

# You and your research data

Reinder Radersma | NWO-I Digital Competence Center



# NWO-I Digital Competence Center

- NWO-I
  - 9 national research institutes
- NWO-I DCC
  - Open data and software management
  - Provide training, advice and support
    - Basic digital skills
    - AI applications

<https://nwo-i.nl/dcc>

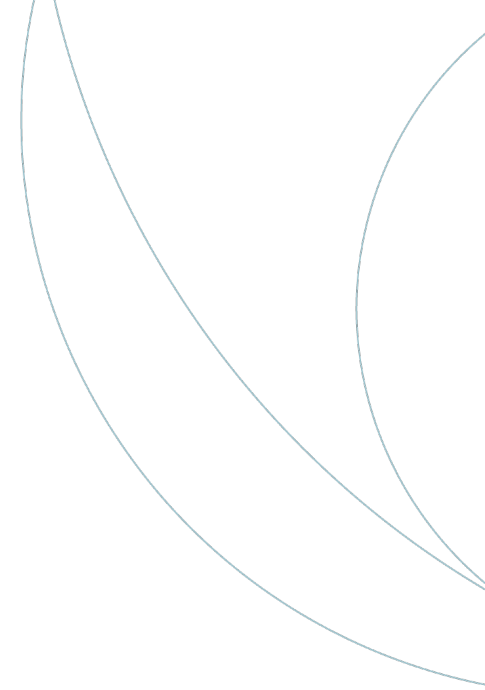
[nwo-i-dcc@cw.nl](mailto:nwo-i-dcc@cw.nl)



# You and your research data

- Why care about your data?
  - Legal perspective
  - Moral perspective
  - Code of conduct
- How care for your data?
  - Standards
  - FAIR principles
  - Metadata
- Conflict of interests
  - Collaborations
  - Moving job

# Mentimeter



# Why care about your data?



# Legal perspective

- You are not the owner or rightsholder of the data
  - Nikhef > NWO-I > NWO foundation
  - International consortium (*e.g.* CERN)
  - Funder

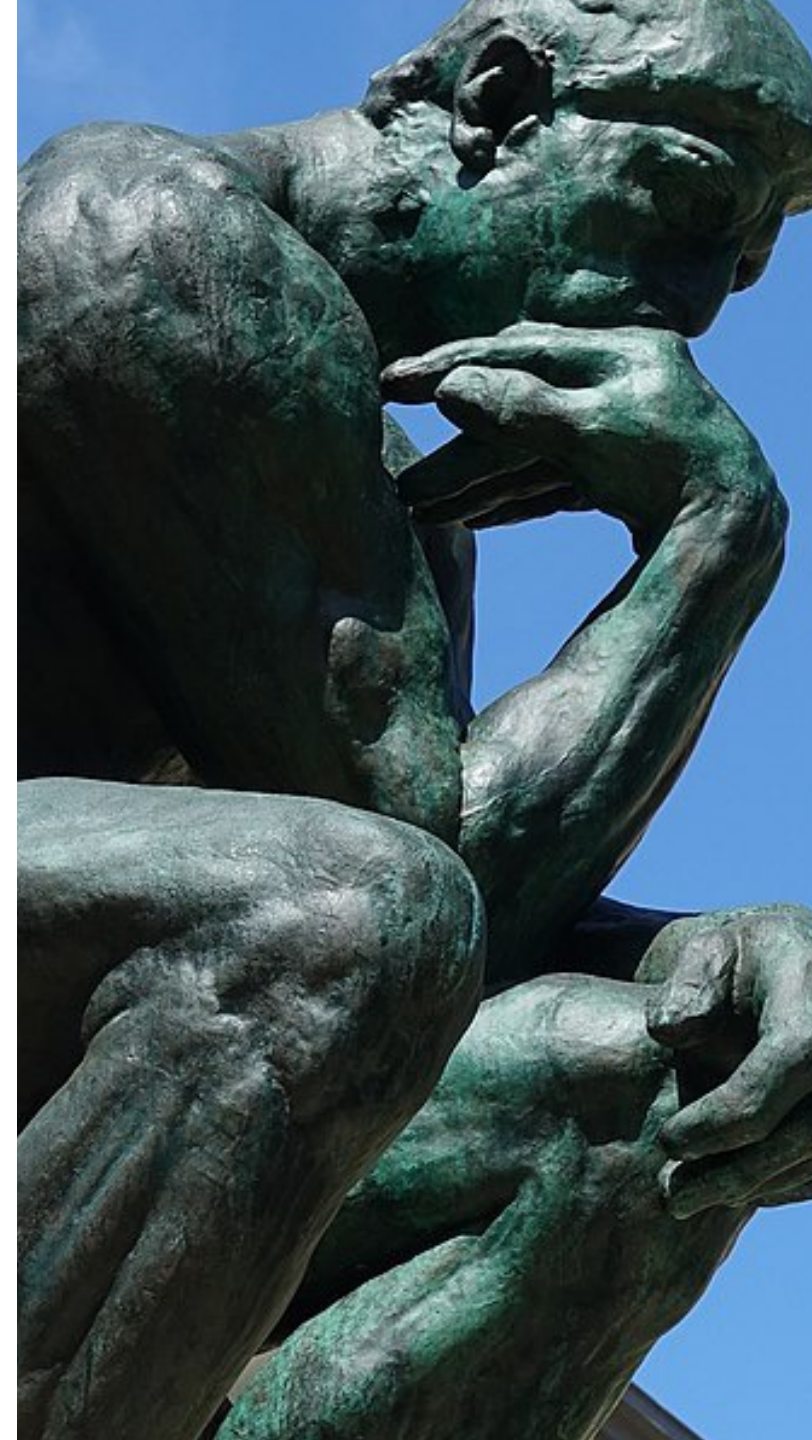
*Image: CC-BY: Governo do Estado de São Paulo*



