

Narrowing the gap between international FAIR Best Practices for Open Science and University implementation

Kristina Hettne | Centre for Digital Scholarship, Leiden University Library

Focus on Open Science, Kaunas

29 Oct 2019



**Universiteit
Leiden**
The Netherlands



Leiden University in figures

7



Faculties

16



Nobel Prizes

46



Bachelor's programmes

83



Master's programmes

120



Nationalities

28,130



Students

109,000



Alumni

2



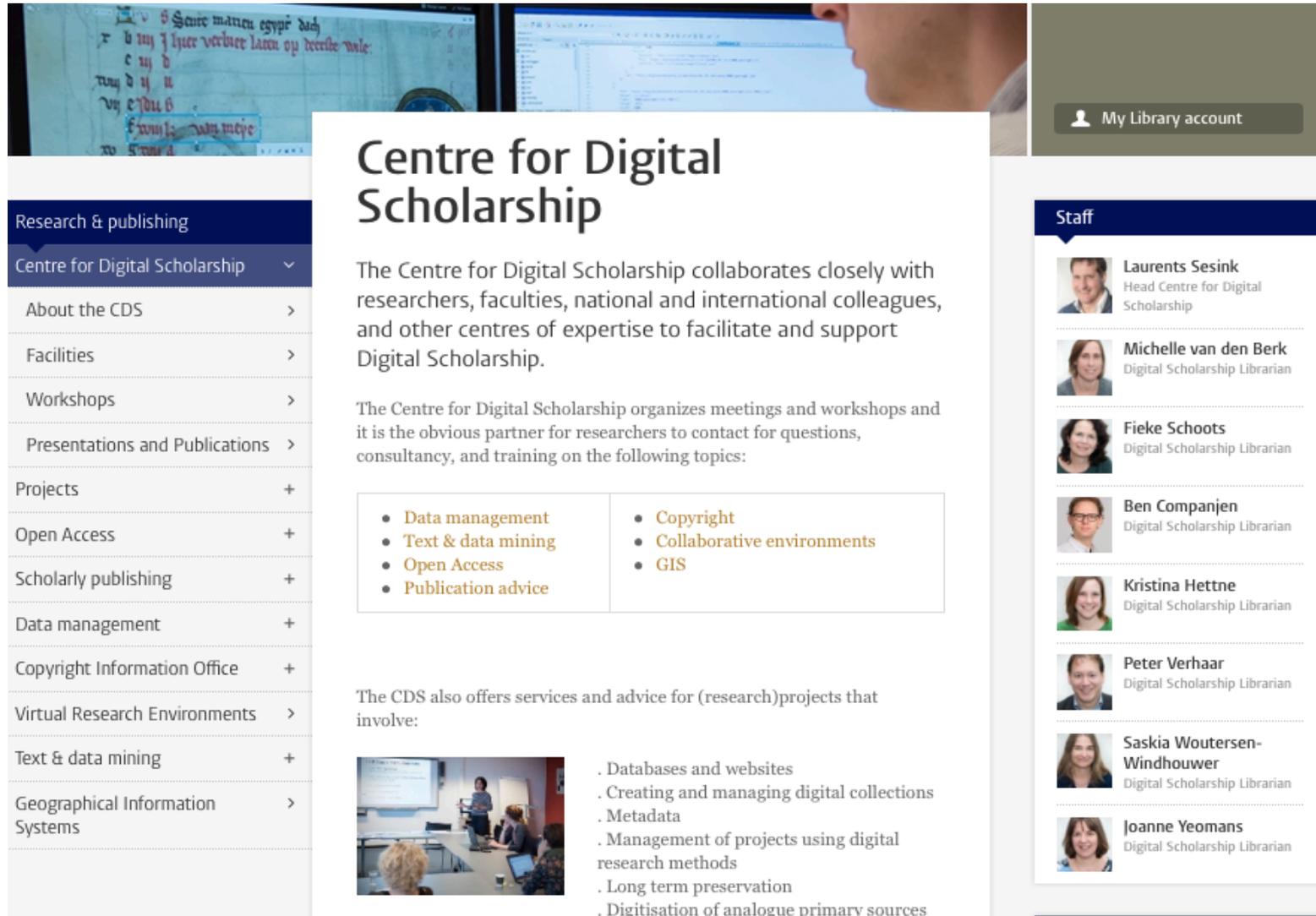
Cities

6,700



Employees

CDS provides supports for Open Access, data management, use of digital data and copyright



Research & publishing

- Centre for Digital Scholarship
- About the CDS
- Facilities
- Workshops
- Presentations and Publications
- Projects
- Open Access
- Scholarly publishing
- Data management
- Copyright Information Office
- Virtual Research Environments
- Text & data mining
- Geographical Information Systems

Centre for Digital Scholarship

The Centre for Digital Scholarship collaborates closely with researchers, faculties, national and international colleagues, and other centres of expertise to facilitate and support Digital Scholarship.

