



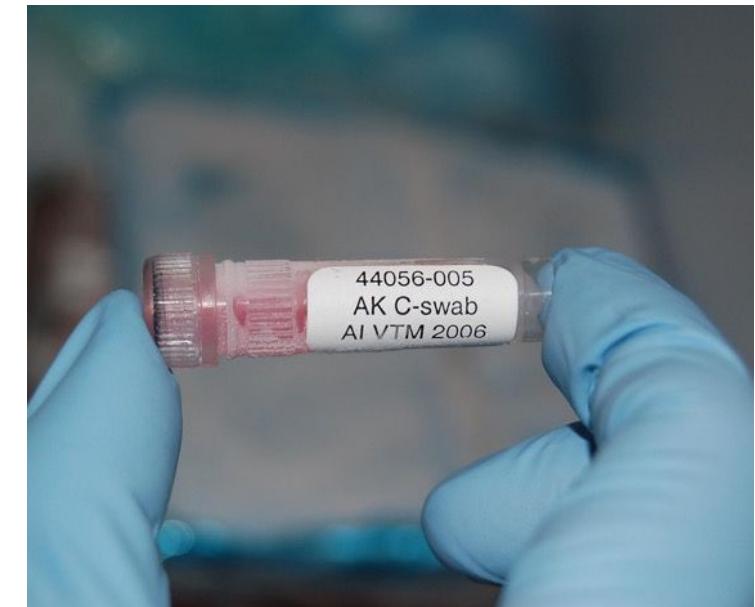
Research Data Management – Basics

Examples



```
.. Sep 15:53 .
.. Sep 15:53 ..
0. Sep 2015 bin -> usr/bin
19. Sep 09:31 boot
21. Sep 15:50 dev
19. Sep 09:32 etc
21. Sep 15:52 home
7 30. Sep 2015 lib -> usr/lib
7 30. Sep 2015 lib64 -> usr/lib
34 23. Jul 10:01 lost+found
96 1. Aug 22:45 mnt
96 30. Sep 2015 opt
16 21. Sep 15:52 private -> /home/e
4096 0 21. Sep 08:15 proc
4096 12. Aug 15:37 root
560 21. Sep 15:58 run
7 30. Sep 2015 sbin -> usr/bin
4096 30. Sep 2015 srv
0 21. Sep 15:51 sys
300 21. Sep 15:45 tmp
4096 12. Aug 15:39 usr
4096 23. Jul 10:25 var
4096 4096 21. Sep 15:58
4096 4096 21. Sep 15:58
```

Examples



WHAT?

Primary data such as...

