

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>

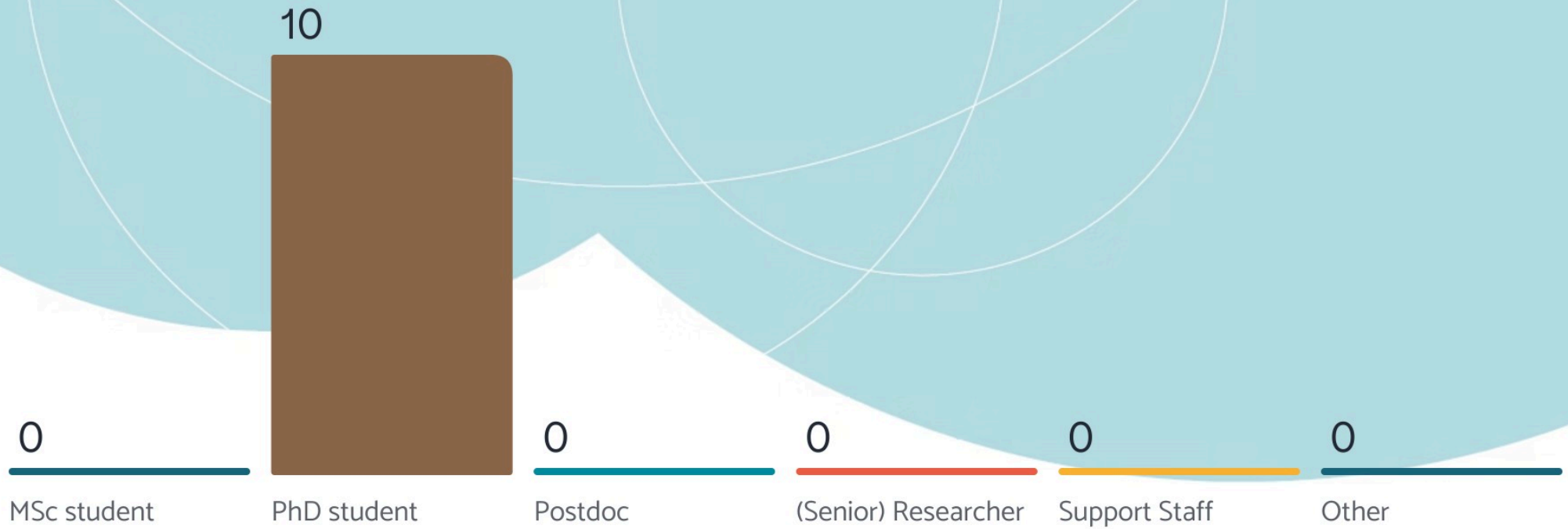
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You and your research data

- 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

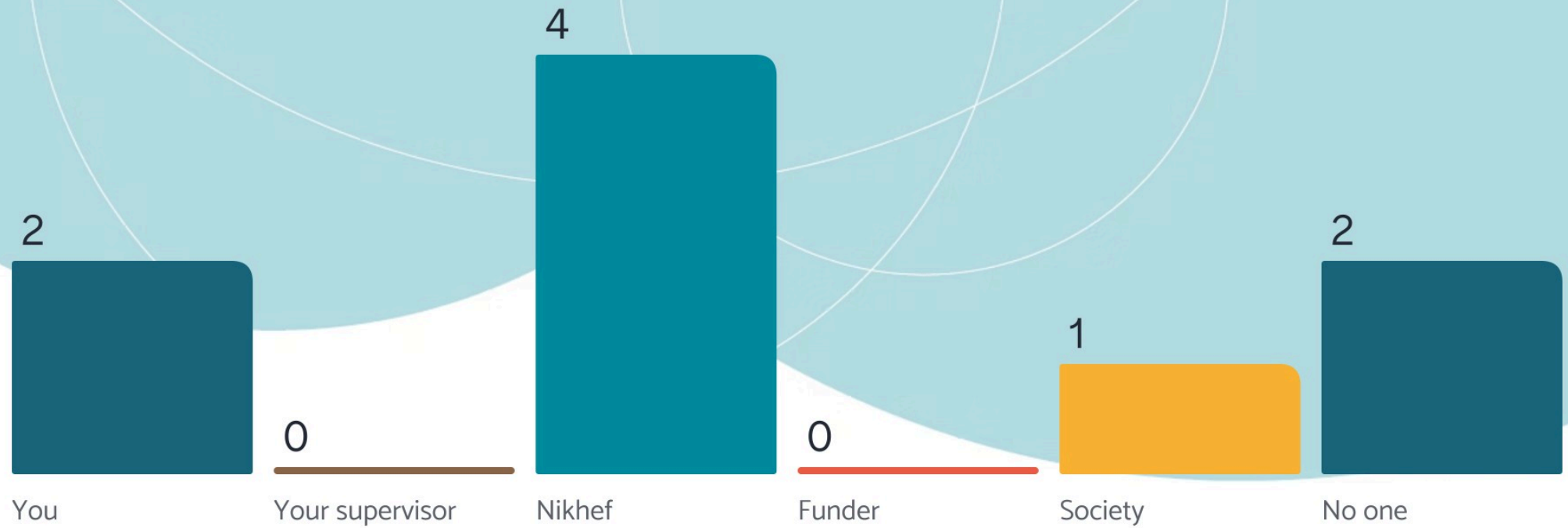
What is your role?