The Centre for Digital Scholarship organizes meetings and workshops and it is the obvious partner for researchers to contact for questions, consultancy, and training on the following topics:

- Data management
- Text & data mining
- Open Access
- Publication advice
- Copyright
- Collaborative environments
- GIS

The CDS also offers services and advice for (research)projects that involve:

- . Databases and websites
- . Creating and managing digital collections
- . Metadata
- . Management of projects using digital research methods
- . Long term preservation
- . Digitisation of analogue primary sources

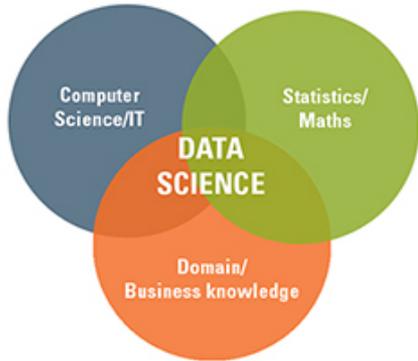
Staff

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Digital Scholarship Librarian
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Leiden University Institutional Plan

2015-2020

Supporting academics in the transition to a more interactive academic environment: *Open Science*



- Facilitate **sharing** and **collaboration**
- Provide **state-of-the-art** support and infrastructure to facilitate **Data Science**

Open Access policy @ Leiden University (December 2017)

- Implement the Open Access goals of the Dutch government: 100% 2020
- Stimulate Gold OA + upload publications to institutional repository



75% of Leiden University publications now Open Access available

Published on 21 October 2019

Researchers of Leiden University (excl. LUMC) are collectively using the Leiden Repository to make their publications Open Access available. They have, thereby, shown 75% Open Access publication to be an attainable goal for the 2017 and 2018 years. This has greatly increased the visibility and international accessibility of new Leiden University publications. The Centre for Digital Scholarship (CDS) at Leiden University Libraries (UBL) helps researchers with the Open Access publication process.

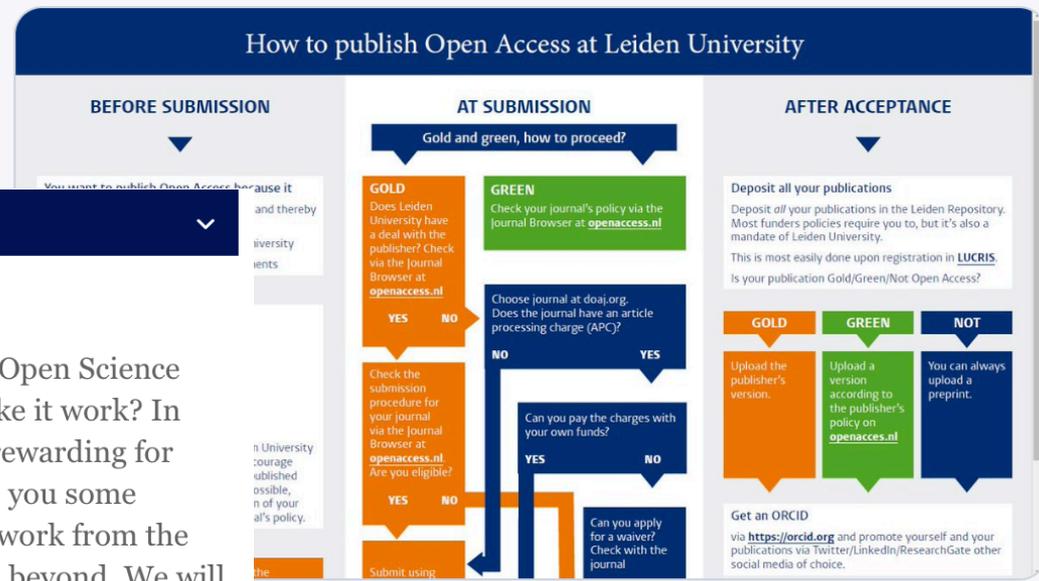
Open Access training @ Leiden University

- Open Access and Open Science workshops
- Information material



Centre for Digital Scholarship @CDSLeiden · Oct 22

How to publish Open Access @UniLeiden. In this bit.ly/2VYXAEy flowchart you will find a step by step explanation on how you can publish your article Open Access. #OpenAccessWeek OA increases international visibility, accessibility and thereby the impact of research.



