NFDI-MatWerk – Reference Datasets

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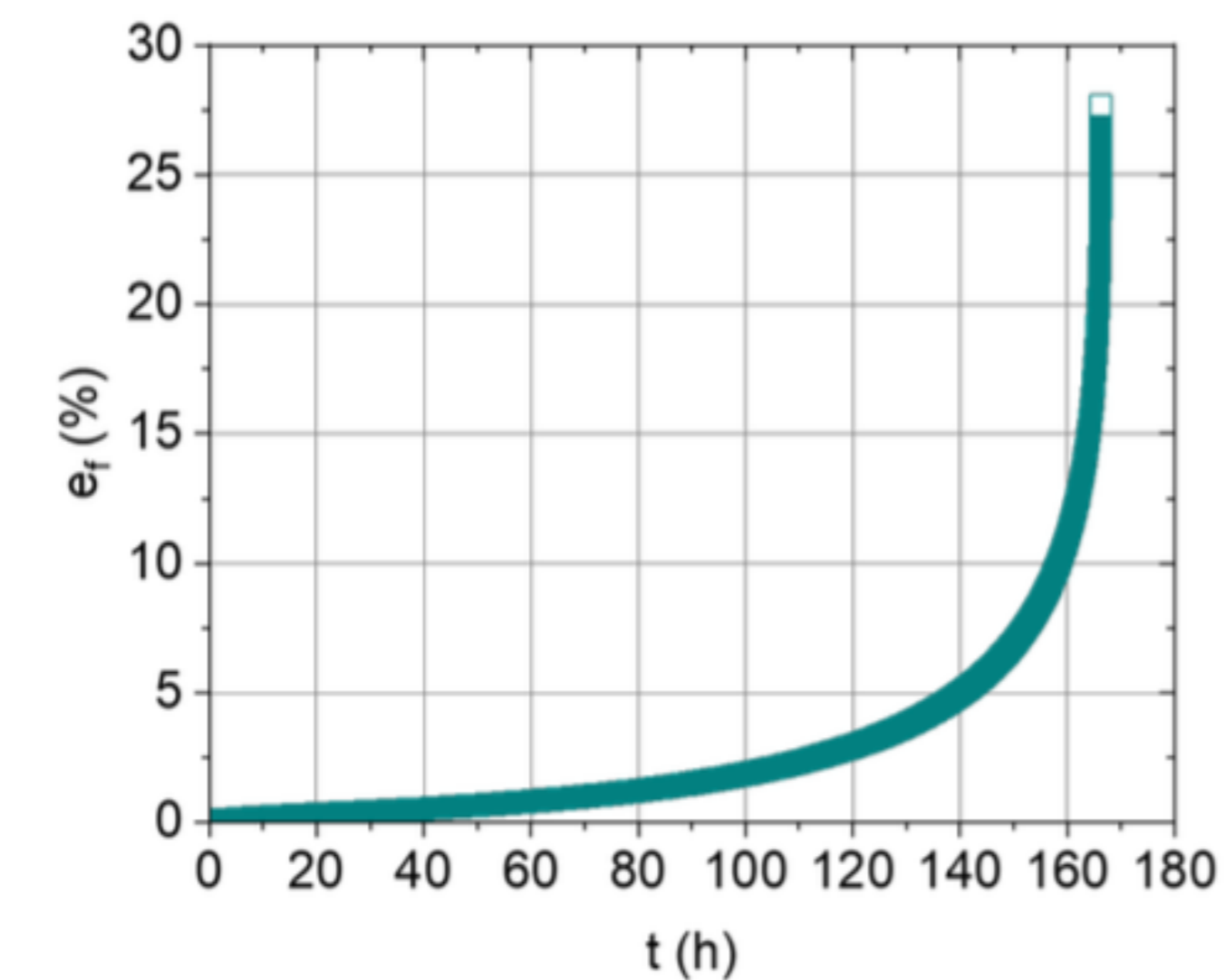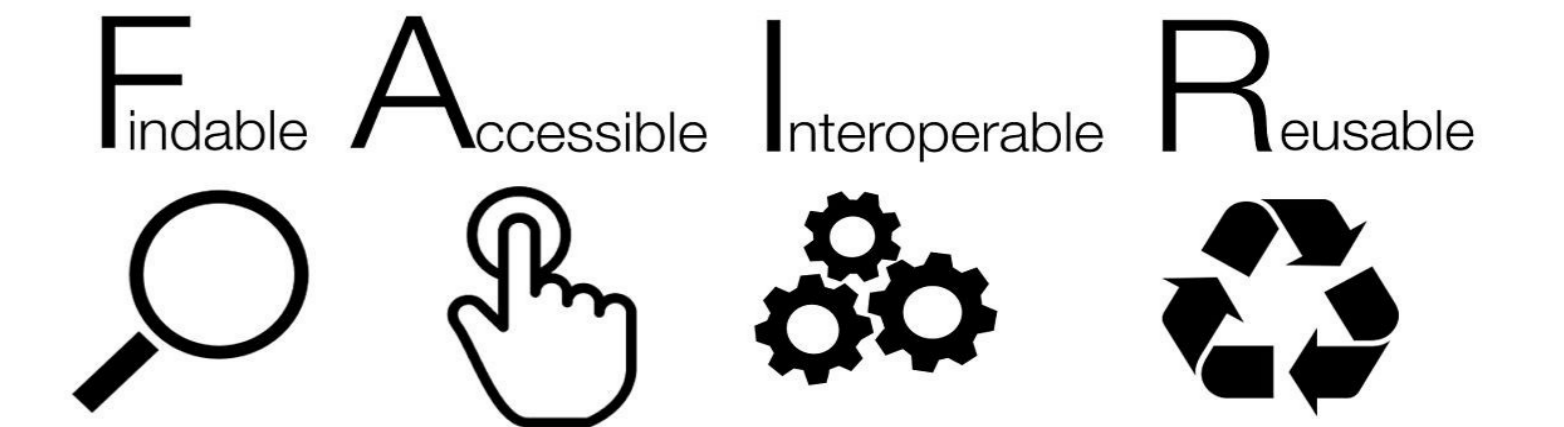
Findable **A**ccessible **I**nteroperable **R**eusable