Why care about your data?



Who owns the data?



Legal perspective

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

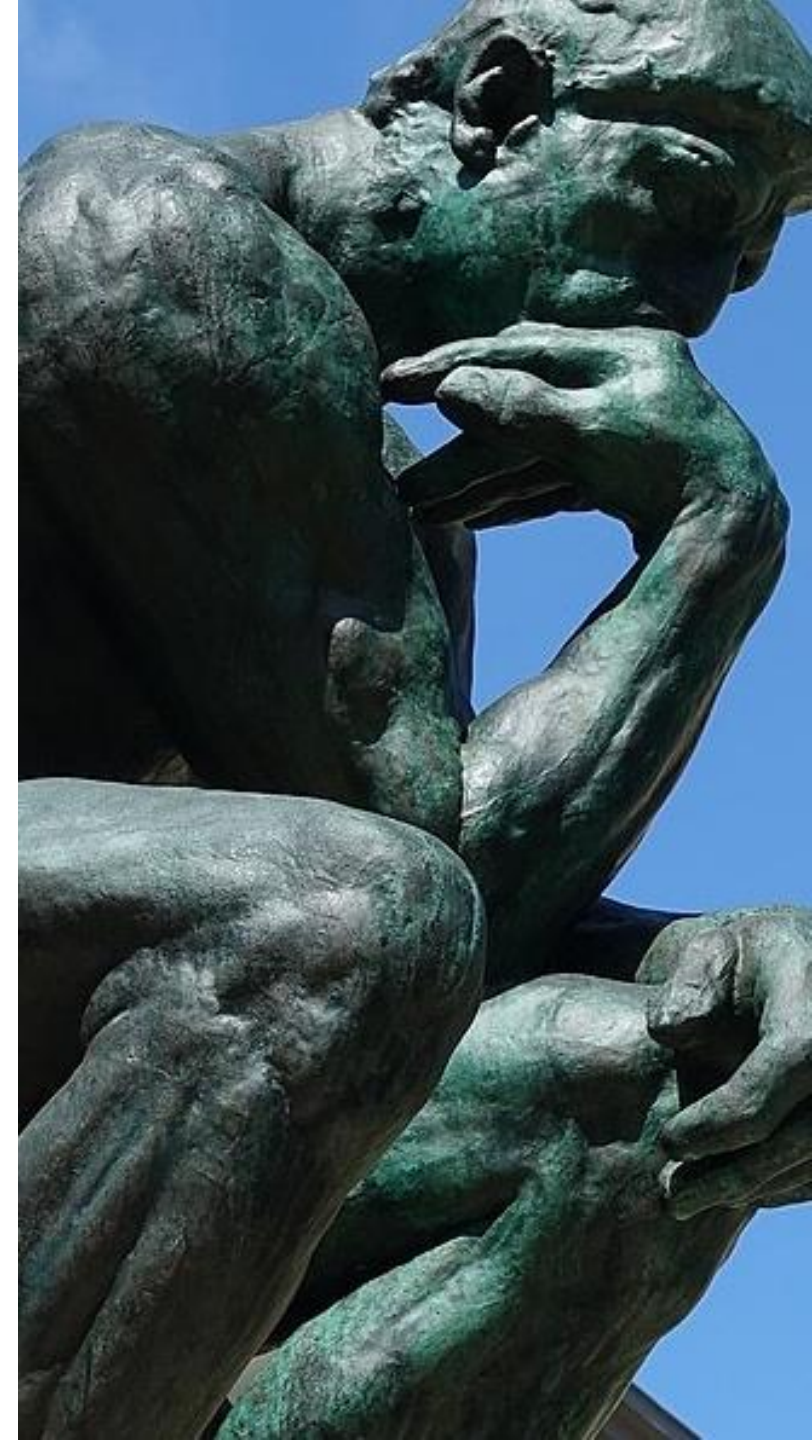
Image: CC-BY: Governo do Estado de São Paulo