Graduate School of Science

Programme

Open Science Opens Careers

Centre for Digital Scholarship (CDS)

Open Science: just science done right. Right? What does Open Science actually mean? What is in it for you and how can you make it work? In this workshop we will explore how Open Science can be rewarding for researchers and the research community alike. We'll give you some practical guidance on tools and ways of opening up your work from the start of your research project to the final conclusions and beyond. We will explore opportunities to increase your impact and visibility. We highlight the debate on new reward systems in science and how they may open new career paths.

Slides: <https://www.slideshare.net/UBL-CDS/open-science-opens-careers>

Research Data Management policy @ Leiden University (April 2016)

BEFORE

✓ Write a data management plan (DMP)

DURING

✓ Secure storage : integrity, availability, confidentiality

AFTER

- ✓ Data must remain available for **10 years**
- ✓ Data should be 'FAIR'
- ✓ Provide documentation, metadata, software for reuse
- ✓ Archive data in a certified archive

<https://doi.org/10.2218/ijdc.v12i2.575>

Box 2 | The FAIR Guiding Principles

To be 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 it describes
- F4. (meta)data are registered or indexed in a searchable resource

To be Accessible:

- A1. (meta)data are retrievable by their identifier using a standardized communications protocol
 - A1.1 the protocol is open, free, and universally implementable
 - A1.2 the protocol allows for an authentication and authorization procedure, where necessary
- A2. metadata are accessible, even when the data are no longer available

To be 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

To be 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

Research Data Management training @ Leiden University

- How to write a DMP workshops
- Workshops tailored to the needs of specific research institutes
- Hands-on training (Bring Your Own Data workshops)

Graduate School of Science

Programme

Let your research bloom: practical steps for FAIR data

Centre for Digital Scholarship (CDS)

Your research is going well, you've collected lots of data, you've started writing your thesis, you're almost ready to publish, or you have already. What can go wrong? Good research data management can help you save time and stress during your research, help others (including you!) re-use your data in future, and bolster your reputation and career. We take a fun look at why good data management is important, and how to do it. Have you thought about making your data more FAIR? Sometimes it just takes a few steps.

Slides: <https://www.slideshare.net/UBL-CDS/let-your-researchbloom-practical-steps-for-fair-data>



daniela @dgawehns · Jun 18

A day well spent: drafting (and re-drafting) my first metadata model @ubleiden today 🤖.



Kristina Hettne @KristinaHettne · Jun 18

Modelling data @ubleiden in the first FAIRification/BringYourOwnData workshop organised by @CDSLeiden! #FAIRdata

[Show this thread](#)

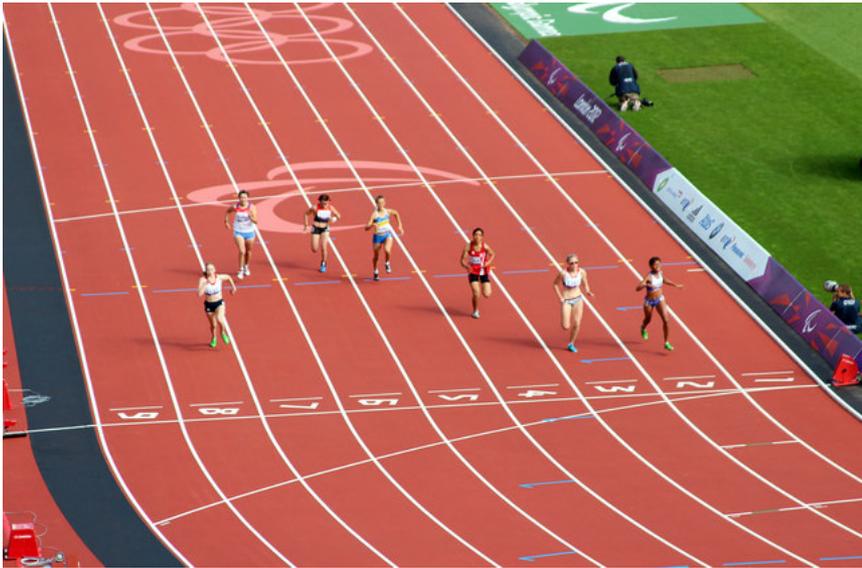


Material:

<https://github.com/fair-ds-curriculum/byod-leidenuniv-lib>

Challenge: keeping up to speed with national and international best practices

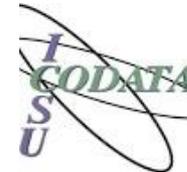
- Universities are complex organisations – need to translate best practices to the level of faculties, institutes, individual researchers
- Change takes time

