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CENTER FOR SCALABLE DATA ANALYTICS AND ARTIFICIAL INTELLIGENCE

NFDI 4 BIOIMAGE

NATIONAL RESEARCH DATA MANAGEMENT INFRASTRUCTURE FOR MICROSCOPY AND BIOIMAGE ANALYSIS

GloBIAS Global BioImage Analysts' Society

GLOBAL BIOIMAGE ANALYST'S SOCIETY

Cultivating Open Training to advance Bio-image Analysis

Robert Haase

https://doi.org/10.5281/zenodo.11065721

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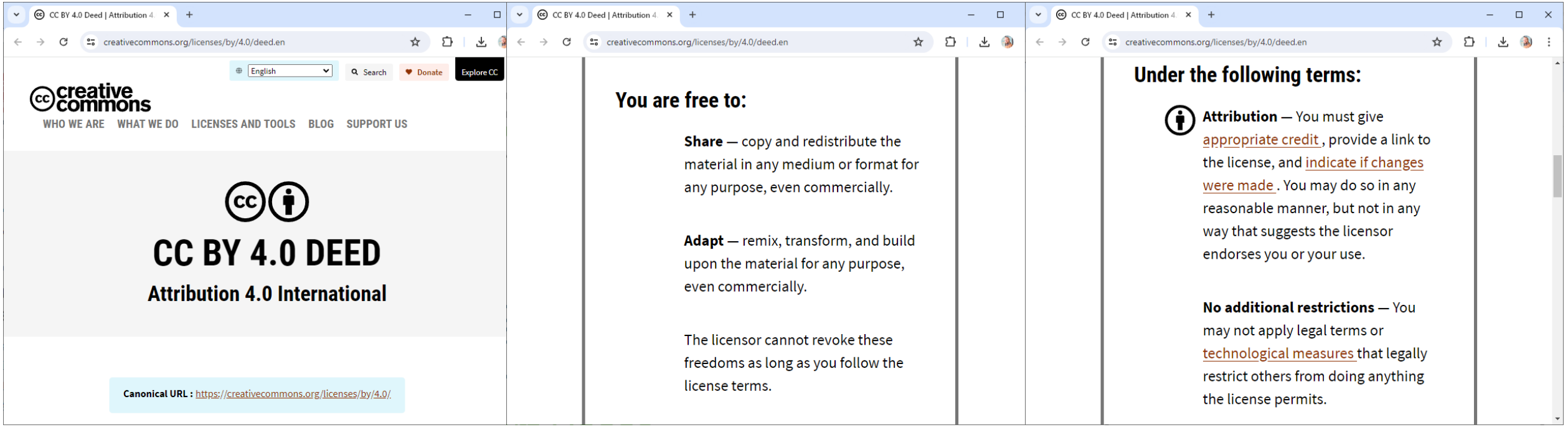

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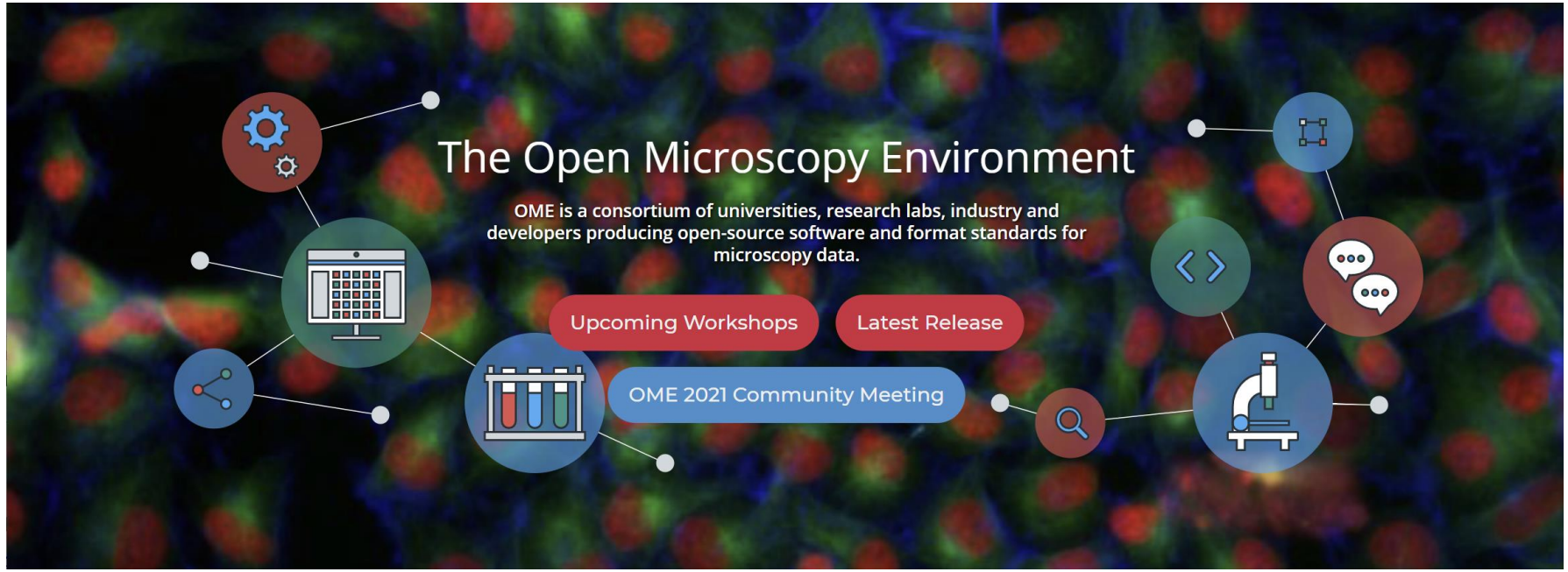
Example



You must put such a sentence and keep the link to CC-BY

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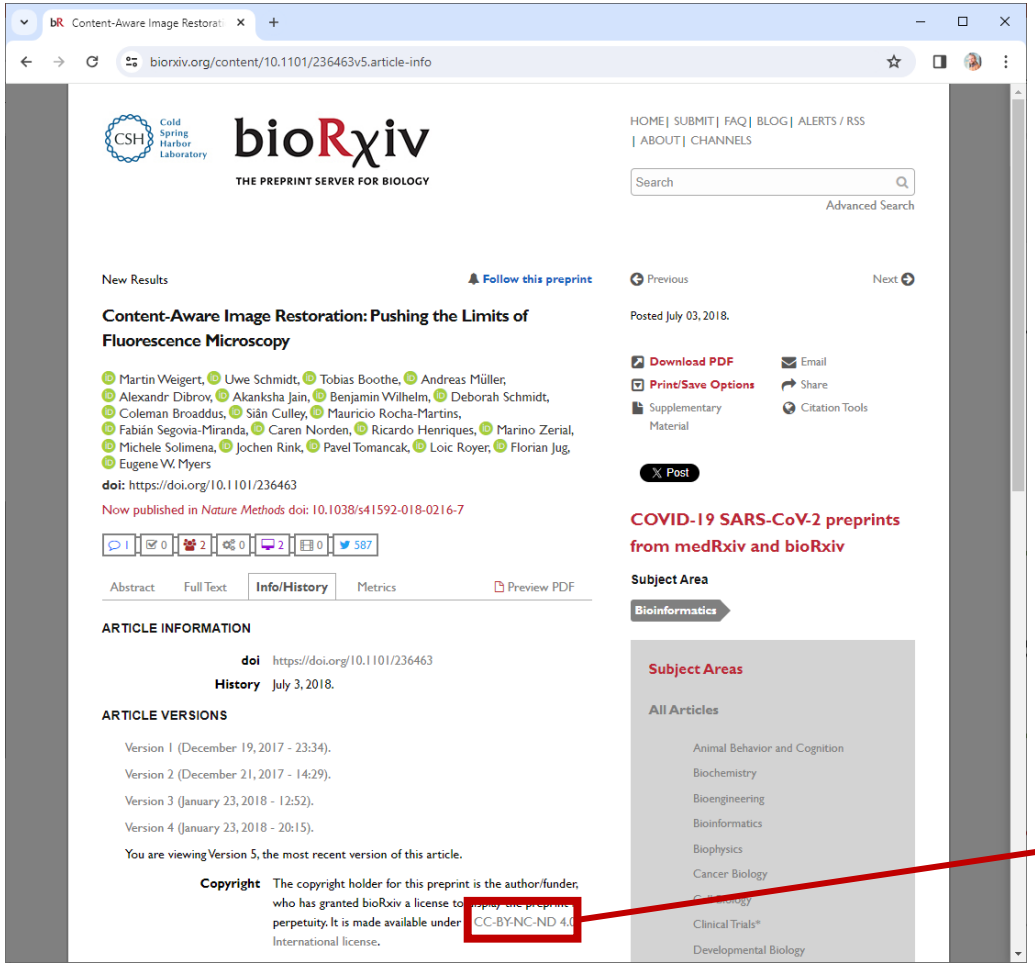
Example: Restrictive licensing



I would love to show you a Figure from this paper!

