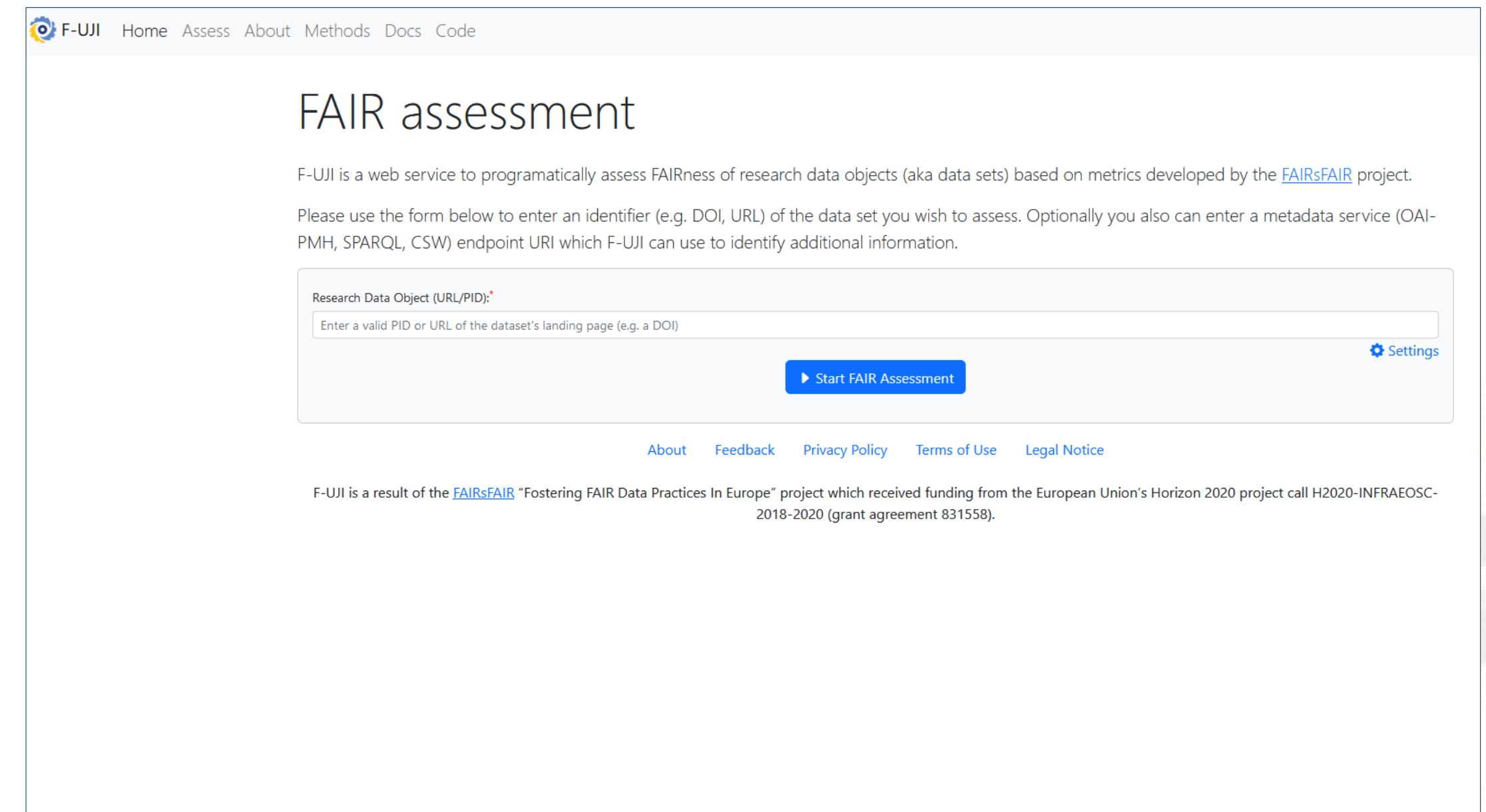
**2.4 SAMPLING, SAMPLE, AND DATA COLLECTION**  
The targets of SC1 are the children. As already mentioned, the first wave was intended to take place when the infants were 6 to 8 months of age. As context persons, one parent (respondent, in most cases the mother) as well as child care personnel were interviewed.  
The sample was drawn via a register-based sample of addresses available at the level of municipalities. A two-stage disproportional stratified sampling strategy was used to allow for a representative sample of the newborn population in Germany. Overall, 84 German municipalities were considered as primary sampling units (Würbach et al., 2016). As a secondary step, addresses out of these municipalities were drawn. Overall, 8,483 addresses from 90 sampling points in 84 municipalities were used. A detailed description of the sampling strategy can be found in Würbach et al. (2016). Due to the fast developmental progress of infants