Participant Projects (PPs)

Research groups selected to provide typical use cases related to the management of research data.

PP18

- Bundesanstalt für Materialforschung und -prüfung
- Modelling of the mechanical behaviour of materials
- Lab results of material creep tests
- LIS file format

PP13

- University of Saarland
- Tomographic methods applied to generate data using SEM/X-rays
- Thousands of images per dataset
- Various file formats: tiff, txt...
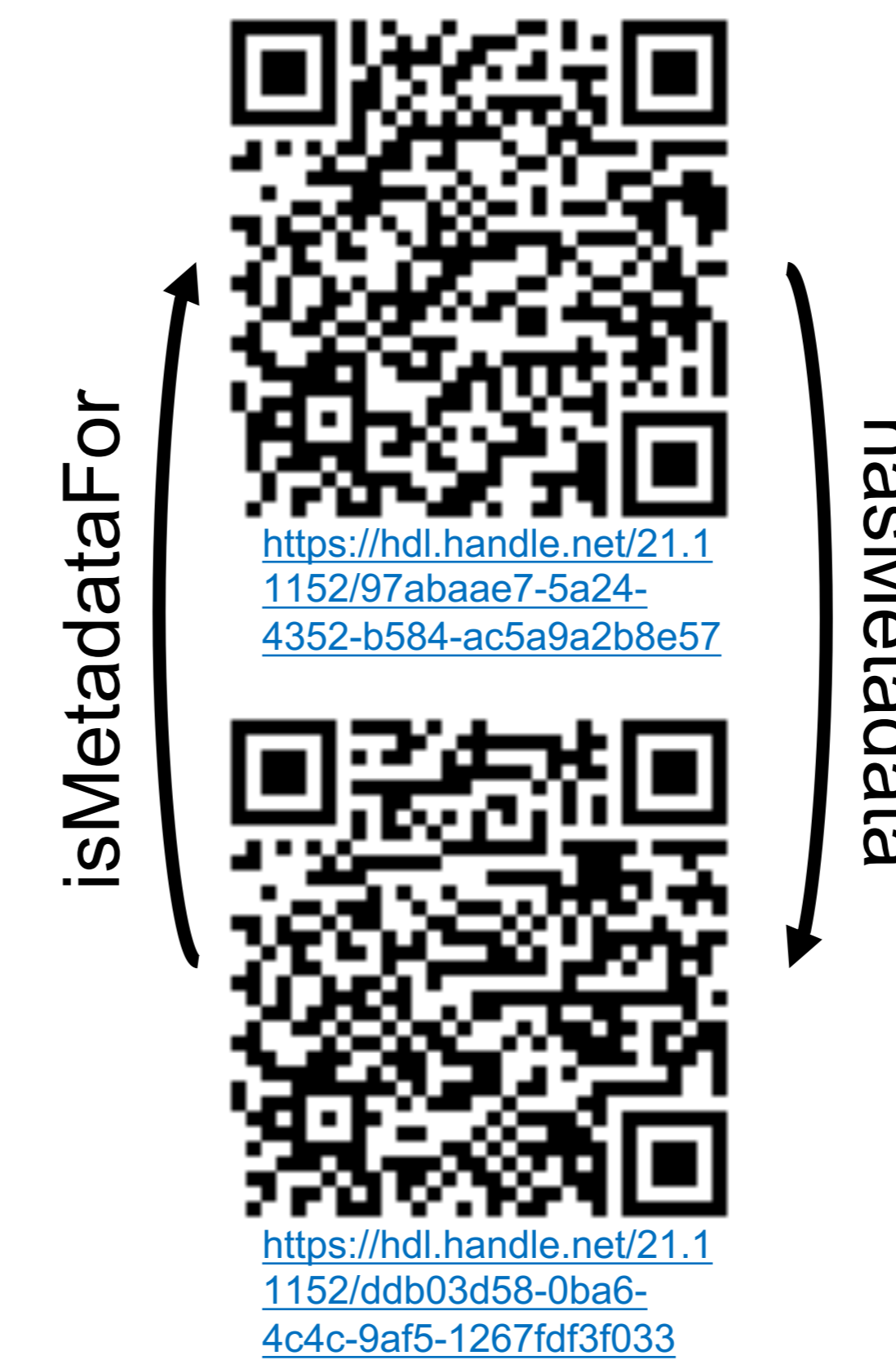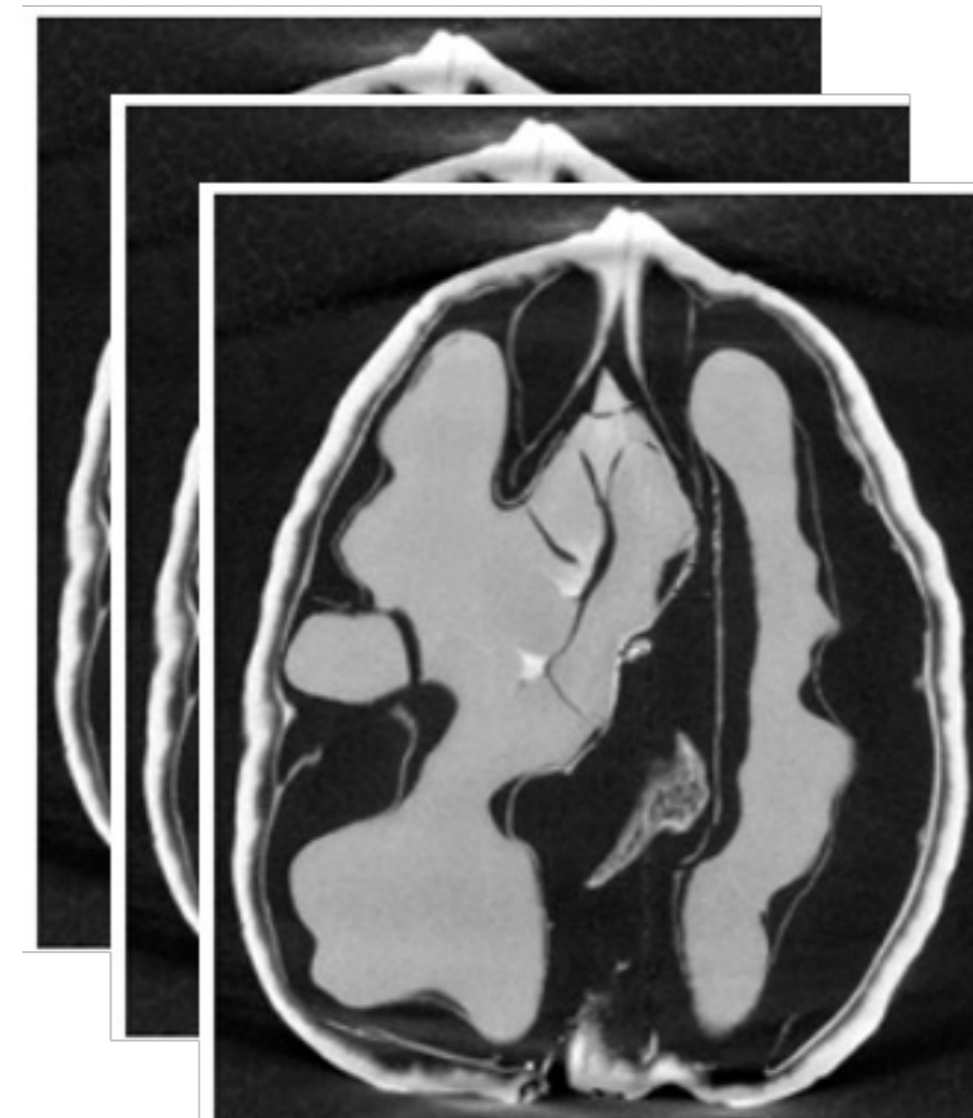
PP07