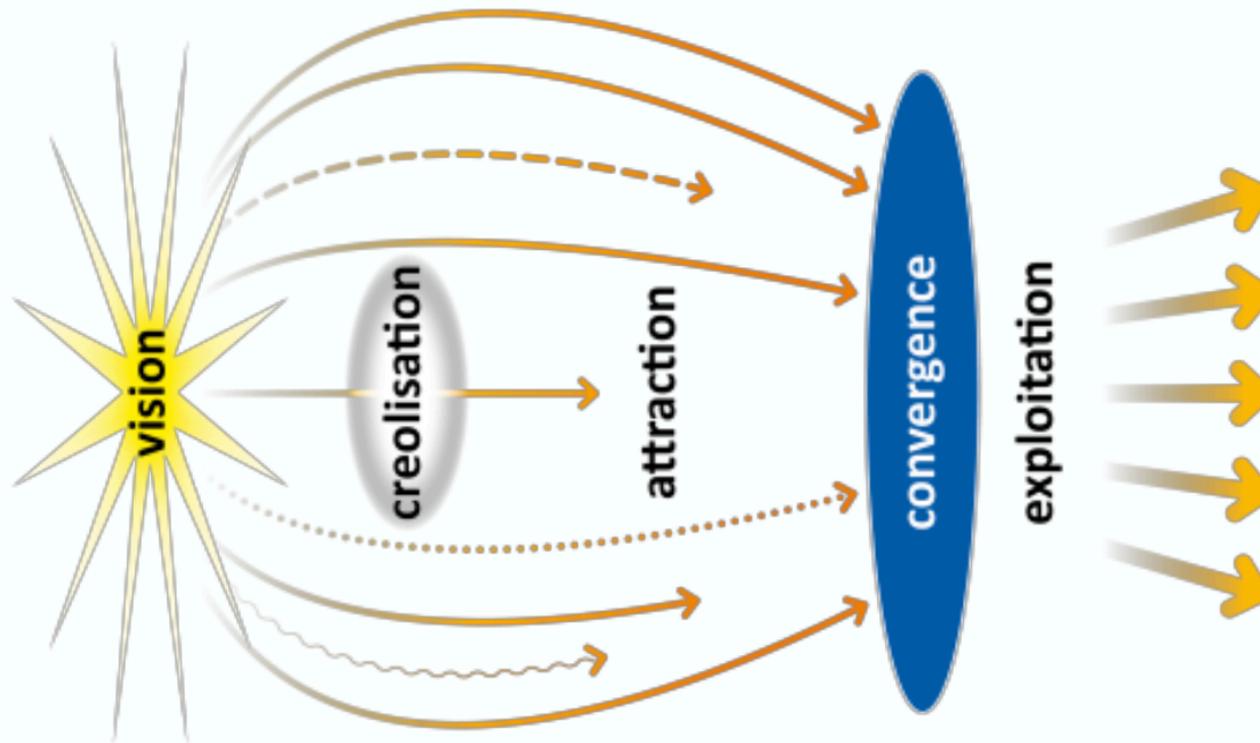


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Solution: the CDS actively engages with organisations to close the feedback loop

- At national and international level
- Goals:
 - Help drive change
 - Look after the interests of the Leiden researcher