Attig, M., Vogelbacher, M. and Weinert, S., 2023. Education from the crib on: The potential of the Newborn Cohort of the German National Educational Panel Study. *Journal of Open Psychology Data*, 11(1), p.13.DOI: <https://doi.org/10.5334/jopd.81>, p. 4. CC BY 4.0.



# FAIR Data Principles

- [FAIR Data Principles](#) are a quasi standard for the science community
- It makes sense to apply these principles to your own data publication
- <https://www.f-uji.net/?action=test>
- F-uji: A web service to programatically assess FAIRness of published research data sets



The screenshot shows the F-UJI web service interface. At the top, there is a navigation bar with links for Home, Assess, About, Methods, Docs, and Code. The main heading is "FAIR assessment". Below this, a brief description states: "F-UJI is a web service to programatically assess FAIRness of research data objects (aka data sets) based on metrics developed by the FAIRsFAIR project." A paragraph follows: "Please use the form below to enter an identifier (e.g. DOI, URL) of the data set you wish to assess. Optionally you also can enter a metadata service (OAI-PMH, SPARQL, CSW) endpoint URI which F-UJI can use to identify additional information." The form itself has a label "Research Data Object (URL/PID):" and a text input field with a placeholder "Enter a valid PID or URL of the dataset's landing page (e.g. a DOI)". To the right of the input field is a "Settings" link. Below the input field is a blue button labeled "Start FAIR Assessment". At the bottom of the form area, there are links for "About", "Feedback", "Privacy Policy", "Terms of Use", and "Legal Notice". A footer note reads: "F-UJI is a result of the FAIRsFAIR 'Fostering FAIR Data Practices In Europe' project which received funding from the European Union's Horizon 2020 project call H2020-INFRAEOSC-2018-2020 (grant agreement 831558)."

Anusuriya Devaraju, & Robert Huber. (2020). F-UJI - An Automated FAIR Data Assessment Tool, MIT license, <https://doi.org/10.5281/zenodo.4063720>.

# FAIR Data Principles

## Findable

- F1. (Meta)data are assigned a globally unique and persistent identifier
- F2. Data are described with rich metadata (defined by R1 below)
- F3. Metadata clearly and explicitly include the identifier of the data they describe
- F4. (Meta)data are registered or indexed in a searchable resource

## Interoperable

- I1. (Meta)data use a formal, accessible, shared, and broadly applicable language for knowledge representation.
- I2. (Meta)data use vocabularies that follow FAIR principles
- I3. (Meta)data include qualified references to other (meta)data

## Accessible

- A1. (Meta)data are retrievable by their identifier using a standardised communications protocol
  - A1.1 The protocol is open, free, and universally implementable
  - A1.2 The protocol allows for an authentication and authorisation procedure, where necessary
- A2. Metadata are accessible, even when the data are no longer available

## Reusable

- R1. (Meta)data are richly described with a plurality of accurate and relevant attributes
  - R1.1. (Meta)data are released with a clear and accessible data usage license
  - R1.2. (Meta)data are associated with detailed provenance
  - R1.3. (Meta)data meet domain-relevant community standards