- Experiment data
- Measurements
- Surveys, polls

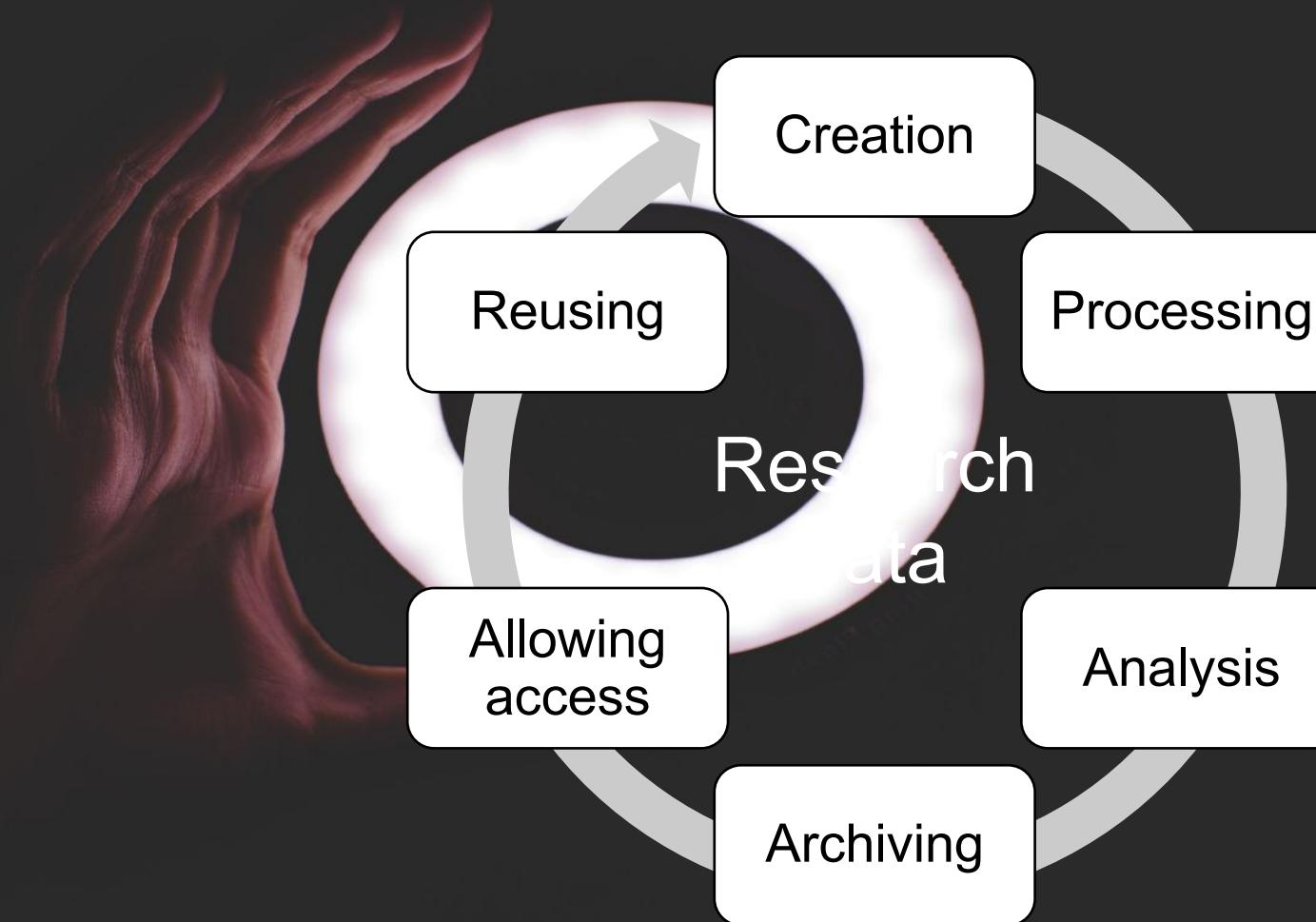
But also...

- Visualizations
- Models
- Tools

Definition

Data that arises during scientific activity (e.g. measurements, surveys, sourcing), which enable scientific work (e.g. digitized material) or which document the result of scientific work, are called research data.- [Forschungsdaten.info](https://www.forschungsdaten.info), translated

WHAT?