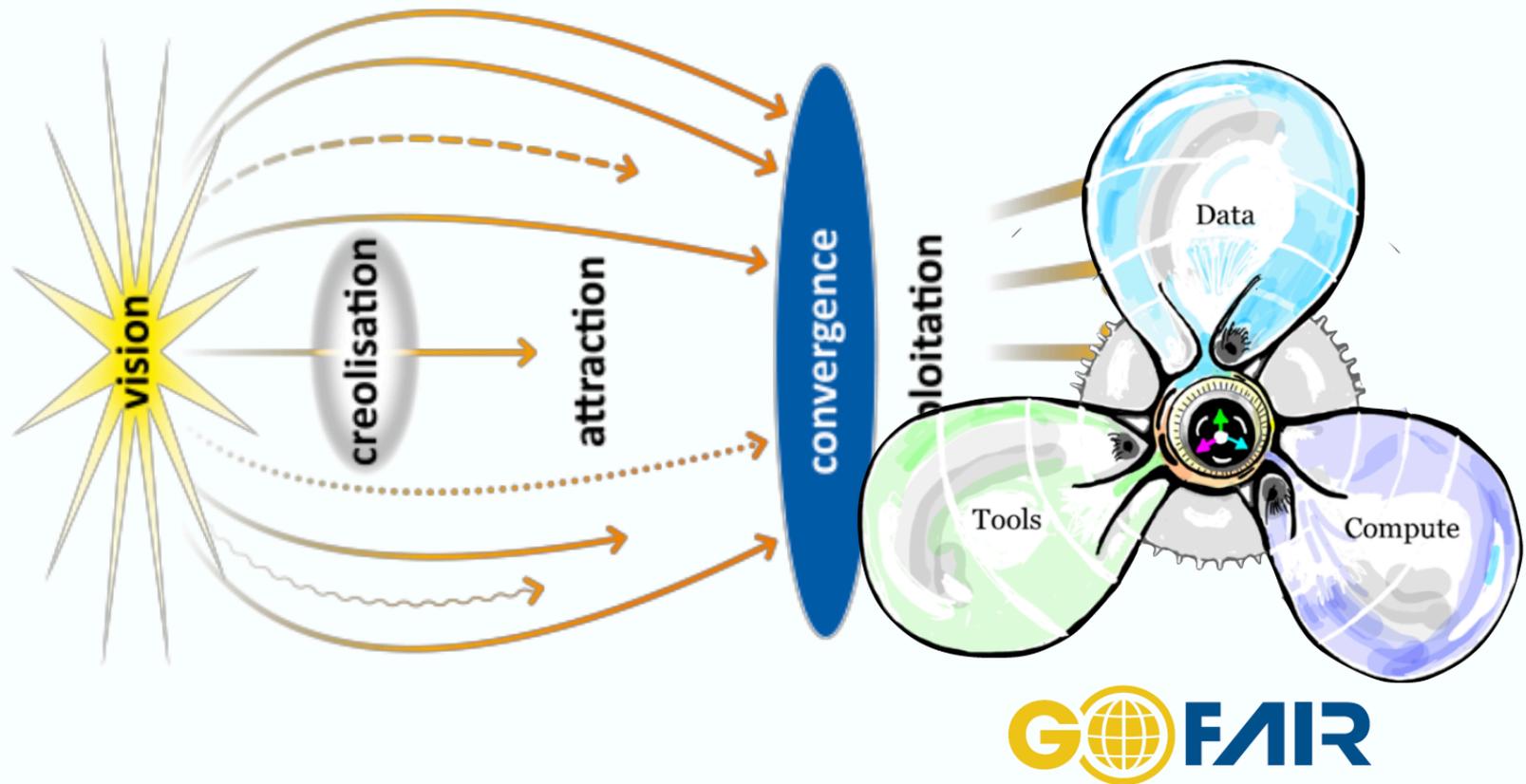
Common Patterns in Revolutionary Infrastructures and Data

Peter Wittenburg, Max Planck Computing and Data Facility

George Strawn, US National Academy of Sciences

February 2018

https://www.rd-alliance.org/sites/default/files/Common_Patterns_in_Revolutionising_Infrastructures-final.pdf



Common Patterns in Revolutionary Infrastructures and Data

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February 2018

https://www.rd-alliance.org/sites/default/files/Common_Patterns_in_Revolutionising_Infrastructures-final.pdf

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GO FAIR to drive convergence

Leiden University

The principles



Coordination



Implementation



GO FAIR Initiative

Home > GO FAIR Initiative

GO FAIR Initiative

- > Vision and Strategy
- > GO BUILD
 - > FAIRification Process
- > GO CHANGE
- > GO TRAIN
- > Countries
 - > Guidelines for GO FAIR involvement on a country level
- > Governance
 - > Steering Committee
 - > Executive Board
 - > Stakeholder Forum
- > GO FAIR Offices
- > Contact

GO FAIR is a bottom-up, stakeholder-driven and self-governed initiative that aims to implement the **FAIR data principles**, making data Findable, Accessible, Interoperable and Reusable. It offers an open and inclusive ecosystem for individuals, institutions and organisations working together through **Implementation Networks (INs)**. The INs are active in three activity pillars: **GO CHANGE**, **GO TRAIN** and **GO BUILD**.



Creolization

Attractors

Convergence

IFDS



DI Special Issue Oct 2019

FEATURED ARTICLES

MORE +



The FAIR Principles: First Generation Implementation Choices and Challenges

Author : Barend Mons; Erik Schultes; Fenghong Liu; Annika Jacobsen

Institution : Leiden University Medical Center, Leiden 2333 ZA, The Netherlands; GO FAIR Inter...

Doi : 10.1162/dint_e_00023

[Abstract \(views 93 \)](#) | [Full Text PDF](#) | [Full Text HTML](#)



FAIR Principles: Interpretations and Implementation Considerations

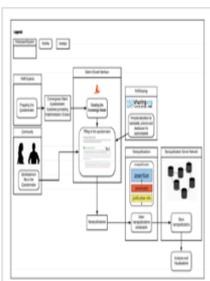
Author : Annika Jacobsen; Ricardo de Miranda Azevedo; Nick Juty; Dominique Batista; Simon C...