- University of Stuttgart
- Image-based prediction of material properties
- Focus on synthetically-generated stochastic microstructures
- HDF5 formats in various sizes

Our Aim

To shape scientific datasets obtained from the PPs from a data management perspective to conform to the FAIR principles, making use of the FAIR Digital Object (FAIR DO) concept, including structured metadata and storage solutions.
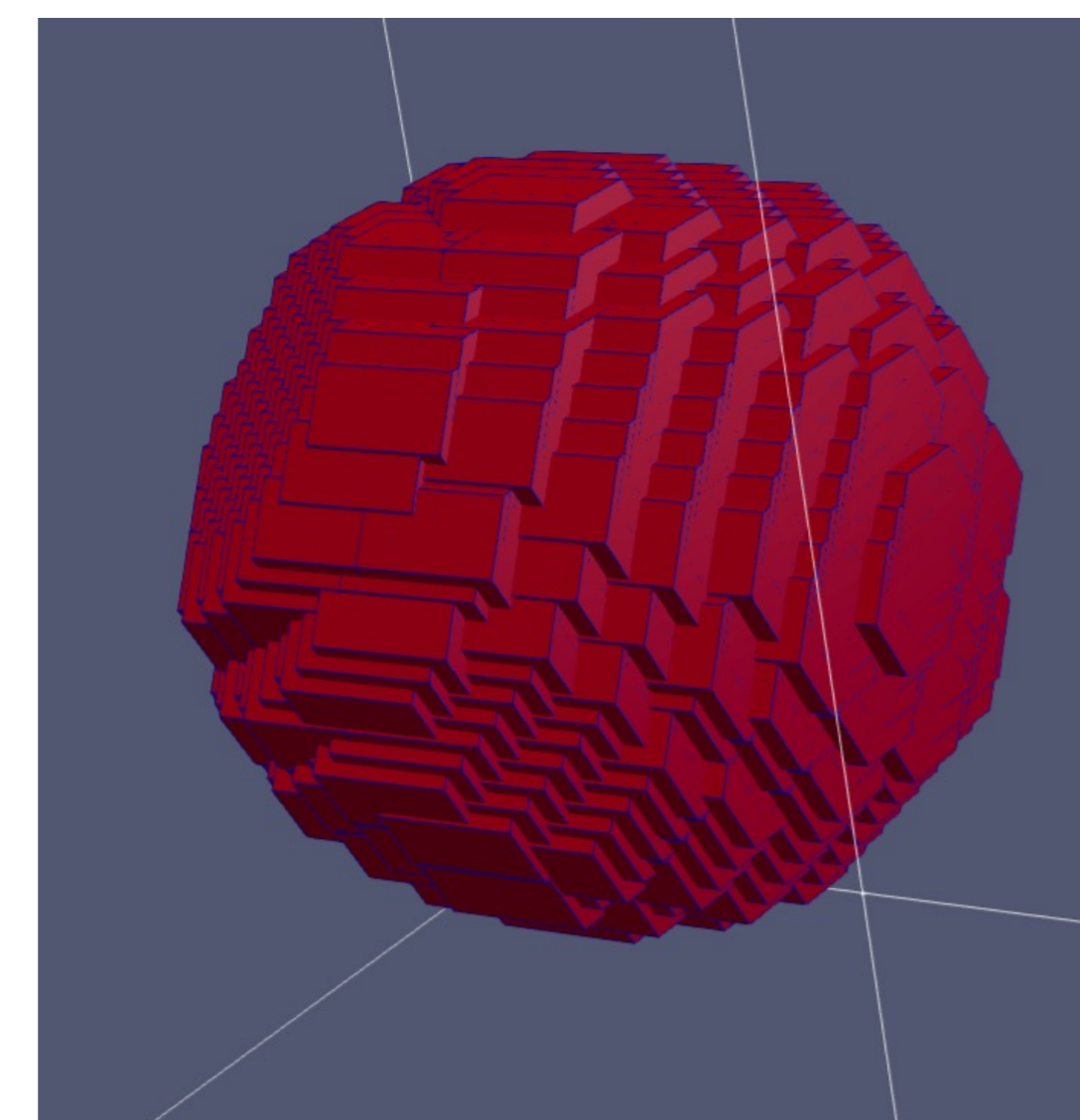