<https://force11.org/info/the-fair-data-principles/>

# What to do for Open Research Data?

1. Check whether you like, can and/or must publish your research data openly
2. Structure your data in a human- and machine-readable manner
3. Make your data available via e.g. a data repository
4. Use non-proprietary open formats, if possible
5. Use identifiers
6. Provide sufficient metadata
7. Write a documentation or readme
8. Add a (open) license



# Steps to Open Research Data

## Four steps by the European Commission:

1. Prepare your data for sharing
2. Select a repository
3. Add a Data Availability Statement to your article
4. Link your datasets to your article

[https://think.f1000research.com/open-research-europe-submission/opendataguide/?utm\\_source=CPB&utm\\_medium=cms&utm\\_campaign=JQC19229](https://think.f1000research.com/open-research-europe-submission/opendataguide/?utm_source=CPB&utm_medium=cms&utm_campaign=JQC19229)



1. Changing “Views” with  
Open Science

2. Looking Closer at Research Data

3. Why Sharing Data Open?

4. Start Sharing Data Open

5. **Struggle and Repeat**

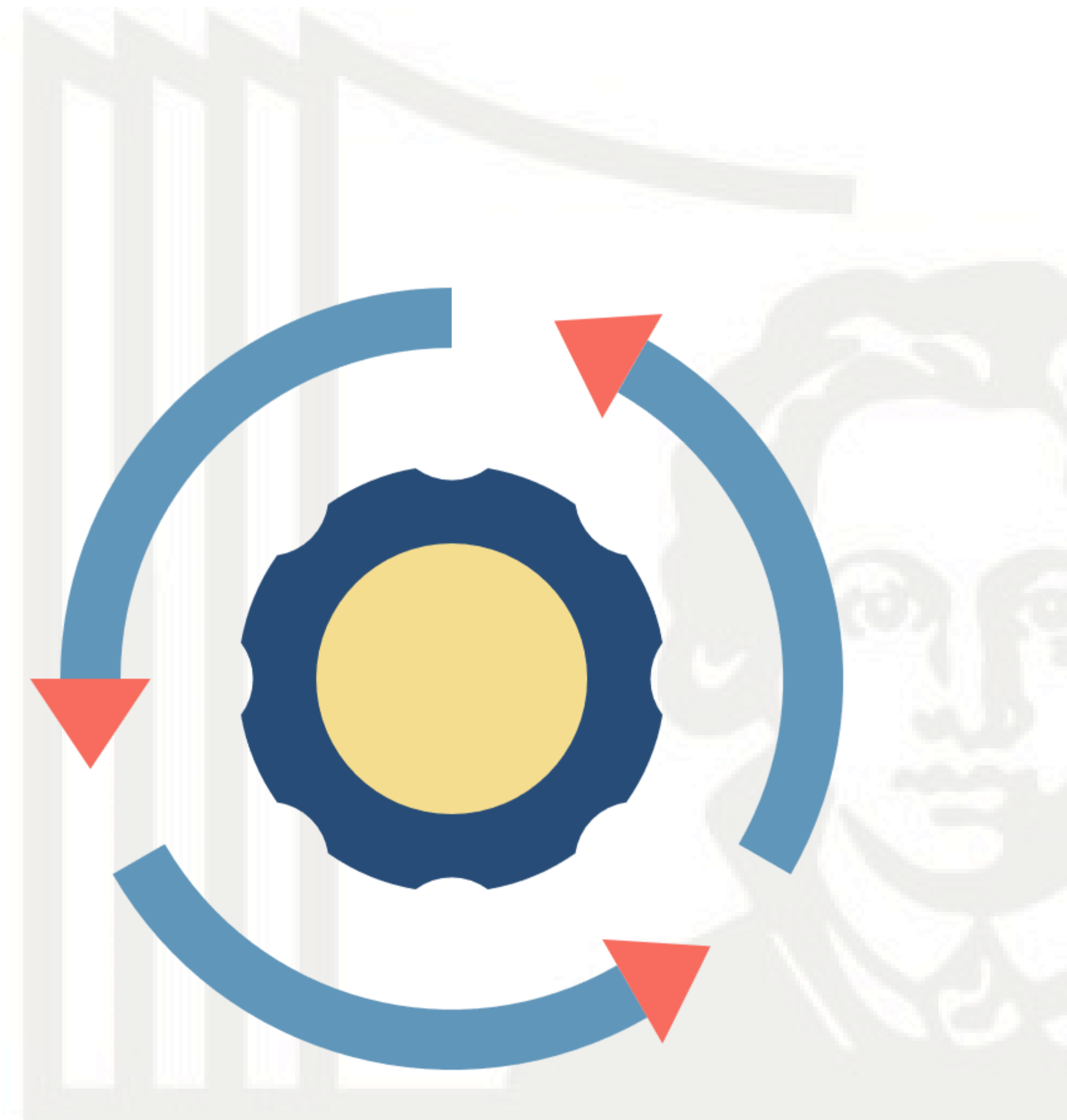


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# Reproducibility

- Open research data are desirable because:
  - science is often dependent on the reproducibility of results
  - Own research results are more visible (advantage in competition for attention)
  - the genre of data publication is likely to receive more recognition in the future (a thesis)
- ...



# Higher Visibility of Research

- Visibility of own research
- Visibility of own research data
- Better chances with applications e.g. DFG
- Visibility that creating and editing research data is time-consuming → recognition!
- Visibility of the research process through Open Science
- ...



# Re-Use of Research Data

- Re-use of research data
- Re-use for the future self
- Re-use by community → recognition!
- Better on- and offboarding in working groups etc.
- Legal certainty in the case of onboarding or subsequent use in the event of a change of institution