Institution : Leiden University Medical Center, Leiden 2333 ZA, The Netherlands; Institute of Dat...

Keywords : FAIR guiding principles; FAIR implementation; FAIR convergence; FAIR communitie...

Doi : 10.1162/dint_r_00024

[Abstract \(views 105 \)](#) | [Full Text PDF](#) | [Full Text HTML](#)



FAIR Convergence Matrix: Optimizing the Reuse of Existing FAIR-Related Resources

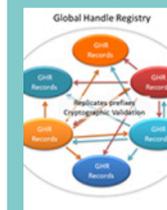
Author : Hana Pergl Sustkova; Kristina Maria Hettne; Peter Wittenburg; Annika Jacobsen; Tobia...

Institution : GO FAIR International Support and Coordination Office, Leiden, The Netherlands; C...

Keywords : FAIR Implementation Choices and Challenges; Convergence; FAIR Communities

Doi : 10.1162/dint_a_00038

[Abstract \(views 114 \)](#) | [Full Text PDF](#) | [Full Text HTML](#)



Data Intelligence

Host: National Science Library,
Chinese Academy of Sciences

Publisher: National Science Library,
Chinese Academy of Sciences

Co-Editors-in-Chief:

James Hendler , Huizhou Liu , Ying Ding

Executive Editors-in-Chief:

Guilin Qi , Yan Zhao

29 original papers

<http://www.data-intelligence-journal.org>

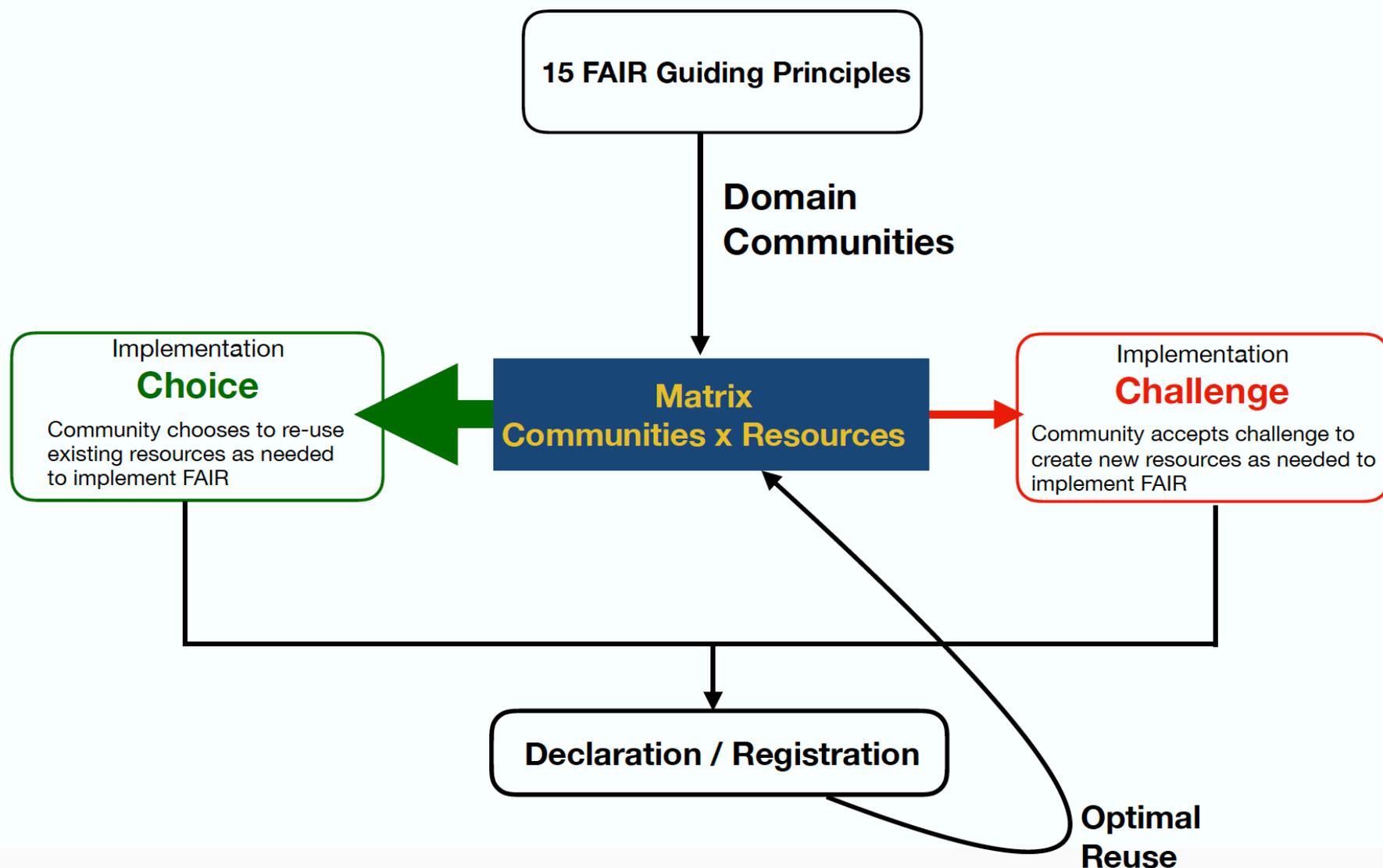
Example: From FAIR principles to implementation – the Convergence Matrix