Creep strain vs. Time (CMSX-6, T = 980°C, σ = 200 MPa)

FAIR DO

https://hdl.handle.net/21.1152/253e0f2a-4d4a-4916-a45a-ef7cd8ad1f9b

FAIR DO

isMetadataFor   hasMetadata

https://hdl.handle.net/21.1152/97abaae7-5a24-4352-b584-ac5a9a2b8e57

https://hdl.handle.net/21.1152/ddb03d58-0ba6-4c4c-9af5-1267fdf3f033

PID Information Record

Index	Type	Value
1	kernelInformationProfile	21.T11148/b9b76f88784 5e32d29f7
2	dateModified	2022-09-15T00:00:03+00:00
3	21.T11148/aafd5fb4c7222e2d950a	2022-09-15T00:00:03+00:00
4	digitalObjectLocation	https://zenodo.org/api/files/5b350336-00aa-4a26-a621-8feb902fda51/BCR425-280-1.LIS
5	version	1.0.0
6	digitalObjectType	21.11152/6d9cd868-549d-4c53-9aae-16477673971c
7	contact	https://www.scc.kit.edu/ueberuns/dem.php
8	licenseUrl	https://creativecommons.org/licenses/by-nd/4.0/legalcode
9	21.T11148/b415e16fbe4ca40f2270	http://vocabularies.unesco.org/thesaurus/mt6.55
10	checksum	{"md5sum":"d1a83d135eb91011c1a68cfaaeff96d1"}
100	HS_ADMIN	

https://kit-data-manager.github.io/fairdoscope/?pid=21.11152/253e0f2a-4d4a-4916-a45a-ef7cd8ad1f9b