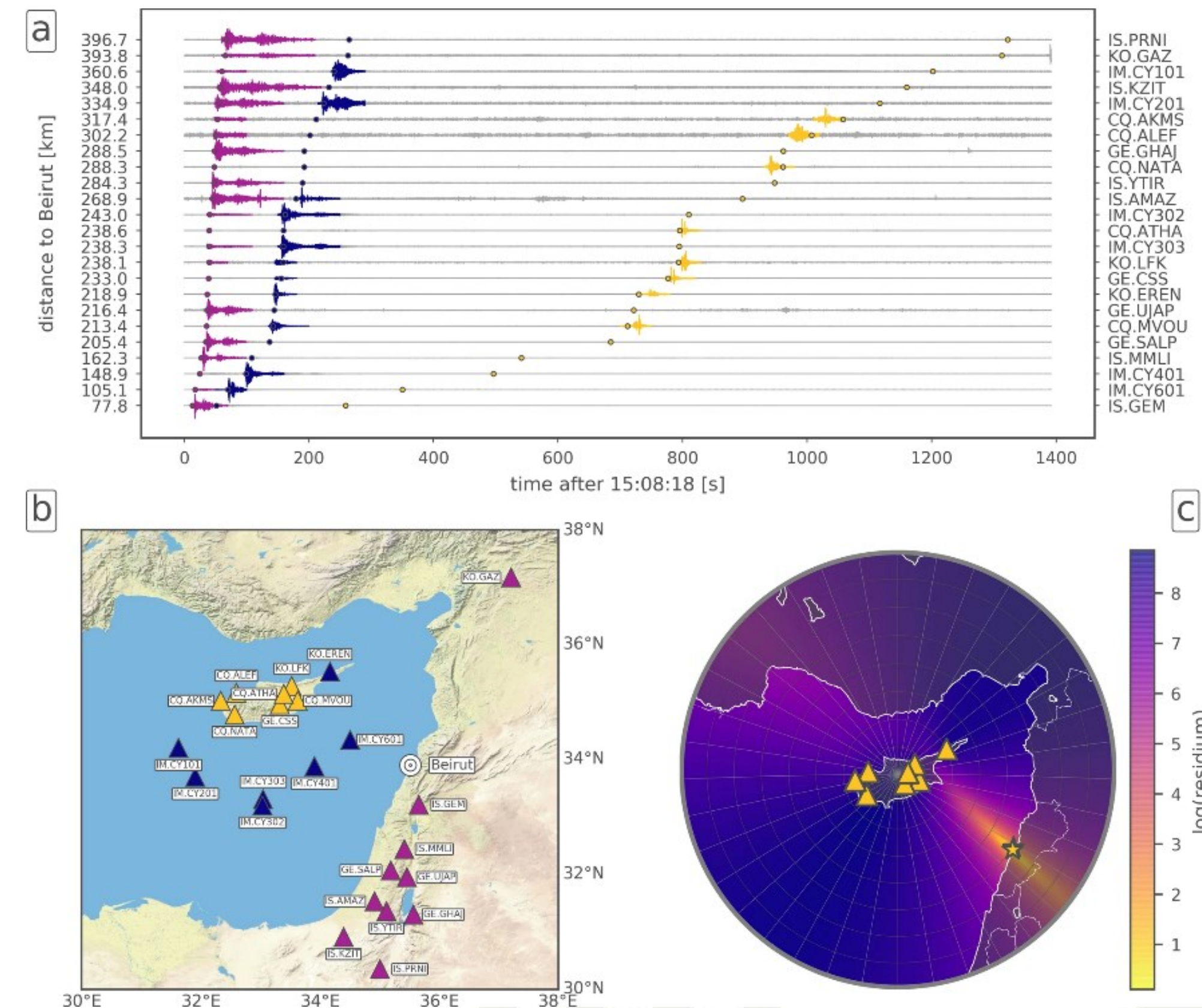




# Example for Re-using Open (Research) Data

## Explosion in the port of Beirut

- Combination of different open data sources to reconstruct the explosions
- Pilger, C., Gaebler, P., Hupe, P. et al. (2021): Yield estimation of the 2020 Beirut explosion using open access waveform and remote sensing data, Scientific Reports 11, 14144, <https://doi.org/10.1038/s41598-021-93690-y>.