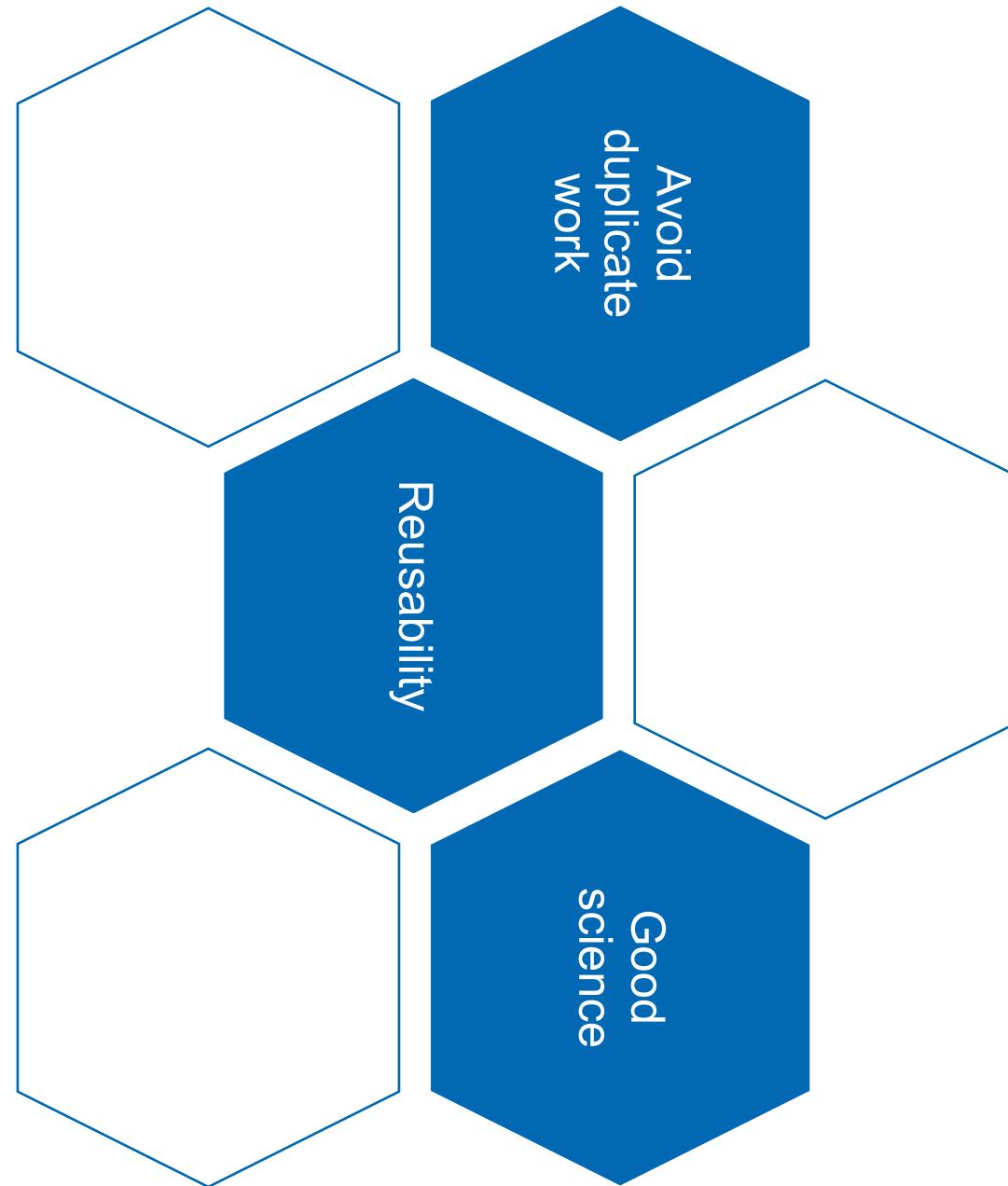
WHAT?

Universities and scientists are responsible for the **development** and **cultivation** of science.