# Moral considerations

- You are (most likely) publically funded, so you work for society
- Others should be able to use your findings and data

*Image: CC-BY: CrisNYCa*



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- Science works on trust
- Others should be able to check and reproduce your work
  - More careful
  - Prevent motivated perception
  - Make yourself credible
  - Prevent fraud

*Image: CC-BY: CrisNYCa*





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  - Prevent fraud
- You are a custodian
  - Take good care of data
  - Able to transfer data

*Image: CC-BY: CrisNYCa*



# Netherlands Code of Conduct for Research Integrity

- Adopted by NWO institutes
- Five principles
  - Honesty
  - Scrupulousness
  - Transparency
  - Independence
  - Responsibility

<https://www.nwo.nl/en/netherlands-code-conduct-research-integrity>



Netherlands  
Code of Conduct  
for Research  
Integrity

2018

# How care for your data?



# Netherlands Code of Conduct for Research Integrity

- Standards for good research practices
  - Design
  - Conduct
  - Reporting results
  - Assessment and peer review
  - Communication

<https://www.nwo.nl/en/netherlands-code-conduct-research-integrity>



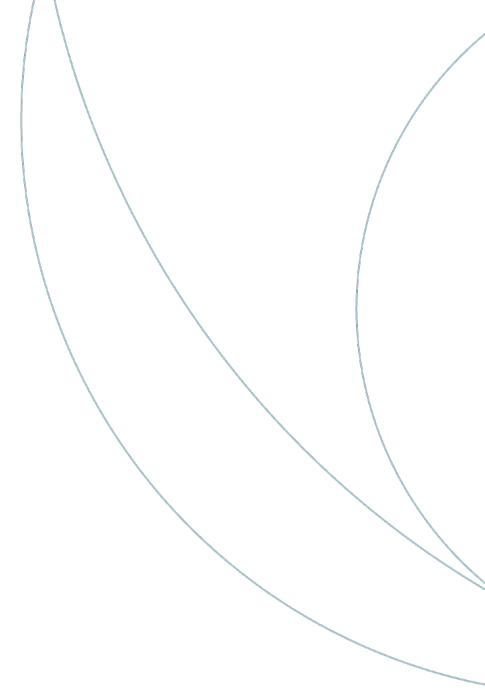
Netherlands  
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# Open Science

*“Open Science is a set of principles and practices to make scientific research accessible to everyone for the benefit of scientists and society.” – UNESCO*

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# FAIR Principles

**F A I R**



Findable



Accessible



Interoperable



Reusable

*Image: National Library of Medicine*

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

# Make your data findable

- Add rich metadata
  - Dublin Core
- Add unique identifier
- Metadata in searchable source

<https://www.dublincore.org>

[https://en.wikipedia.org/wiki/Dublin\\_Core](https://en.wikipedia.org/wiki/Dublin_Core)



Contributor	Format	Rights
Coverage	Identifier	Source
Creator	Language	Subject
Date	Publisher	Title
Description	Relation	Type



# Make your data findable

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Example:



<https://zenodo.org>

Upload type required

Publication  Poster  Presentation  Dataset  Image  Video/Audio  Software  Lesson  Physical object   
Workflow  Other

Publication type  Publication type.

Basic information required

**Digital Object Identifier**   
Optional. Did your publisher already assign a DOI to your upload? If not, leave the field empty and we will register a new DOI for you. A DOI allows others to easily and unambiguously cite your upload. Please note that it is NOT possible to edit a Zenodo DOI once it has been registered by us, while it is always possible to edit a custom DOI.

**Publication date**   
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**Title**   
Required.

**Authors**    Optional.  
[+ Add another author](#)

**Description**   
Required.

**Version**   
Optional. Mostly relevant for software and dataset uploads. Any string will be accepted, but semantically meaningful strings are recommended.

# Make your data accessible

- Data and metadata retrievable via the identifier
  - Standardized open communication protocol
- Metadata are accessible, even when the data are no longer available

This means for you:

- Choose a good place to store your data
  - Certified (<https://www.coretrustseal.org>)
  - Trusted in your community



# Make your data accessible

- Nikhef's own repository: [archive.nikhef.nl](https://archive.nikhef.nl)

This is a test environment

Nikhef

Search...