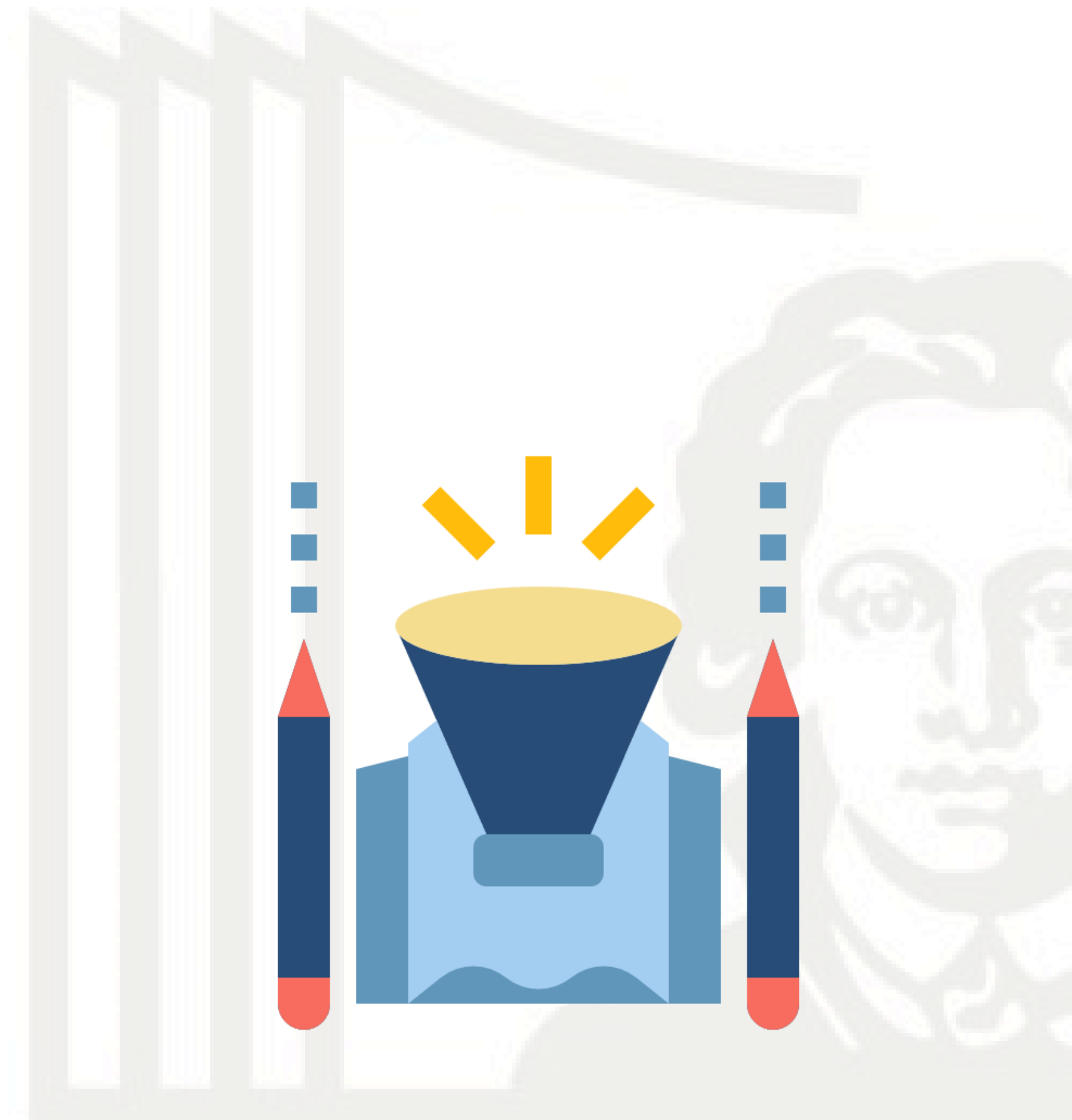


Pilger, C., Gaebler, P., Hupe, P. et al., 2021, CC BY 4.0, <https://www.nature.com/articles/s41598-021-93690-y/figures/1>.