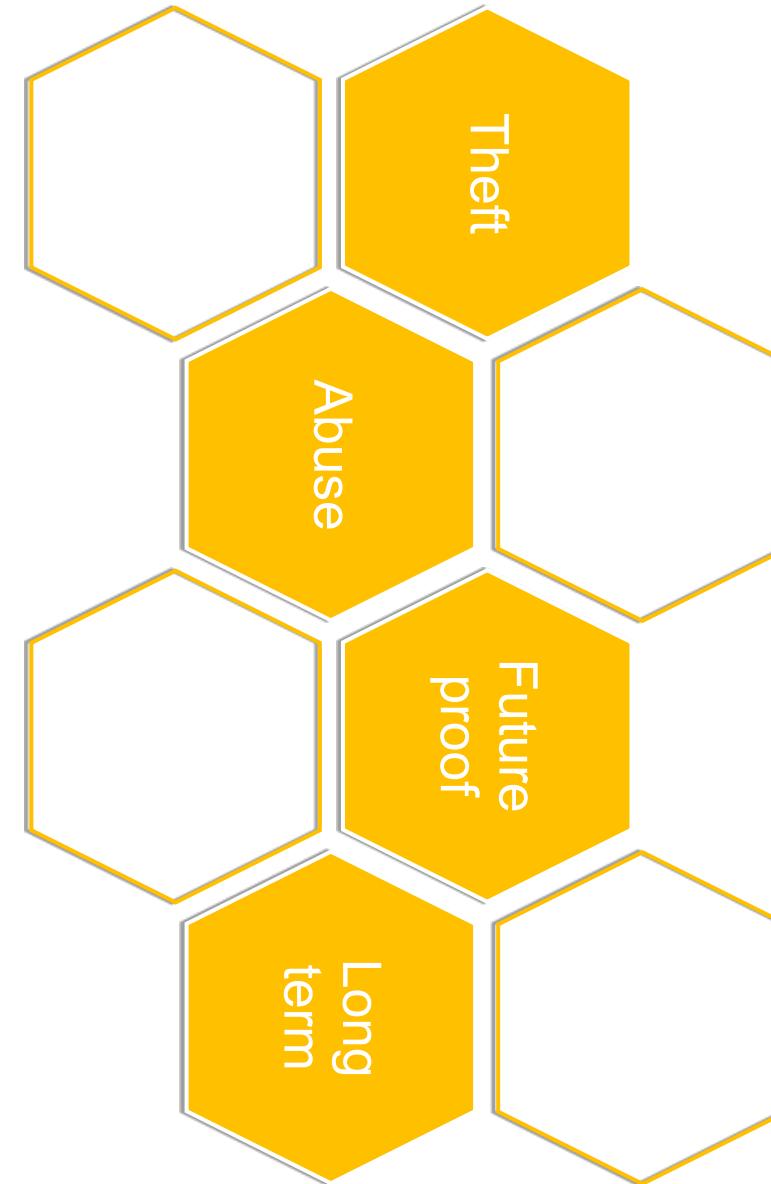
Research at universities follows scientific standards and requirements to produce **comprehensible** and **verifiable** results.

Research data management is an essential part of **good scientific practice**.