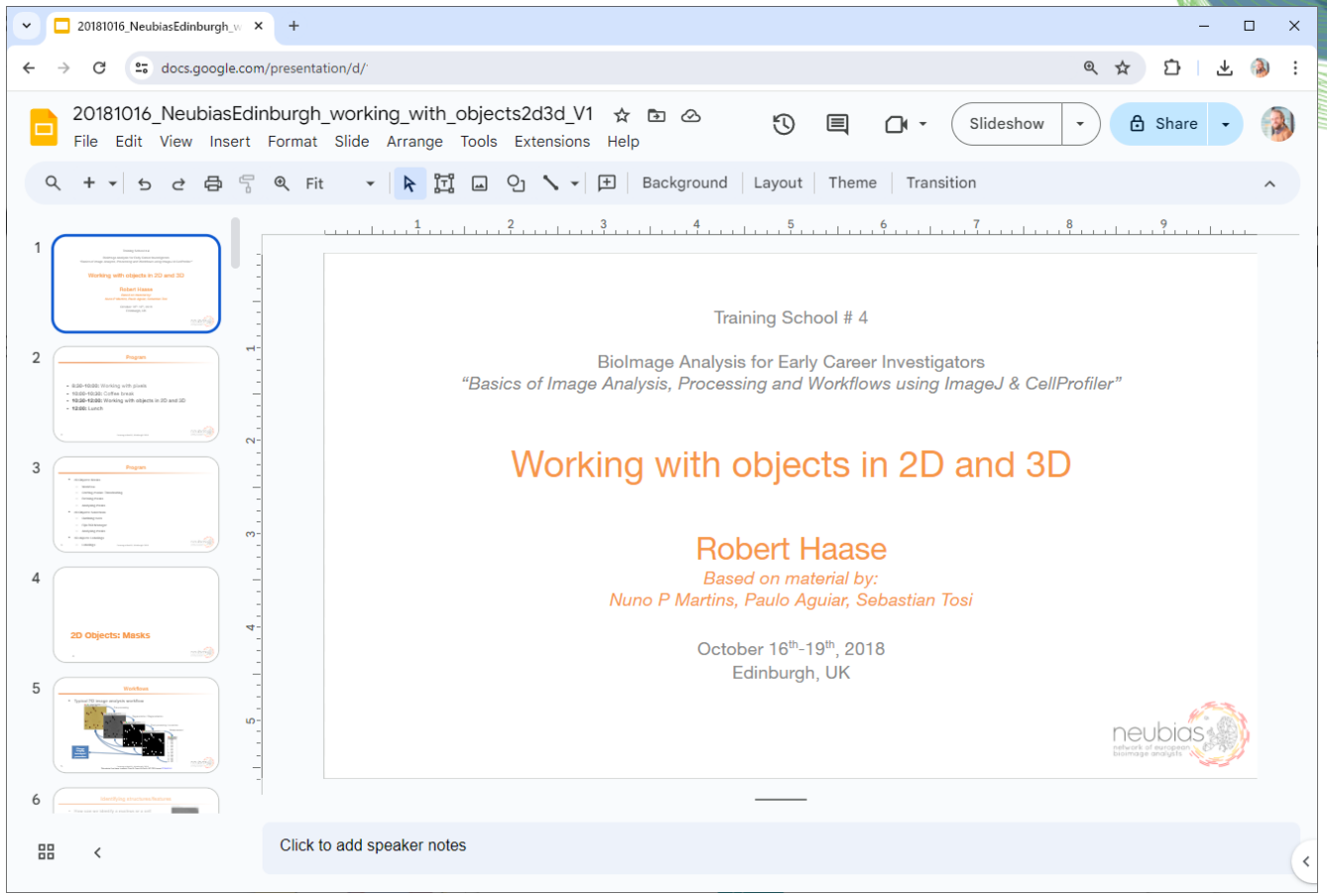
But I'm not allowed!

Example: No licensing

NEUBIAS' amazing collection of online materials

- Great for learning
- Hard to find online
- Not reusable for training because of *unclear* copyright
  (=All Rights Reserved)

Not *FAIR*



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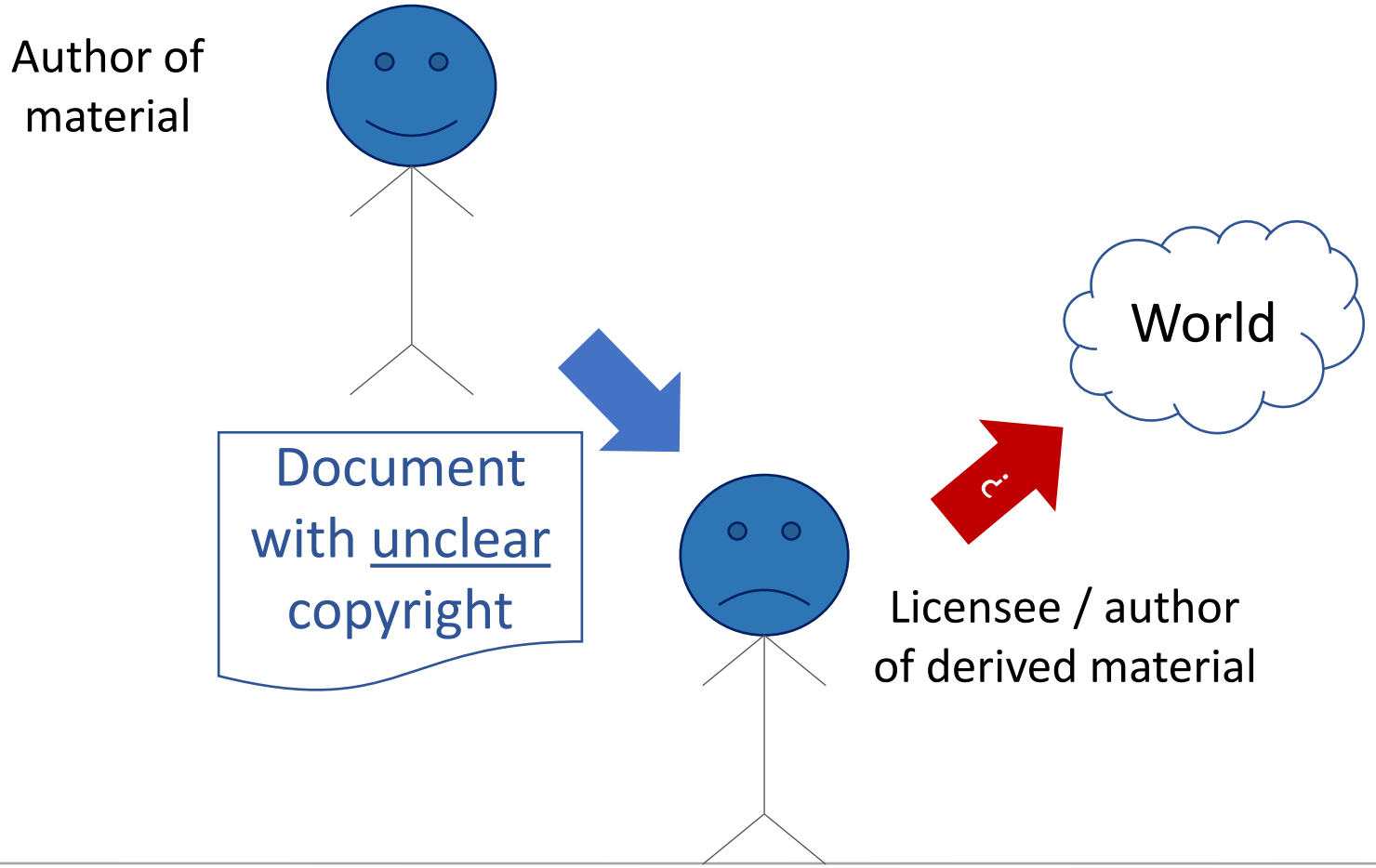