# Research Data with Restricted Access

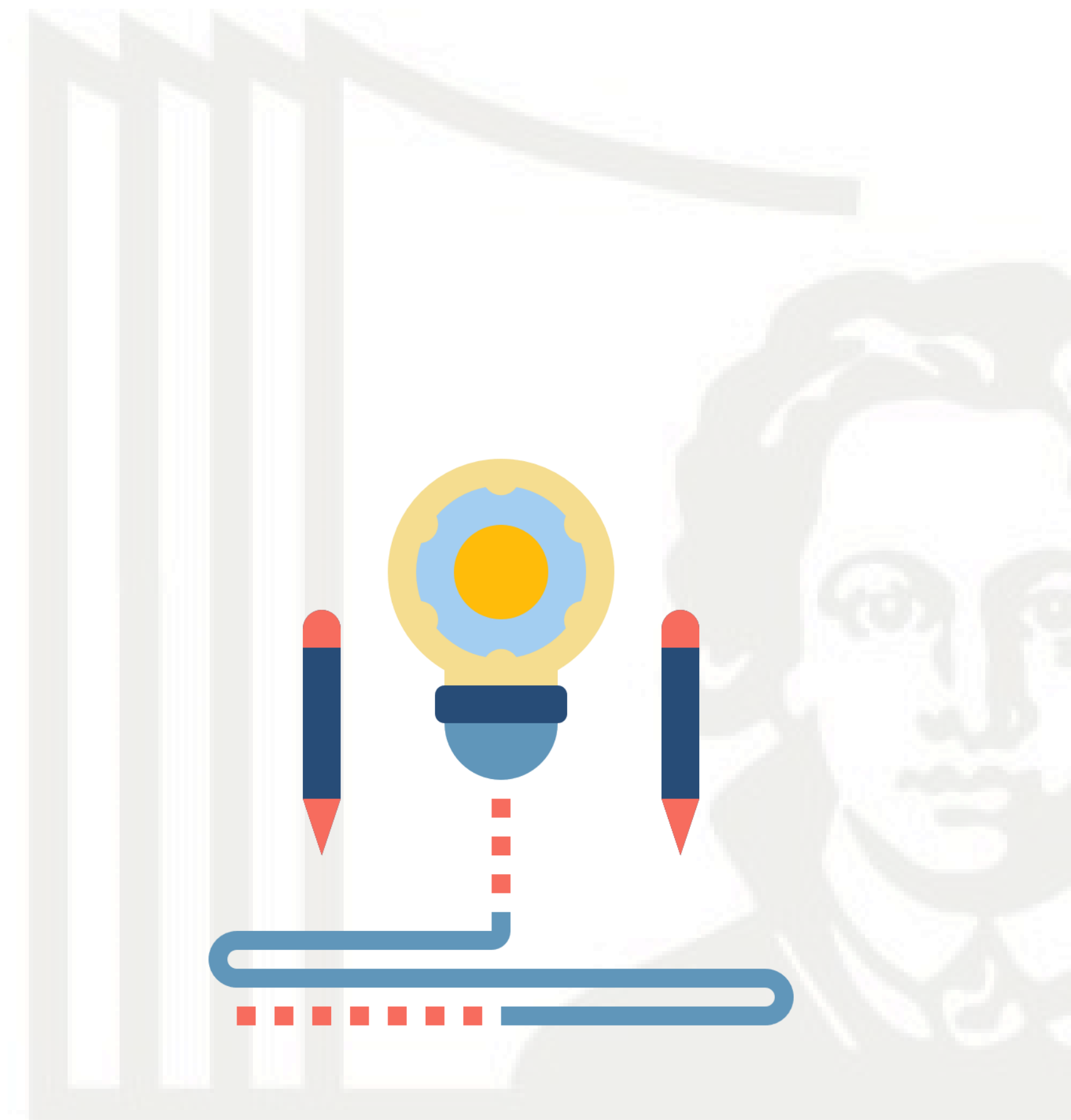
However, there are also good arguments against open publishing:

- Working with sensitive data, e.g. patient data
- Dual-use data (keyword export control)
- Industry cooperation with contractual regulation of an embargo period for data publication
- Purchased data as a basis (prohibition of disclosure through licensing provisions)
- ...



# Disadvantages

- “Fits somehow“ no longer works for research data
  - If the process of data generation and processing is transparent, you have to work much better than if it is only for you
- Danger of pseudo-transparency
  - You create real data and, in parallel, "open science" data. Everything that fits into the overall picture is taken, the rest is discreetly put in the background
- The standards of science through Open Science are increasing
  - the active participation of scientists from the global South is becoming even more difficult (more passive consumption, see Open Access)
- ...