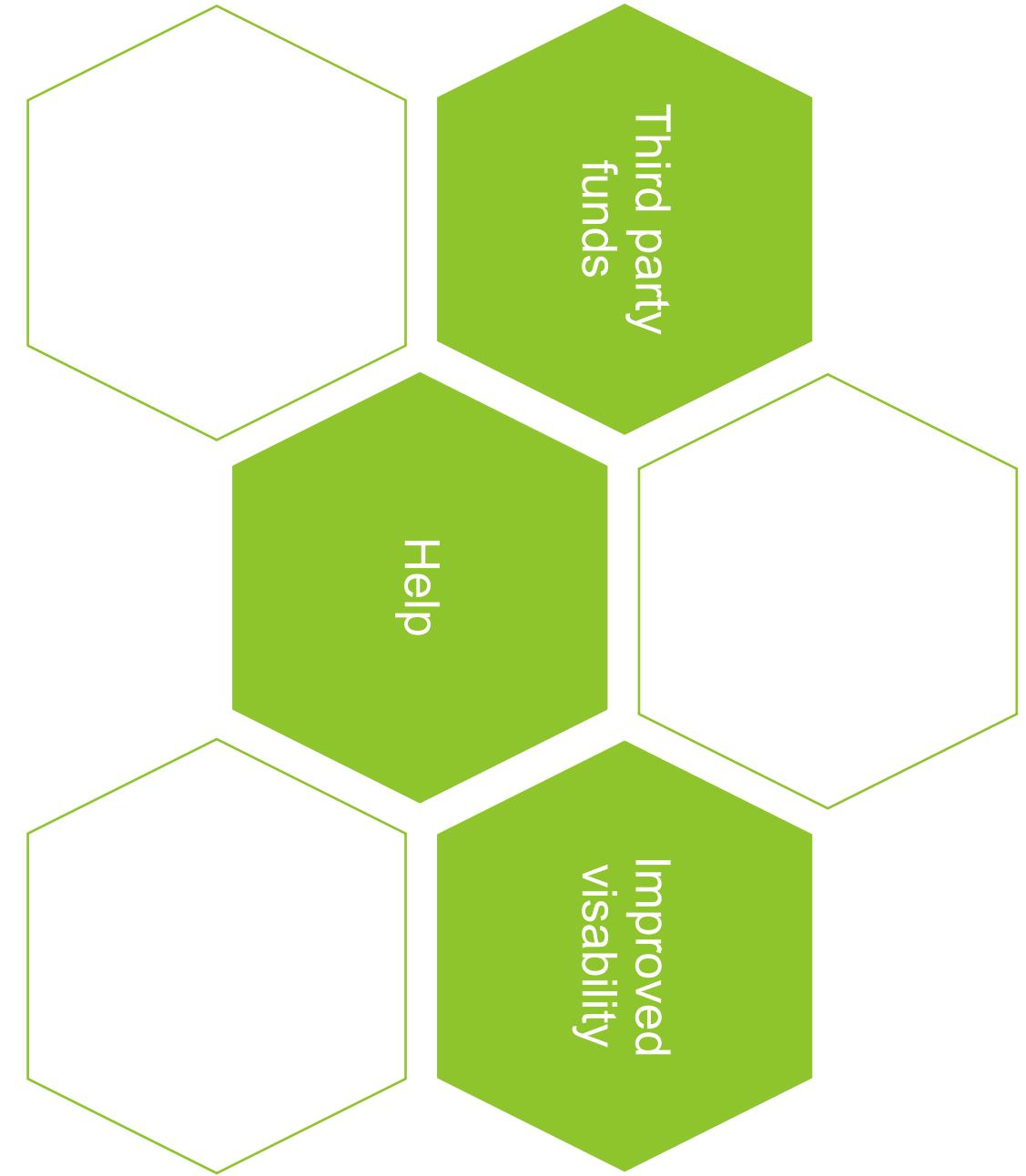
WHY?



WHY?



WHY?