Clipboard Settings DASHBOARD LOG OUT

### SUMMARY

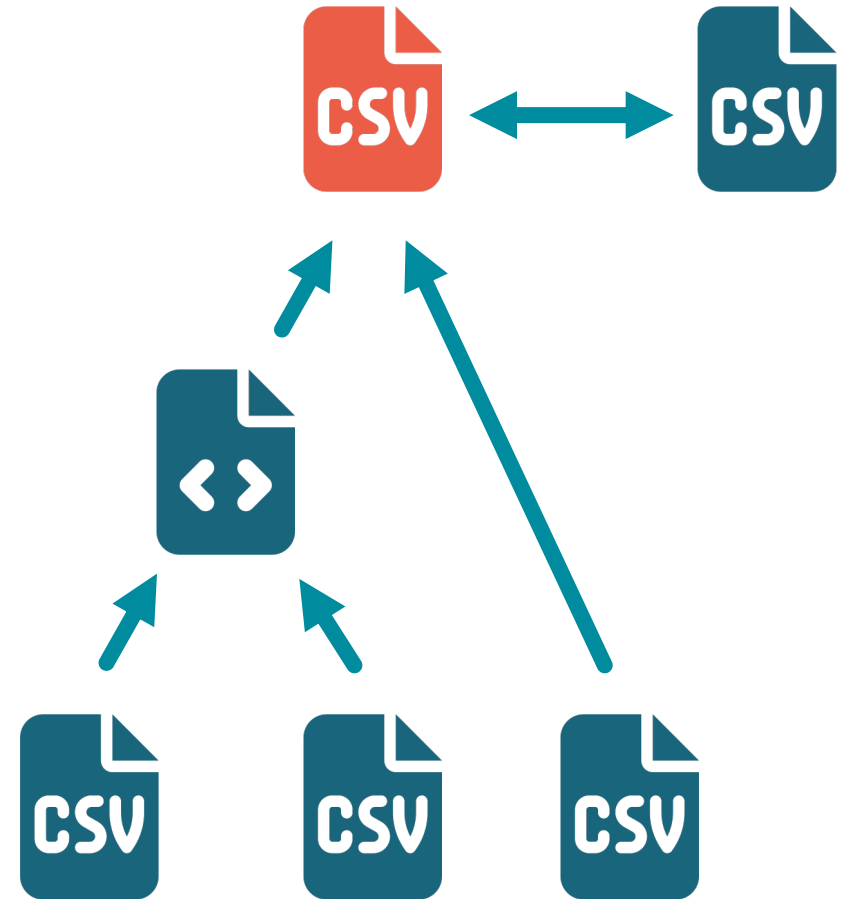
2	datasets
6	authors
0	collections
1	files
619,534	bytes

### LATEST DATASETS [ALL]

- 4TU Institutional Repo Code Nikhef
- Semantic Representation of Physics Research Data

# Make your data interoperable

- Use broadly applicable language
- Use good keywords
- Describe relationships



# Make your data reusable

- Clear license
  - Plan S: Creative Commons Zero / Attribution
  - <https://creativecommons.org/choose/>
- Detailed provenance
- Meet community standards

<https://www.coalition-s.org>



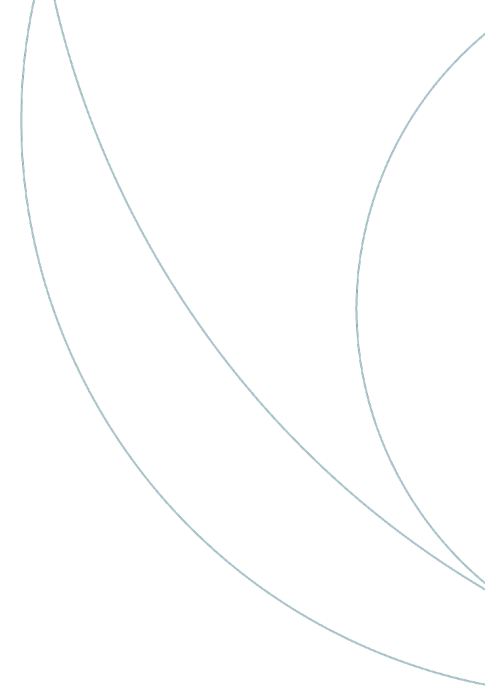
# Conflict of interests



# Collaborations

- Clear agreements over results and data
  - Rightholders
  - Access to data
  - Storage
- International collaborations
  - Laws and regulatory frameworks

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# Moving job

- Data is not moving with you
- You might want to keep using data
  - Finishing up
  - Continuation of work
  - Commercialisation
- Make agreements with supervisor / director
- Open data
  - Be clear about intentions



# Resources

- NWO-I Digital Competence Center
  - <https://nwo-i.nl/dcc>
- Netherlands Code of Conduct for Research Integrity
  - <https://www.nwo.nl/en/netherlands-code-conduct-research-integrity>
- FAIR principles
  - <https://www.go-fair.org/fair-principles/>
- DublinCore
  - [https://en.wikipedia.org/wiki/Dublin\\_Core](https://en.wikipedia.org/wiki/Dublin_Core)
- The Turing Way handbook to reproducible, ethical and collaborative data science
  - <https://the-turing-way.netlify.app>

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