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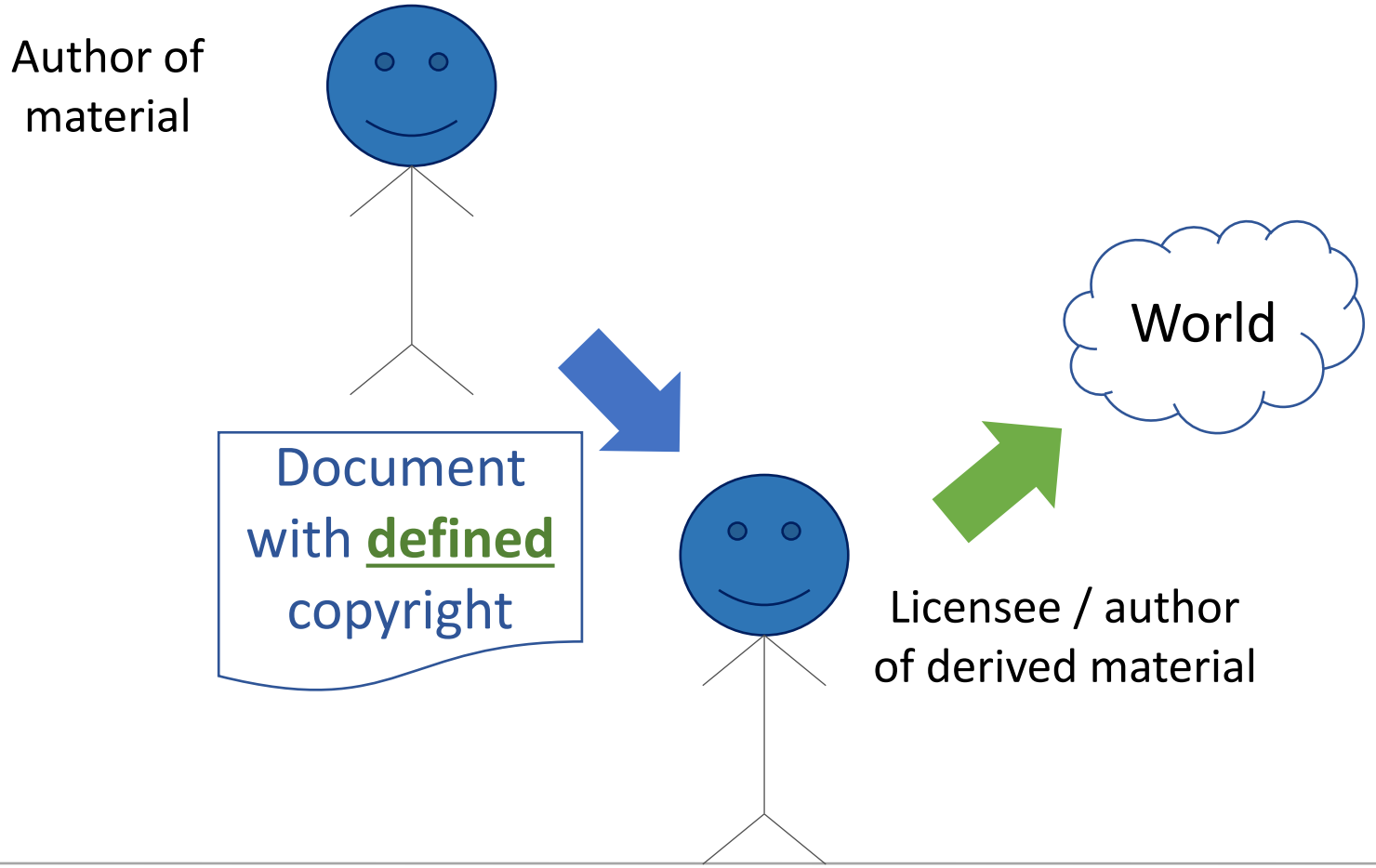

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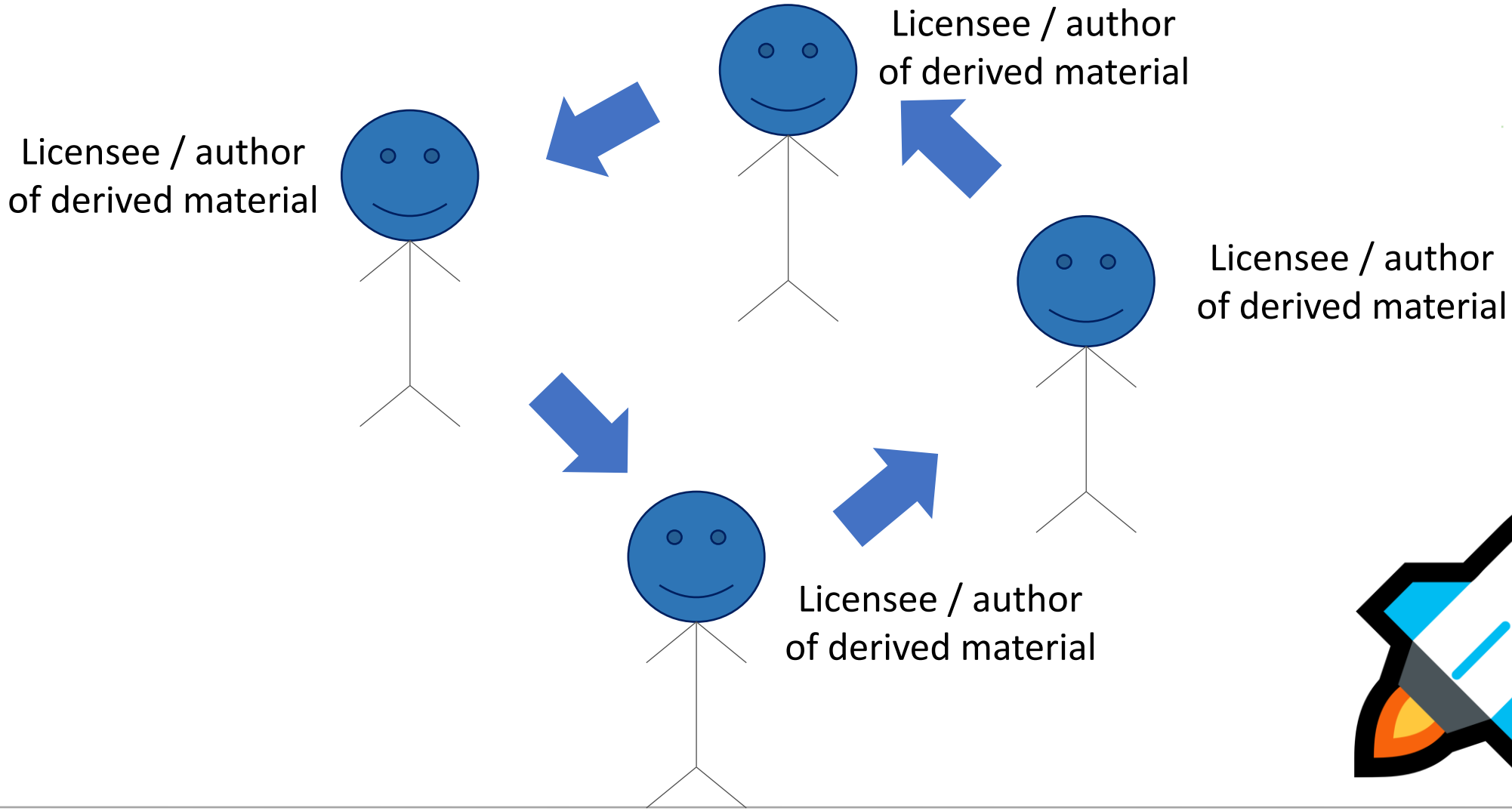
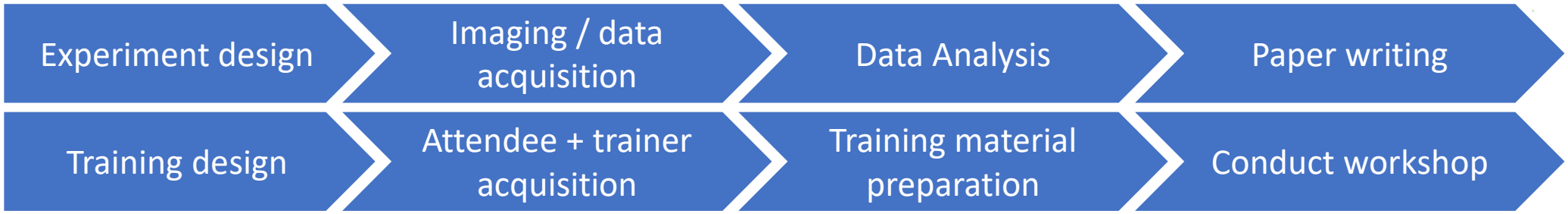


Data Management Plans (DMPs)

Define responsibilities and procedures early!



"Data / materials we produce will be published under CC-BY 4.0"

"Robert will do this by end of 2025!"

DMP

- Only if procedures are defined early, everyone can follow them.
- Licenses are important when assembling materials (-> Copyright)
- Meta-data might have *higher quality* if the person responsible for publishing the data is aware of their duties.