# Open Societies?

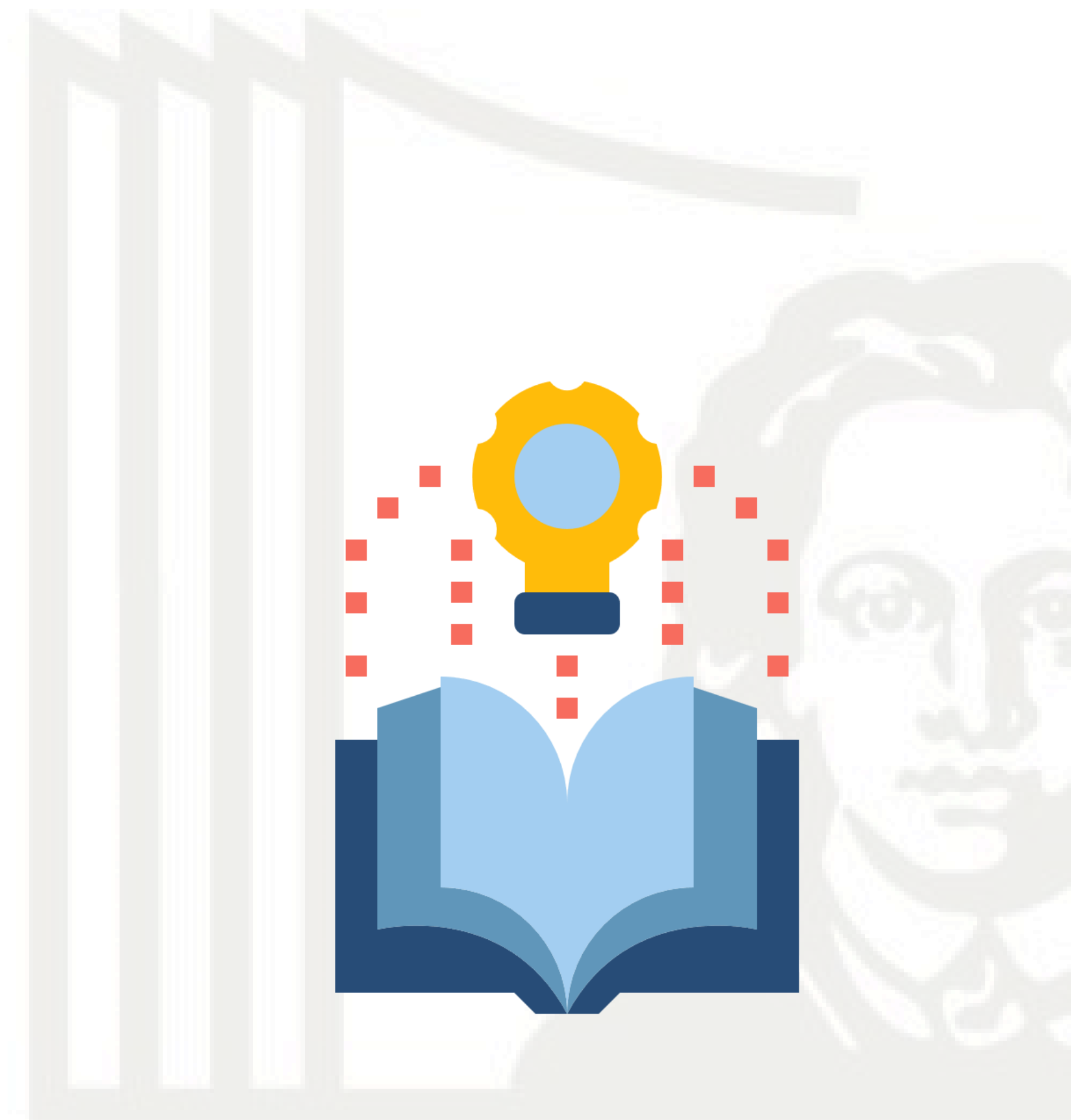
- Since 2022 it's clear that other concepts against Open Societies exist
- Fundamental discussion around Open Science
- Sharing all data openly can be questionable (more enforcement on the dual-use aspect)
  - Do we want that as a society?
- ...



# Slido

3. What is your opinion on open and closed research data?

**Join at [slido.com](https://www.slido.com)**  
**Code: 3373 209**





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# Thanks for the attention!

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