FAIR DO Graph

21.11152
ddb03d58-0ba6-4c4c-9af5-1267fdf3f033

21.11152
97abaae7-5a24-4352-b584-ac5a9a2b8e57

https://kit-data-manager.github.io/fairdoscope/?pid=21.11152/ddb03d58-0ba6-4c4c-9af5-1267fdf3f033
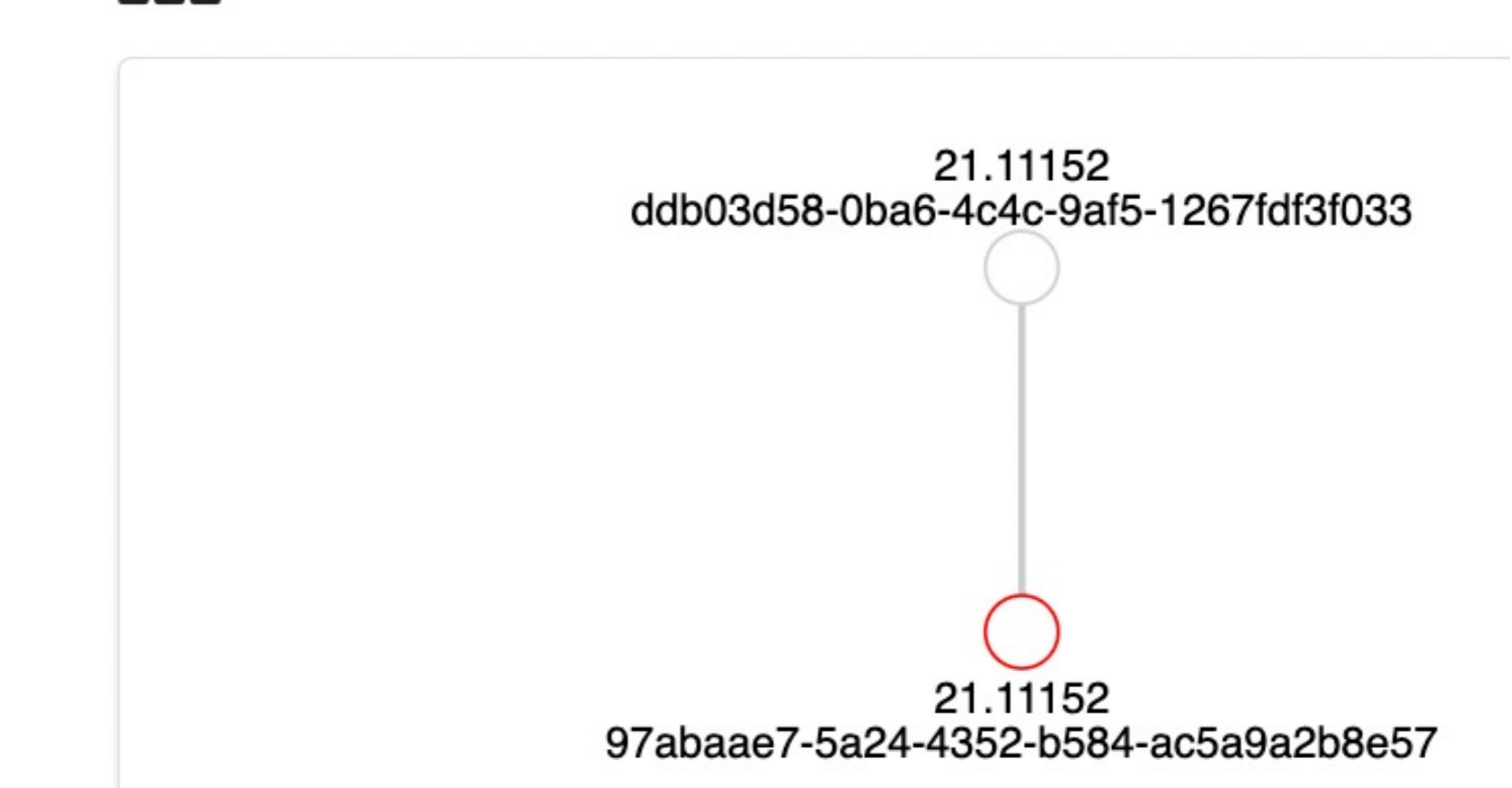
Results

We shaped the reference datasets as FAIR DOs, with the following advantages:
- datasets and their metadata can be physically distributed
- datasets can be more Findable, Accessible, Interoperable, and Reusable
- datasets can be machine readable and actionable

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