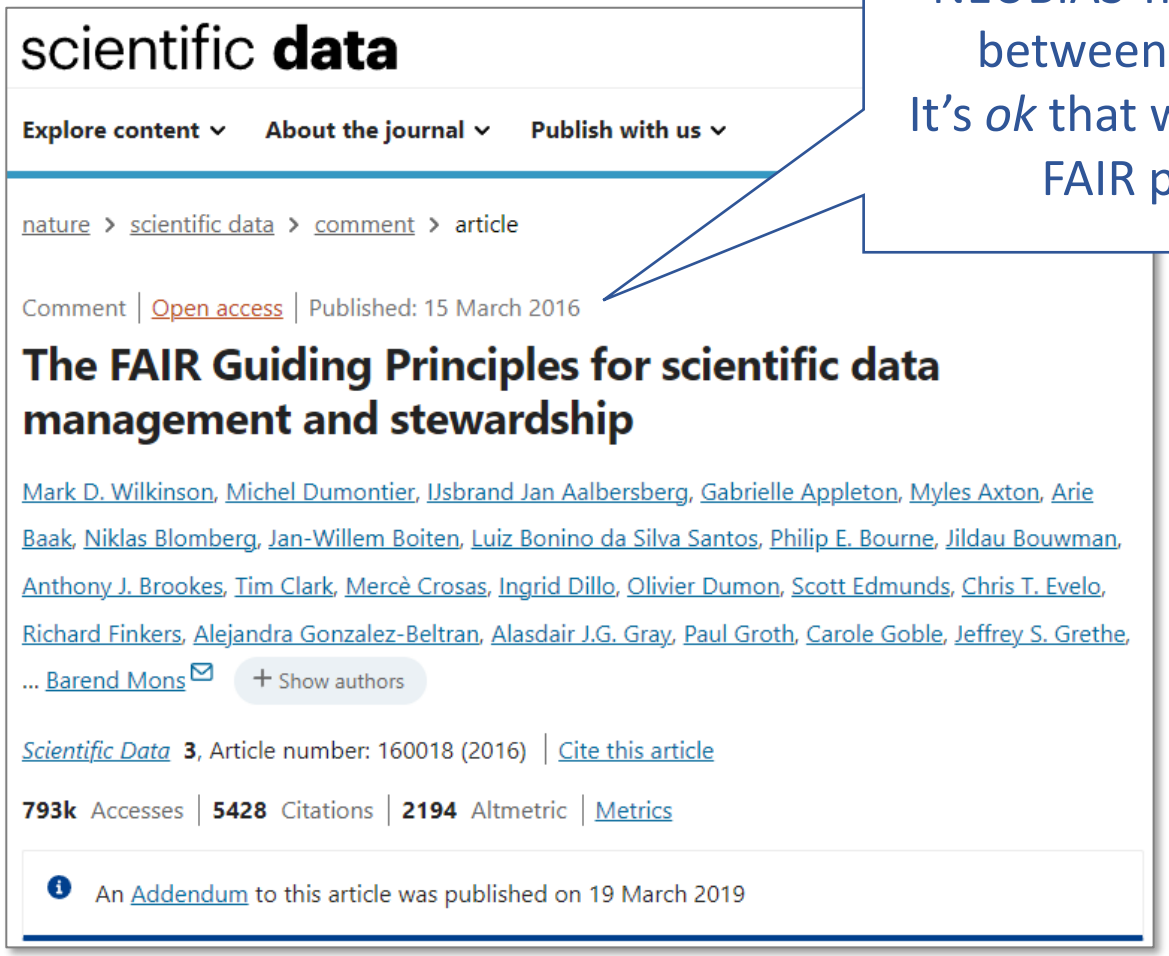
Are we going to publish data / materials / code?

What license can we use?

Deciding by the end of the project is too late!

The FAIR-principles

- Findable
- Accessible
- Interoperable
- Reusable



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The FAIR Guiding Principles for scientific data management and stewardship

Mark D. Wilkinson, Michel Dumontier, IJsbrand Jan Aalbersberg, Gabrielle Appleton, Myles Axton, Arie Baak, Niklas Blomberg, Jan-Willem Boiten, Luiz Bonino da Silva Santos, Philip E. Bourne, Jildau Bouwman, Anthony J. Brookes, Tim Clark, Mercè Crosas, Ingrid Dillo, Olivier Dumon, Scott Edmunds, Chris T. Evelo, Richard Finkers, Alejandra Gonzalez-Beltran, Alasdair J.G. Gray, Paul Groth, Carole Goble, Jeffrey S. Grethe, ... Barend Mons + Show authors

Scientific Data **3**, Article number: 160018 (2016) | Cite this article

793k Accesses | **5428** Citations | **2194** Altmetric | Metrics

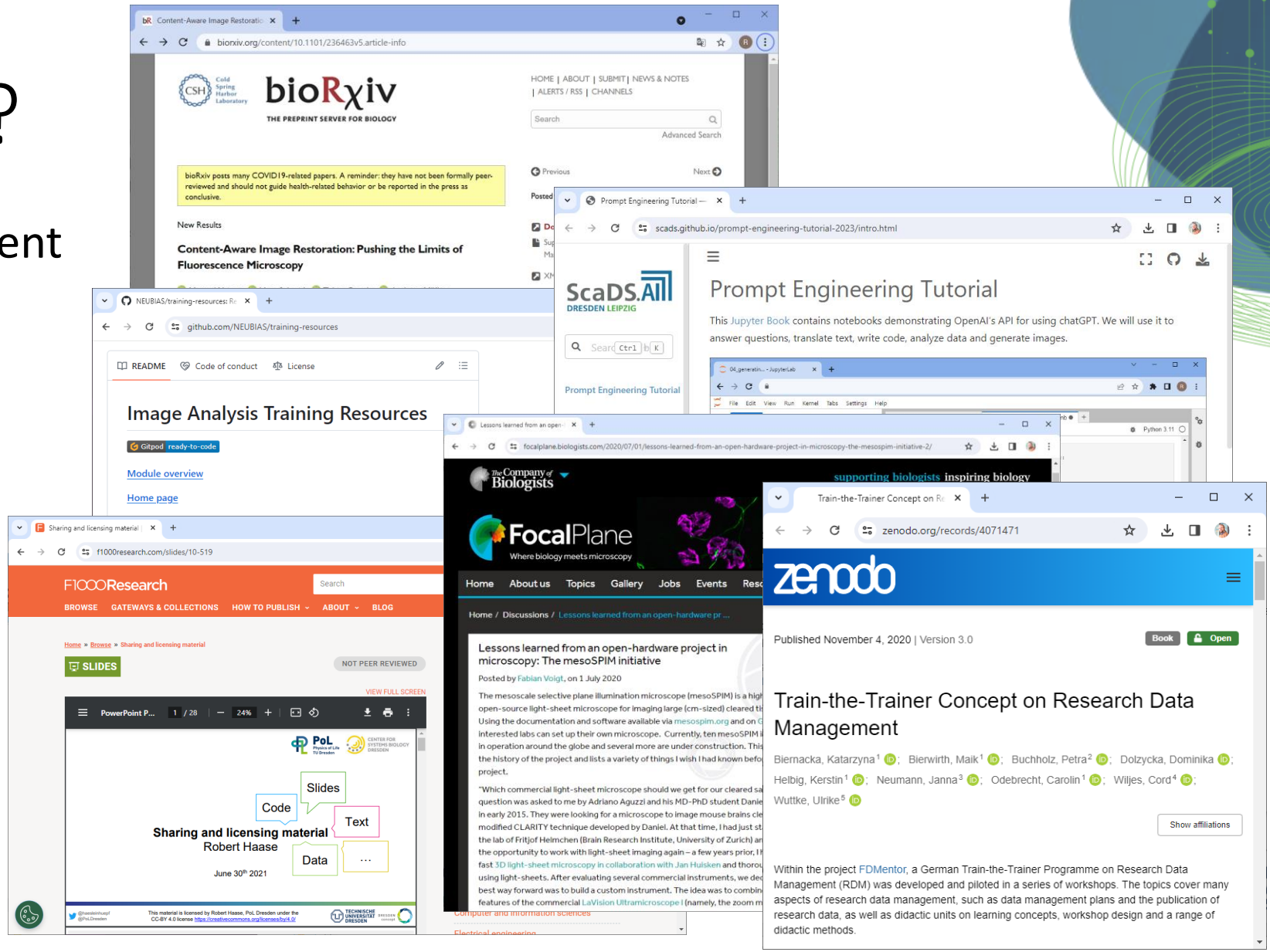
An Addendum to this article was published on 19 March 2019

NEUBIAS Trainings happened between 2015 and 2020.
It's *ok* that we didn't follow the FAIR principles *yet*.

But we could do it now. We *just* need to change our sharing culture.

Where to share?