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



Moral considerations

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



Moral considerations

- You are (most likely) publically funded, so you work for society
- Others should be able to use your findings and data
- Science works on trust
- Others should be able to check and reproduce your work
 - More careful
 - Prevent motivated perception
 - Make yourself credible
 - 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>



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2018

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

How should you treat your data in the light of Open Science?

18 responses

A word cloud of responses to the question 'How should you treat your data in the light of Open Science?'. The words are arranged in a circular pattern, with 'reproducible' being the largest and most central word. Other prominent words include 'open to use', 'transparent', 'share it', 'findable', 'open to access', 'open to access analysis', 'no confidential informatio', 'carefully', 'make your analysis public', 'make your data public', 'transparant analysis', 'without pre-analysis', 'open to access data', 'non-biased data', and 'following fair principle'. The words are in various colors, including orange, teal, and red.

transparent
open to use
make your data public
transparant analysis
without pre-analysis
open to access data
non-biased data
share it
reproducible
following fair principle
findable
open to access
open to access analysis
no confidential informatio
carefully
make them accessible
make your analysis public

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



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

Make your data findable

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

Example:



<https://archive.nikhef.nl>

ADD NEW DATASET

Dataset details

Fields marked with * are required.

Title ⓘ *

Untitled item

Authors ⓘ *

Collaborators BETA ⓘ

[Manage collaborators](#)

Description ⓘ *

B I U 🔗 ☰ ☷ ↶

Licence & Access

Open access

Embargoed access

Restricted access

Open access is the default setting in Nikhef by which your dataset will be directly accessible to others.

Licence ⓘ *

Select a licence

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

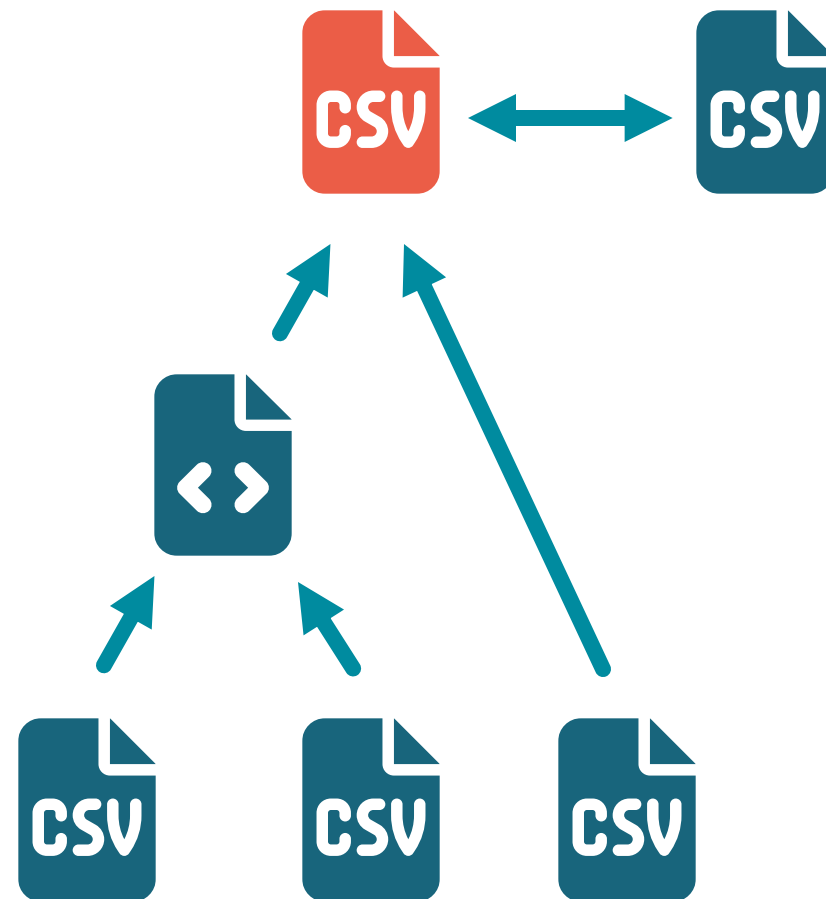
This means for you:

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



Make your data 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>



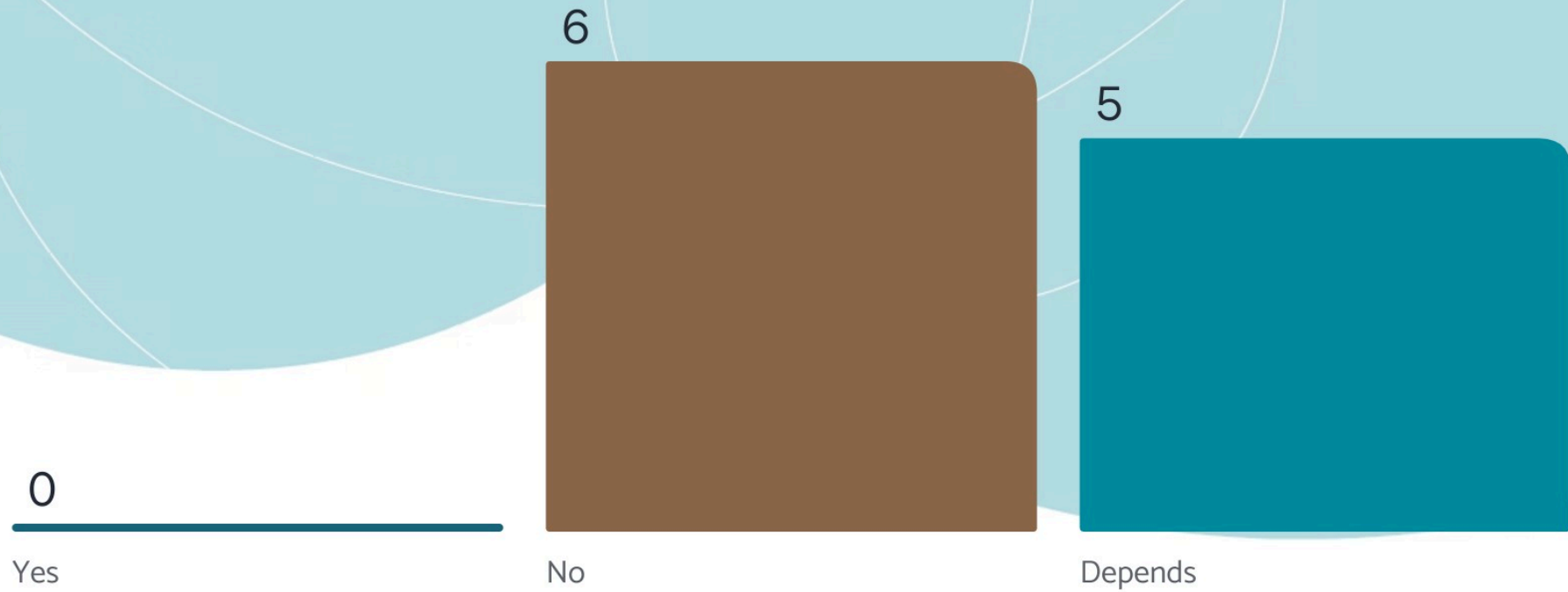
Conflict of interests



Collaborations

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

When you move jobs, can you take data with you?



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
- The Turing Way handbook to reproducible, ethical and collaborative data science
 - <https://the-turing-way.netlify.app>

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