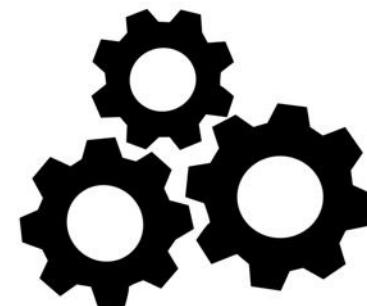
Findable



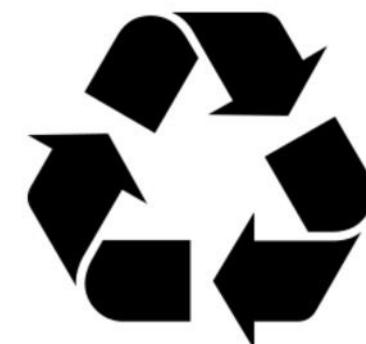
Accessible



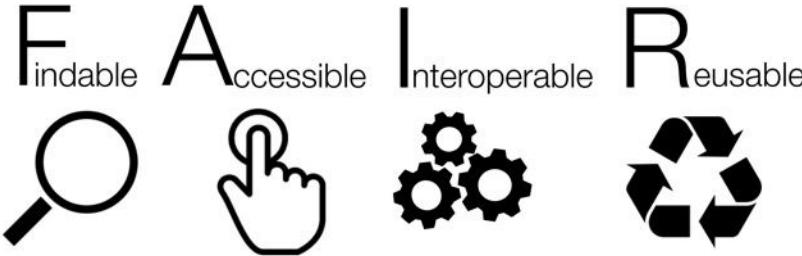
Interoperable



Reusable

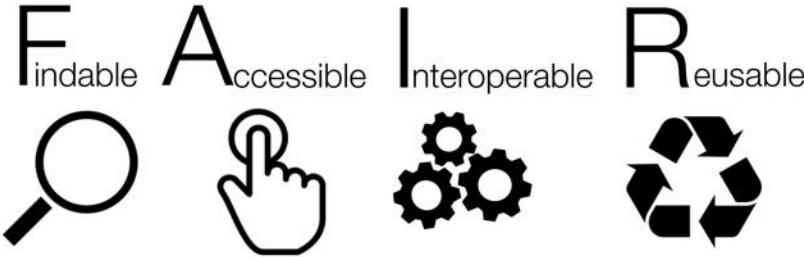






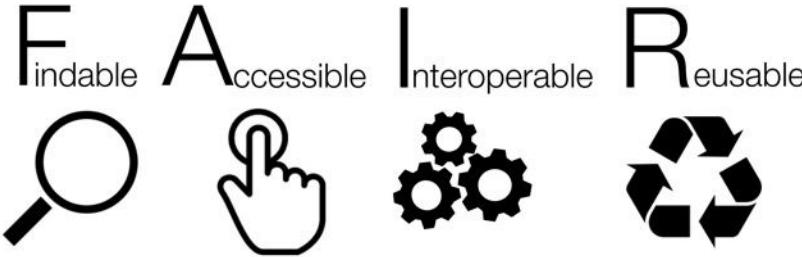
Findable:

- 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



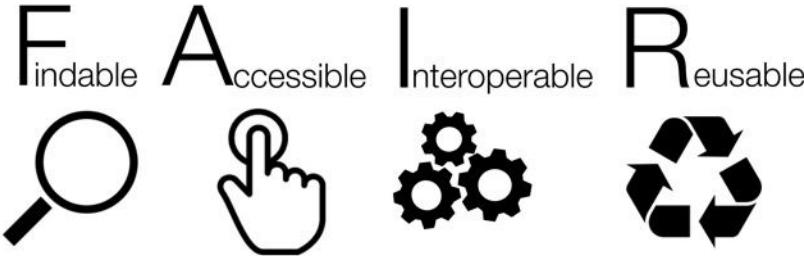
Accessible:

- A1. (Meta)data are retrievable by their identifier using a standardised communications protocol
- A2. Metadata are accessible, even when the data are no longer available.