- Open *training* related content
  - bioRxiv (manuscripts)
  - Figshare (figure)
  - F1000/NEUBIAS (slides)
  - Bioimage Archive (data)
  - Github (code)
  - Github pages (user docs)
  - Zenodo (data/slides)
  - Focalplane (blogs)
  - Institutional servers (if there is no alternative)



https://f1000research.com/slides/10-519
https://scads.github.io/prompt-engineering-tutorial-2023/intro.html https://zenodo.org/records/4071471
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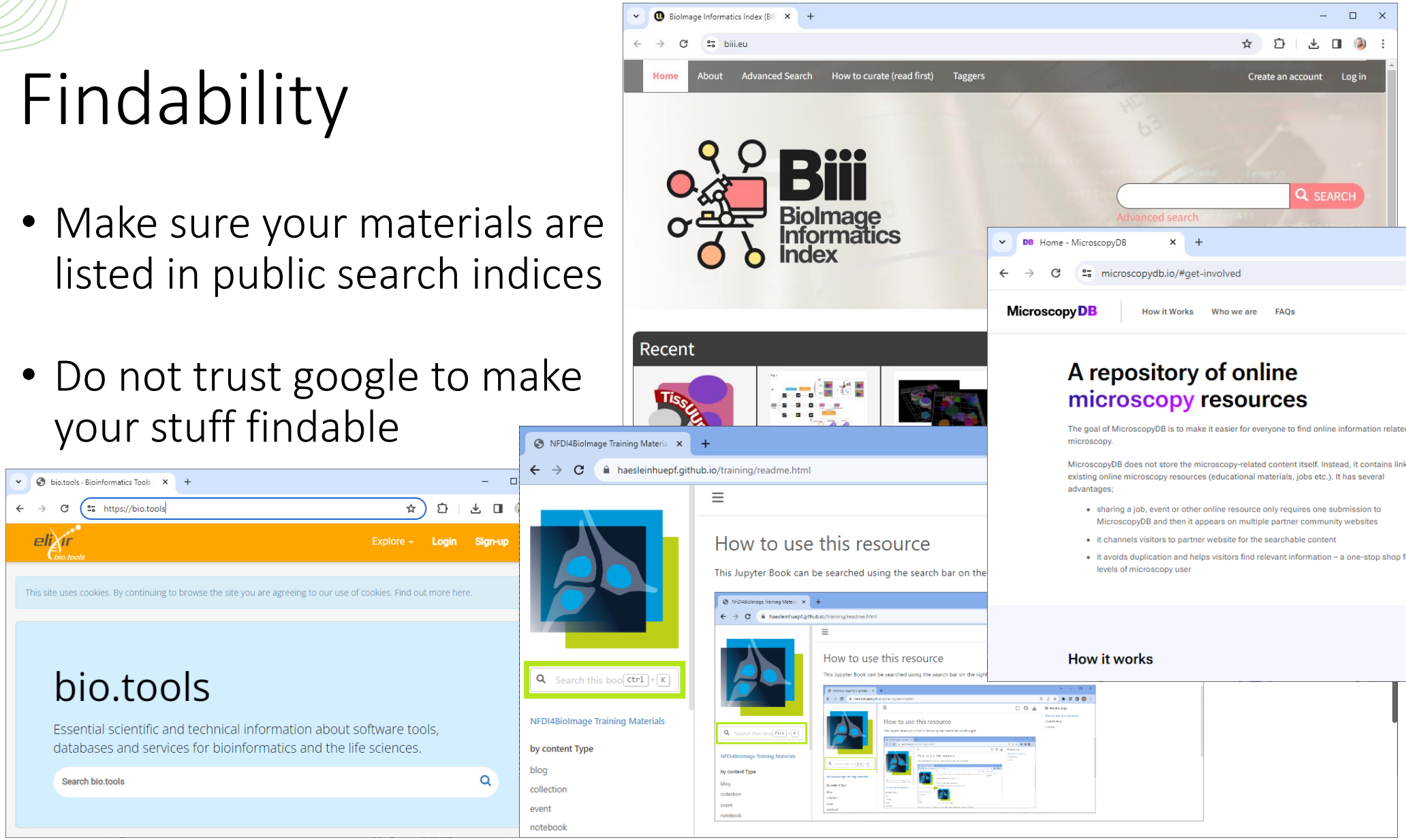
https://focalplane.biologists.com/2020/07/01/lessons-learned-from-an-open-hardware-project-in-microscopy-the-mesospim-initiative-2/ https://www.biorxiv.org/content/10.1101/236463v5.article-info

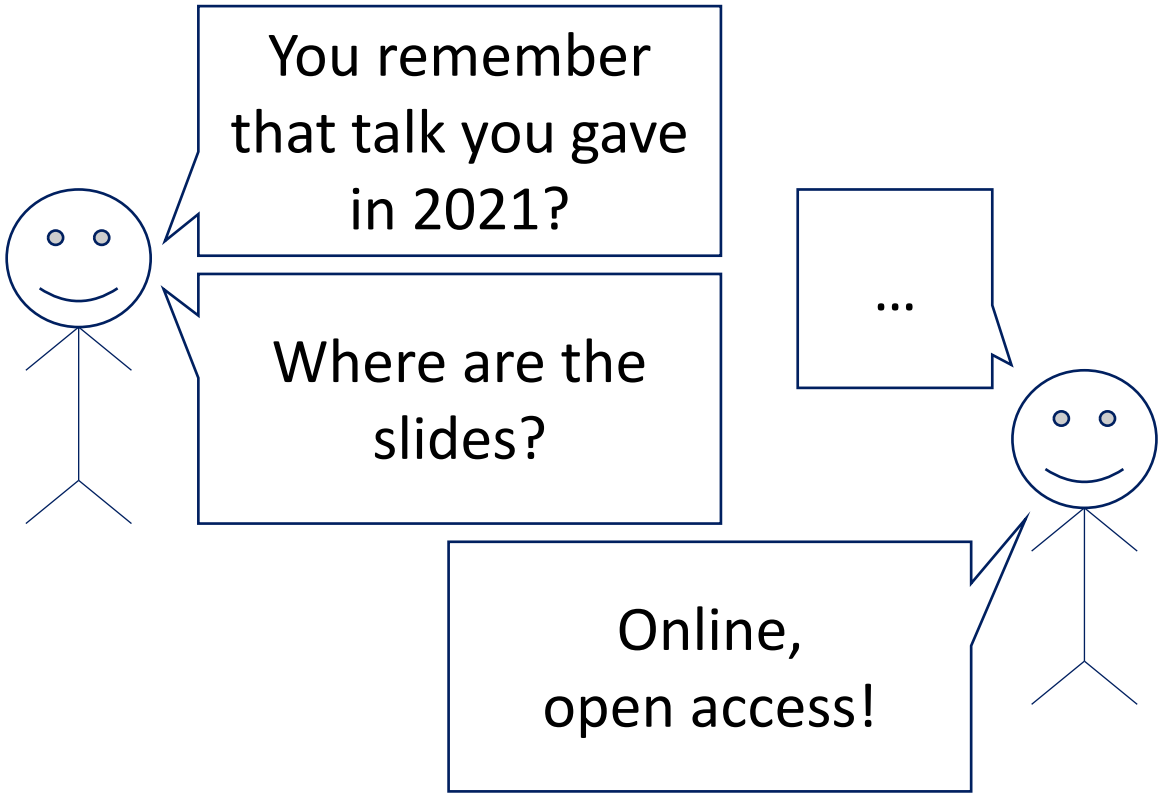
Findability

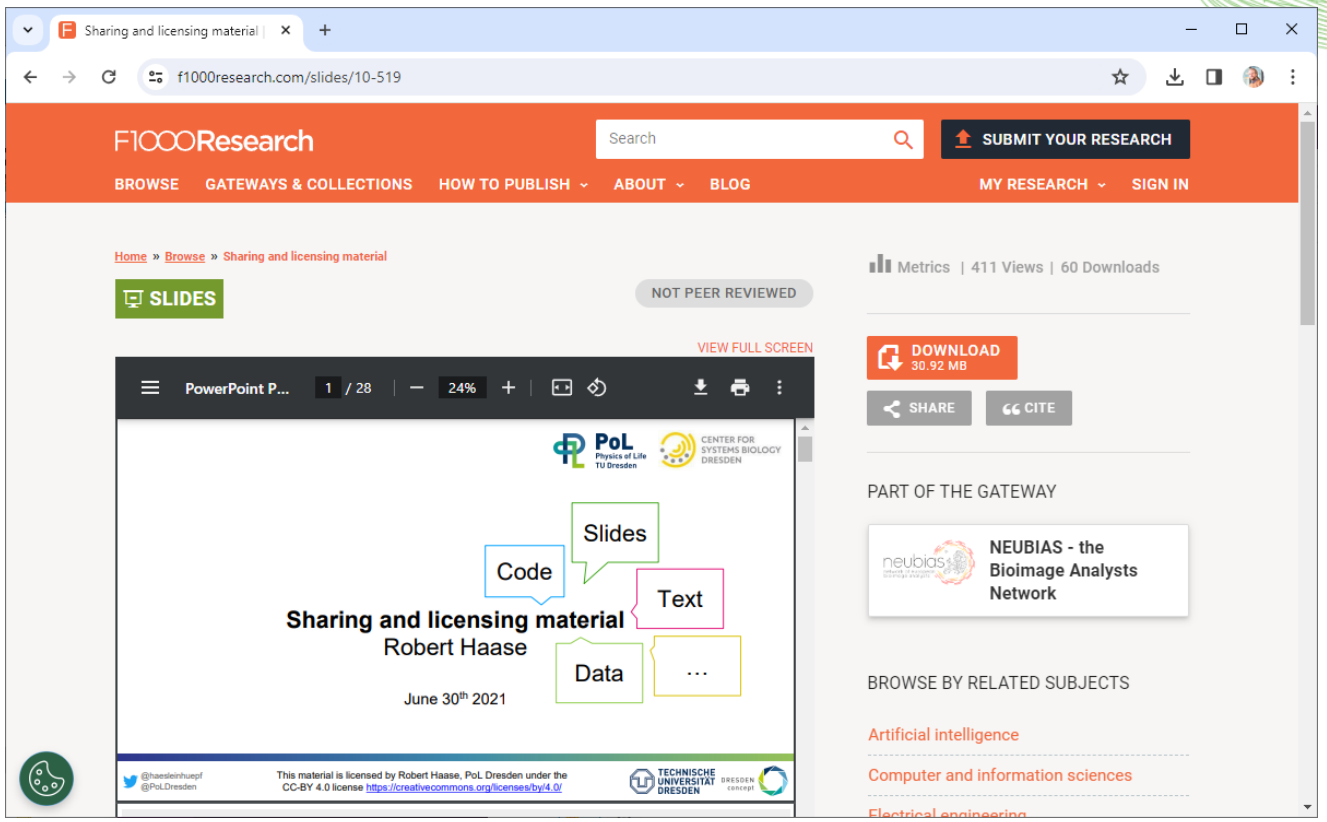
- Make sure your materials are listed in public search indices
- Do not trust google to make your stuff findable