*FAIR
Principles*

1. Communities have many decisions to make
2. Convergence on standards

*FAIR
Implementations*

Community choices and challenges



← GO FAIR 'IN Profile' Survey      SEND  

GO FAIR

QUESTIONS RESPONSES 19

Section 1 of 14

Implementation Network (IN) Profile

We ask each IN Coordinator to complete this survey as a way for GO FAIR to begin profiling the FAIR-related resources found among more than 30 INs.

The survey contains 14 questions, and will take 30-45 minutes to complete. The entire form can be downloaded here as a PDF: <http://bit.ly/2BvxAH8>.

This survey serves two functions:

- (1) Cursory inventory of FAIR-related resources of the IN (this will enable GO FAIR to better search for and to exploit synergies maximising re-use of FAIR solutions).
- (2) A first step in helping INs to frame their own consortia and objectives in the context of the GO FAIR community.

Many of the questions below relate directly to the FAIR Principles (<https://www.go-fair.org/fair-principles/>) and are noted as such in the question. We hope this helps to guide the IN Coordinator to better understand the question.

i. Name of the Implementation Network *

Short answer text

SUBJECT	PREDICATE	OBJECT	
name of IN (UPRI)	has-coordinator	ORCID	
name of IN (UPRI)	has-participant	ORCID	
name of IN (UPRI)	has-member-organisation	VIVO / CrossRef	
name of IN (UPRI)	uses-repository	CTS?	
name of IN (UPRI)	uses-registry-service	PW ?	F1
name of IN (UPRI)	provides-registry-service		F1
name of IN (UPRI)	uses-data-format	format-PID	F2
name of IN (UPRI)	provides-data-format	format-PID	F2
name of IN (UPRI)	provides-access-protocol	format-PID	A1
name of IN (UPRI)	uses-access-protocol	protocol-PID	A1
name of IN (UPRI)	has-persistence-policy	policy	F1 / A2
name of IN (UPRI)	is found by	Search engine	F4
name of IN (UPRI)	uses-term-system	Term System-PID	I
name of IN (UPRI)	provides-term-system	Term System-PID	I
name of IN (UPRI)	uses-license	MR-license ID	R1.1
name of IN (UPRI)	uses-metadata-format	format-PID	R1.2
name of IN (UPRI)	provides-meta-data-format	Format-PID	R1.2
name of IN (UPRI)	provides-training-material	Resource-ID	
name of IN (UPRI)	uses-uses-training-material	Resource-ID	
name of IN (UPRI)	provides-DS-tools	Resource-ID	
name of IN (UPRI)	uses-DS-tools	Resource-ID	
name of IN (UPRI)	uses-workspace-tool	Resource-ID	
name of IN (UPRI)	Provides-workspace-tool	Resource-ID	

Survey https://docs.google.com/forms/d/1Oug6GowuG1jNZnsjkIXOeEvPbUrhyuS_F-d185SOy6A/edit