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



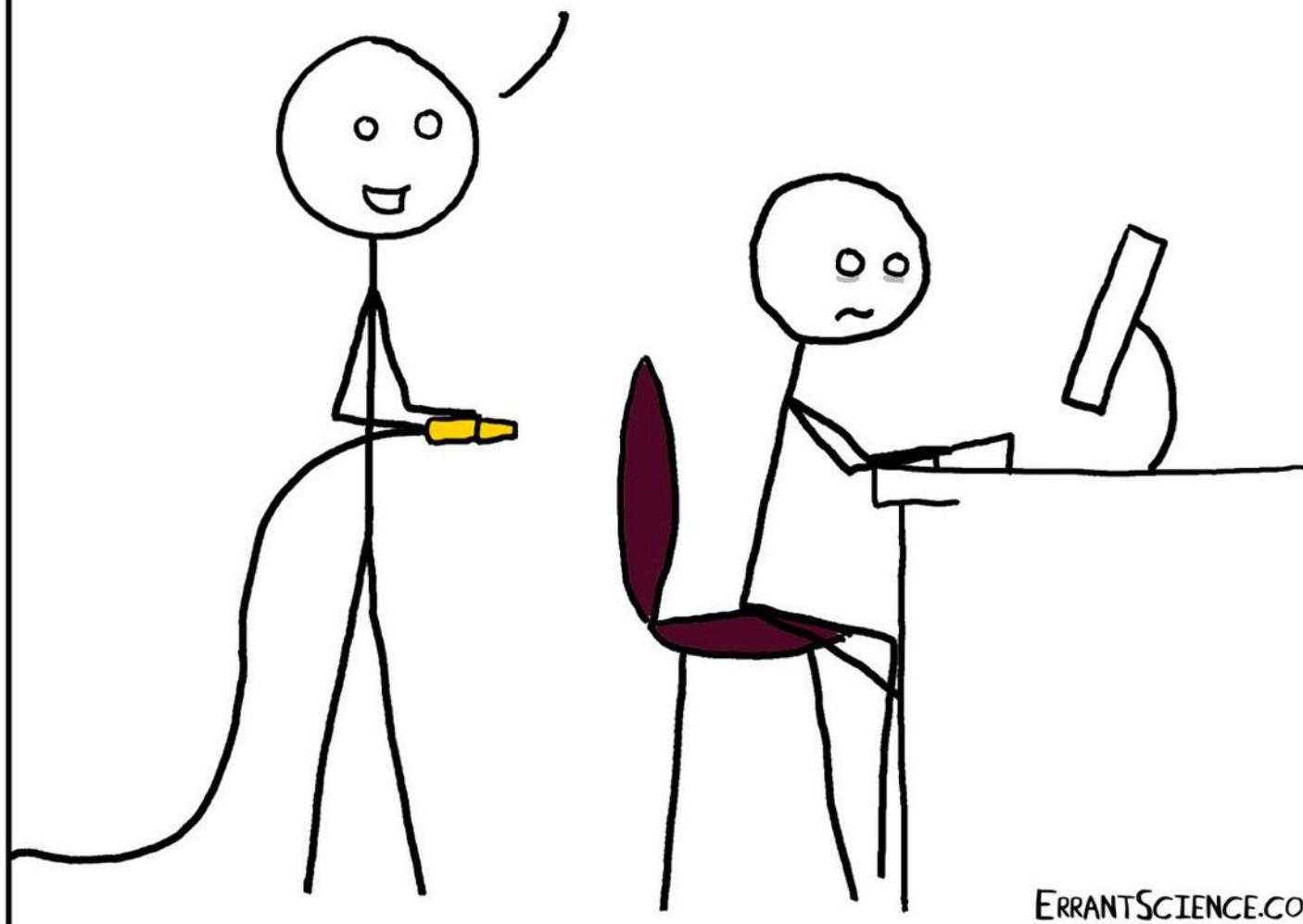
Re-usable:

- 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

"ONE OF THE BIGGEST CHALLENGES
IN MAKING DATA OPEN IS GETTING
RESEARCHERS TO UPLOAD IT"