Incentives: Findability

Your *future-self* will thank you, because they will find your work

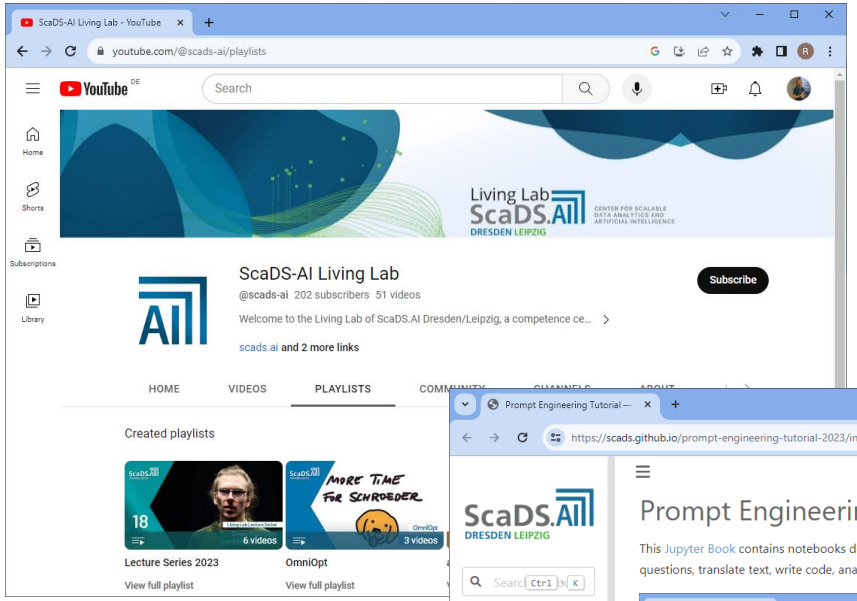


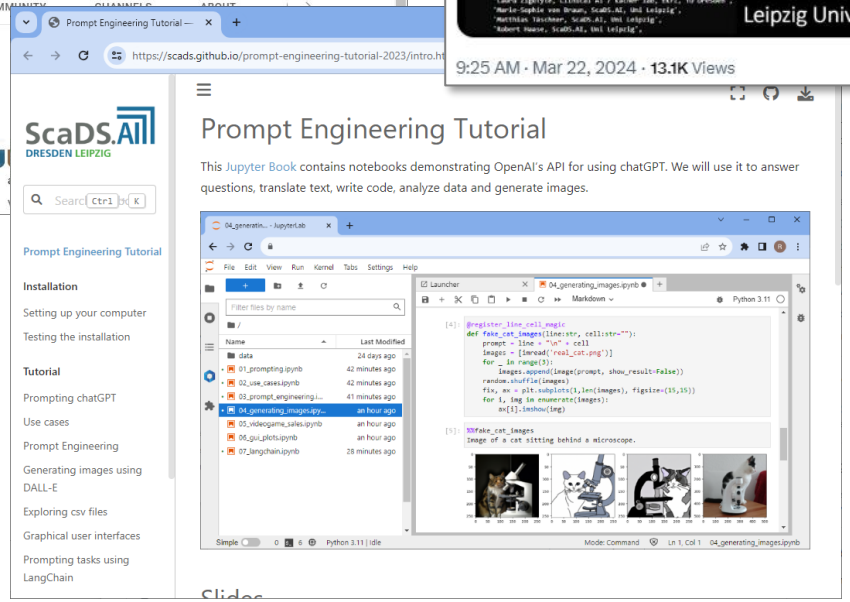


Incentives: Findability -> Visibility

- YouTube
- Github
- X/Twitter

} Social networks





Open & FAIR Training is a PR instrument

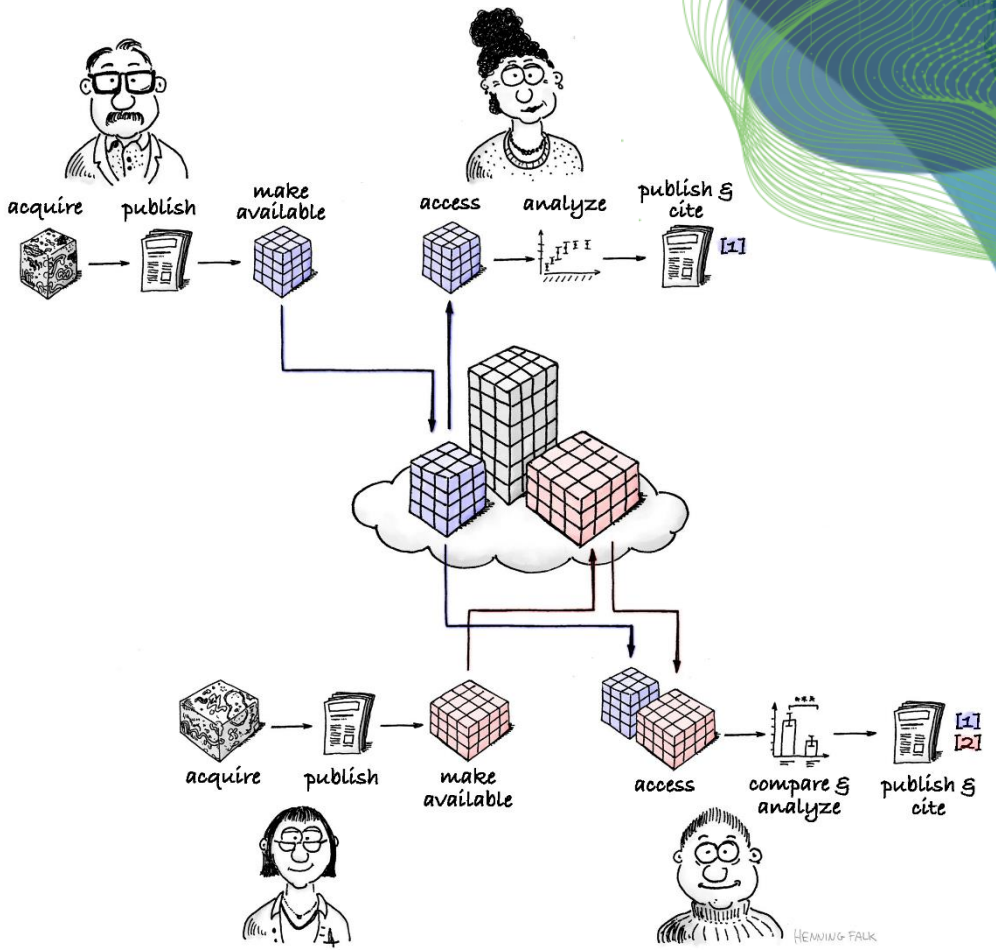
... leading to

- more software users
- more course attendees
- new collaborations

The FAIR-principles

Reusable

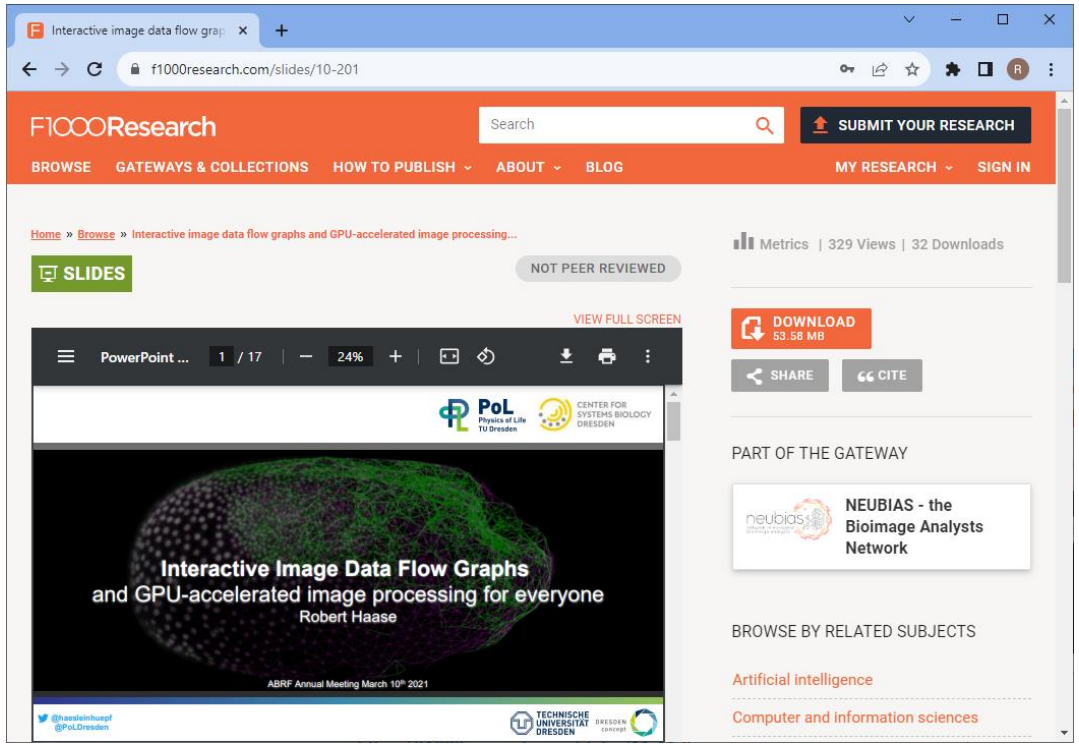
- R1. (Meta)data are richly described with a plurality of accurate and relevant attributes
- R1.1. (Meta)data are released with a clear and accessible data usage license
- R1.2. (Meta)data are associated with detailed provenance
- R1.3. (Meta)data meet domain-relevant community standards

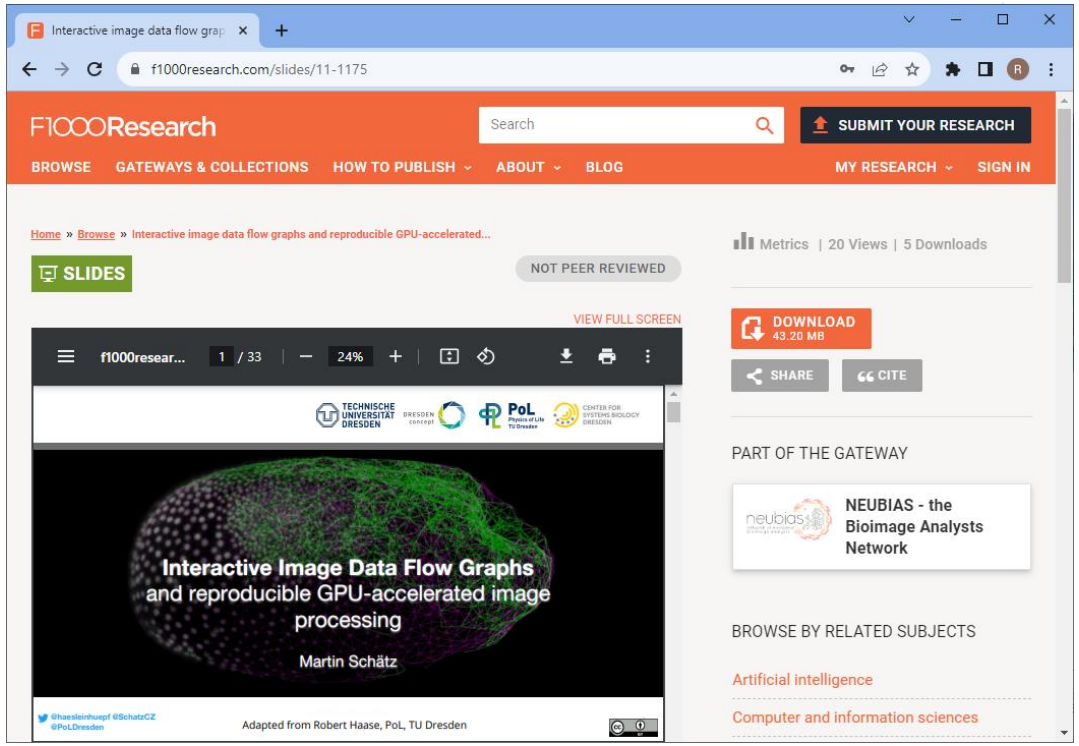


https://www.go-fair.org/fair-principles/

Incentives: Reusability

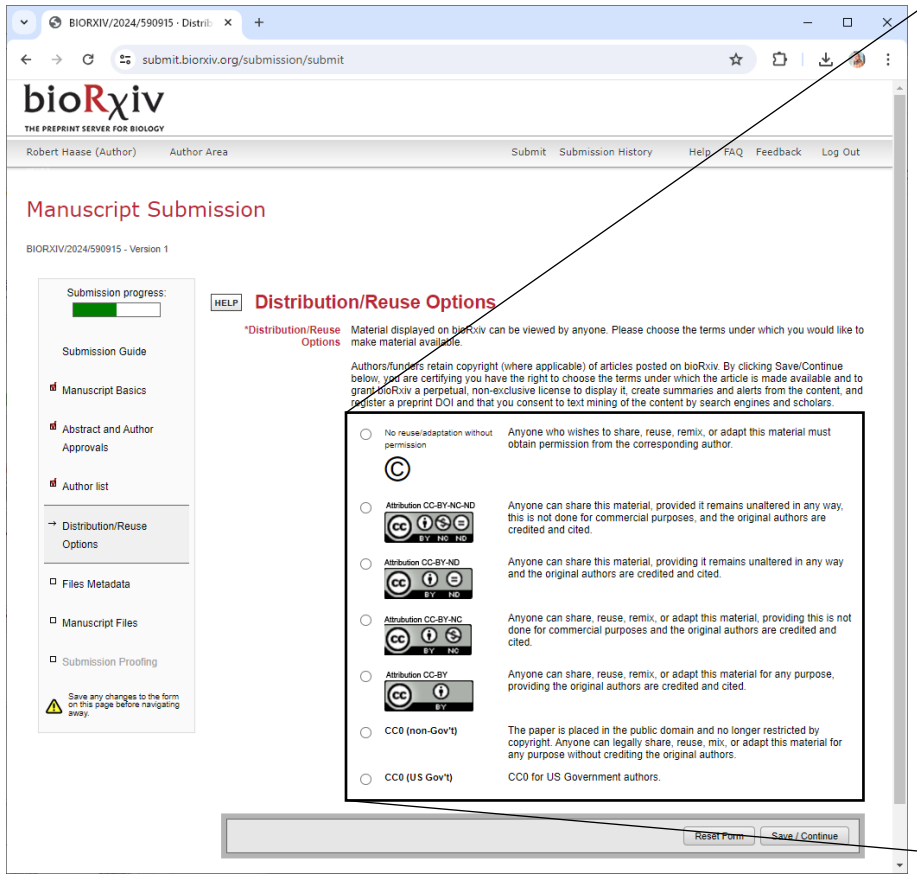
- Open Access -> Others teach how to use <u>your</u> *tools & methods*