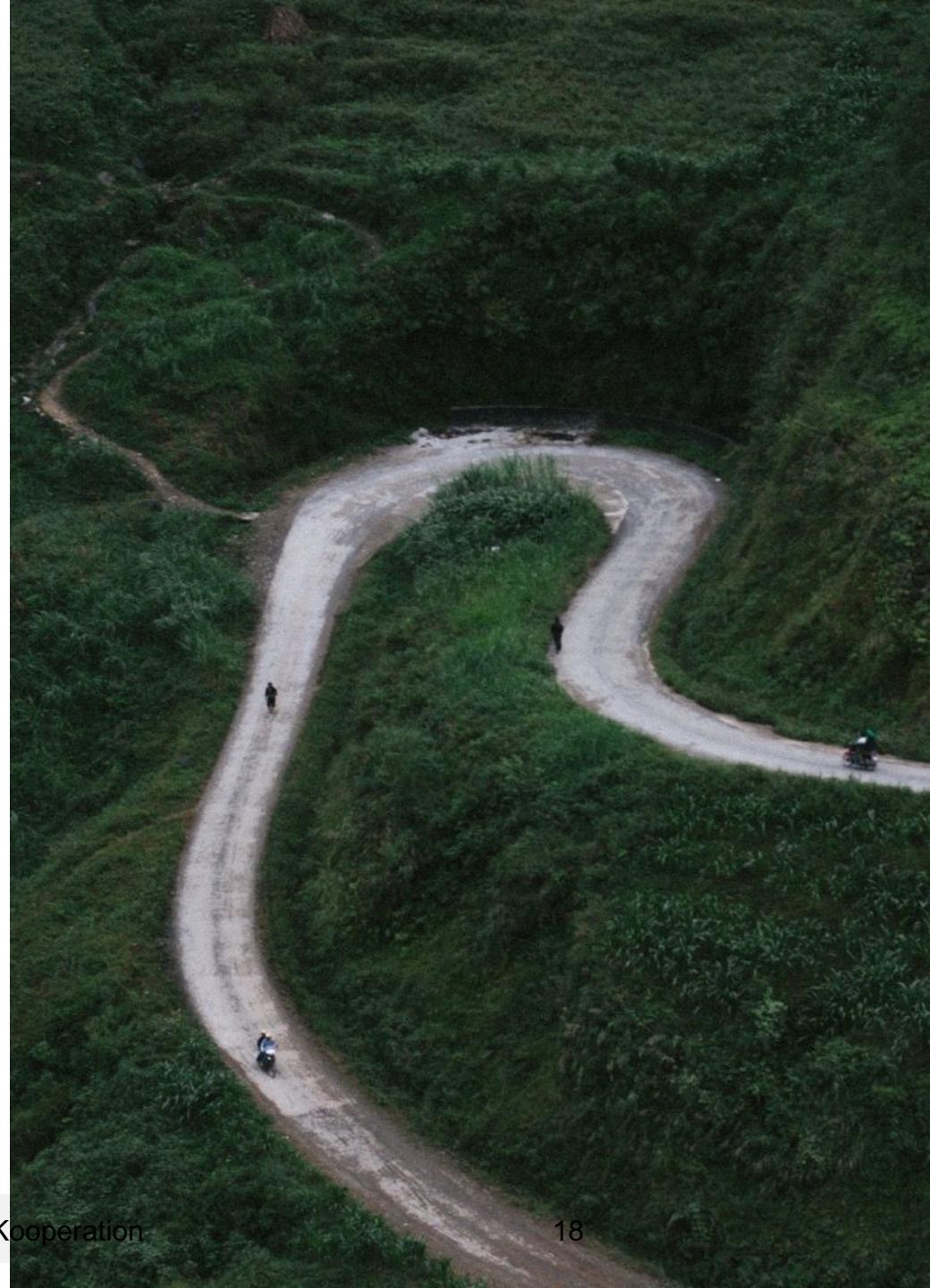
#FIGSHAREFEST

IT PUTS THE DATA IN THE REPOSITORY
OR IT GETS THE HOSE AGAIN



HOW?

1. Contact **research data management team**.
2. We create a **data management plan**.
3. We find a **good place** for your data.
4. We make sure the data has the appropriate **meta data**.
5. **Store** the data during & after your research



A close-up photograph of a person's hand holding a compass. The compass is circular with a white face, black markings for cardinal directions (N, S, E, W), and a rotating bezel with numbers from 0 to 360. The hand is positioned in the lower-left corner, with fingers wrapped around the compass. The background is a blurred, out-of-focus view of a forest with green trees and sunlight filtering through the leaves.

Additional Information

- Projekt: fodako.nrw
- Allgemein: forschungsdaten.info

References

- Slide 11
 - SangyaPundir. (2016). *English: FAIR guiding principles for data resources*. Retrieved from https://commons.wikimedia.org/wiki/File:FAIR_data_principles.jpg
- Slide 13-16:
 - Wilkinson, M. D., Dumontier, M., Aalbersberg, IJ. J., Appleton, G., Axton, M., Baak, A., ... Mons, B. (2016). The FAIR Guiding Principles for scientific data management and stewardship. *Scientific Data*, 3, 160018. <https://doi.org/10.1038/sdata.2016.18>
- Slide 12
 - Science, D., Hahnel, M., Fane, B., Treadway, J., Baynes, G., Wilkinson, R., ... Osipov, I.. (2018, October 22). The State of Open Data Report 2018 (Version 2). figshare. <https://doi.org/10.6084/m9.figshare.7195058.v2>