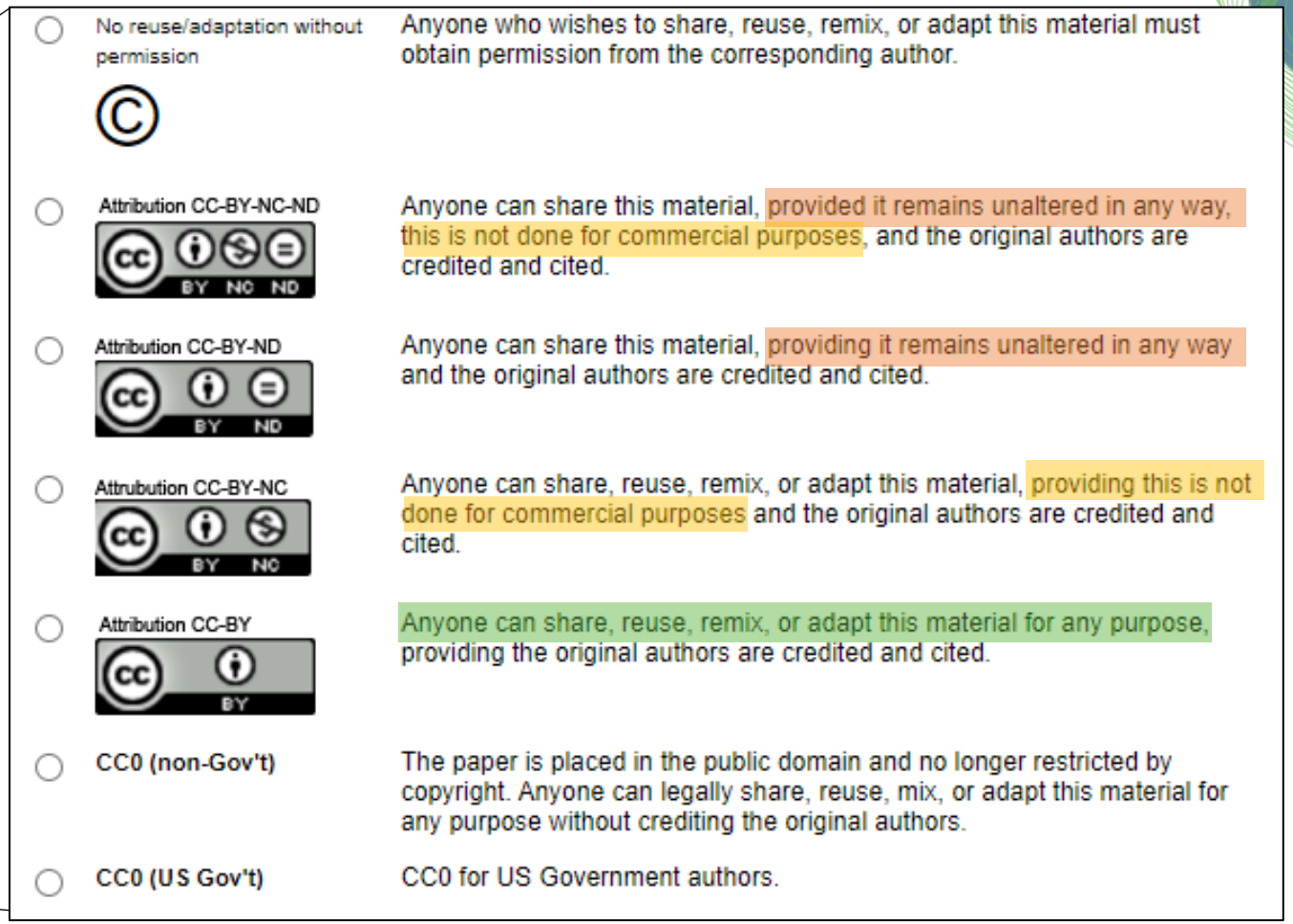




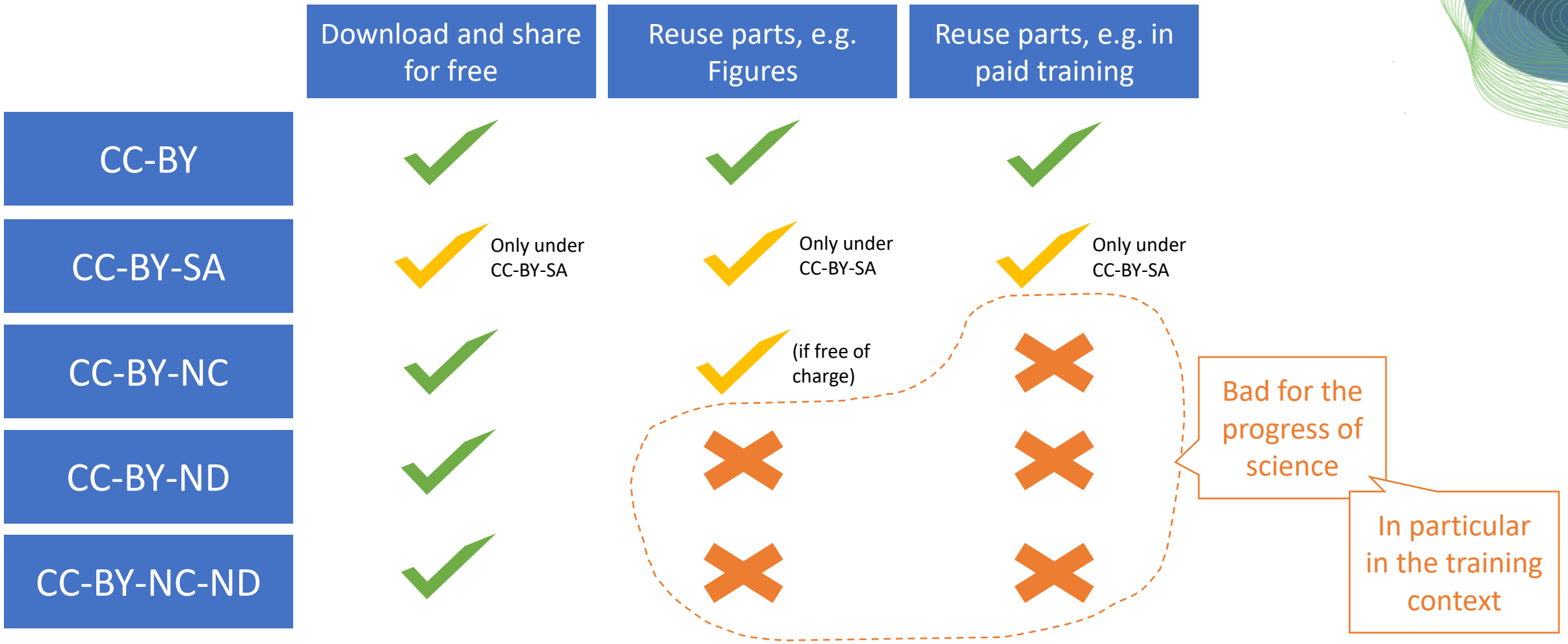
The FAIR-principles

Making things reusable?





Licensing: Permissive versus restrictive



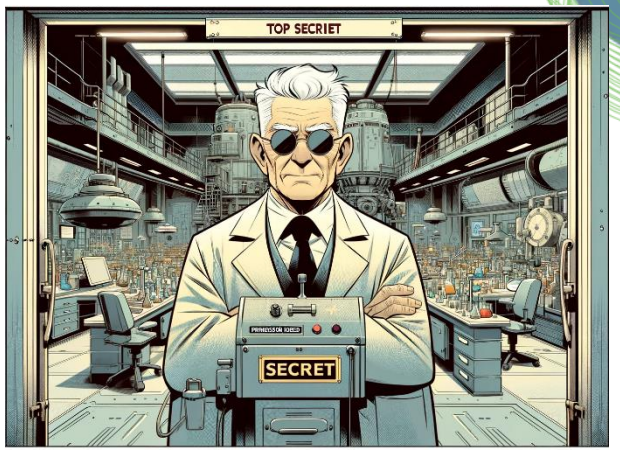
Licensing: Permissive versus restrictive

If you decide for a Non-Derivatives (ND) or Non-Commercial (NC) license, please have a good reason to do so. These two prohibit reuse of your materials, e.g. paid trainings.

Licensing: Permissive versus restrictive

- Restrictive
  - You can reuse our stuff, but only if you …
    - License your work with the same license we do
    - Make your stuff openly available
    - Make no money with derivatives of our work
  - Examples: GPL, CC-BY-SA, CC-BY-NC, CC-BY-ND

I conclude, these are less *open* in a sense



- Permissive licensing:
  - Do whatever you like with our stuff, just make sure to mention / cite us …
  - Examples: BSD, MIT, Apache, CC-BY

Take home message

If you share material (openly or not)

license it

and it’ll be harder to steal it

Please use

CC-BY

as license for your materials to make them reusable.

Summary

- If you want to make your stuff reusable:
  - Share it on community-wide platforms (not institutional servers)
  - Register them in search-indices
  - Use permissive licenses
- Read more:
  - A Call for FAIR and Open-Access Training Materials to advance Bioimage Analysis https://osf.io/2zgmc with Christian Tischer, Pete Bankhead, Kota Miura and Beth Cimini
  - Sharing on Zenodo https://focalplane.biologists.com/2023/02/15/sharing-research-data-with-zenodo/
  - Sharing on Figshare, by Elisabeth Kugler https://focalplane.biologists.com/2023/07/26/sharing-your-poster-on-figshare/
  - Collaborative work on github https://focalplane.biologists.com/2021/09/04/collaborative-bio-image-analysis-script-editing-with-git/
  - Licensing https://focalplane.biologists.com/2023/05/06/if-you-license-it-itll-be-harder-to-steal-it-why-we-should-license-our-work/

https://doi.org/10.5281/zenodo.11065721

Acknowledgements

Communities & platforms

image.sc

NFDI4 BIOIMAGE

GloBIAS Global BioImage Analysts' Society

neubias network of european bioimage analysts

FocalPlane Where biology meets microscopy

SaxFDM

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- Maleeha Hassan
- Stefan Hahmann

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