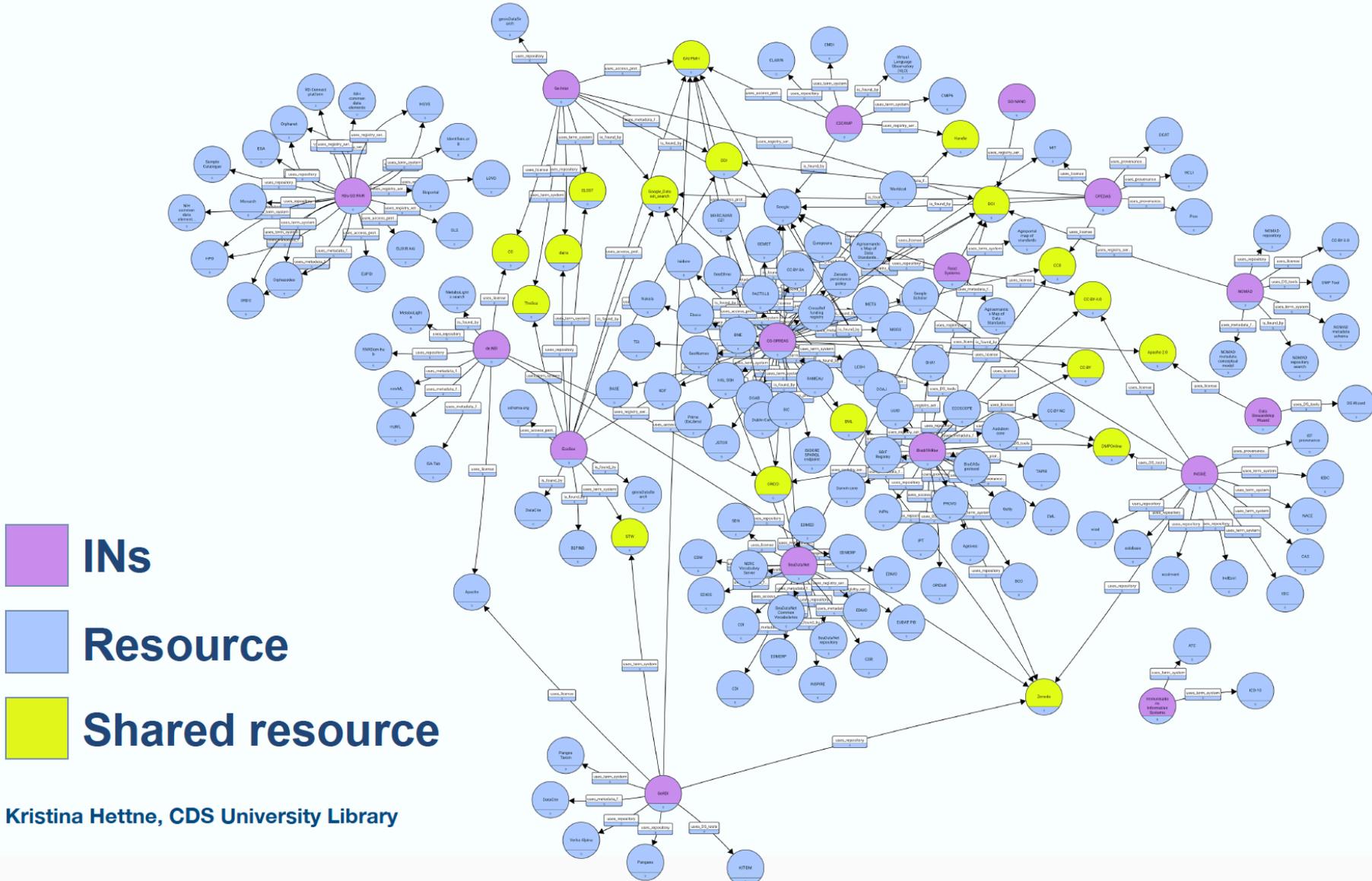
Matrix <https://docs.google.com/spreadsheets/d/1MUZn7uh4x5YLPjxqi-V8XubsSEeOnQWvx2jBlcyyNdU/edit#gid=0>

IN Profile Matrix ☆

File Edit View Insert Format Data Tools Add-ons Help All changes saved in Drive

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	A	B	C	D	E	F	G	H	I
1	FAIR Implementation Matrix								
2	On the OSF	https://osf.io/n7uwp/							
3	<i>Red indicates waist of hourglass</i>								
4	<i>Blue is an Implementation Choice</i>								
5	<i>Orange is Implementation Challenge</i>								
6	<i>Green highlight indicates a service provided by the IN or spin-off</i>								
7	<i>Blank cell is not relevant for IN</i>								
8	FAIR Principle	Services	Component	Most used	C2CAMP	OPEDAS	PHT	Rare-Diseases	GERI
9		central to all	DOIP	DOIP	DOIP	DOIP	DOIP	DOIP	
10		central to all	Metadata format	RDF		RDF	RDF	RDF	
11		central to all	Metadata access protocol			LDP/FDP	LDP/FDP	LDP/FDP	
12		central to all	Metadata core elements	TBD on M4M		TBD on M4M	TBD on M4M	TBD on M4M	
13		Technology	Data Format			RDF for interop.	RDF for interop.	RDF for interop.	
14		Technology	Data Access Protocols (MR/A)			LDP/FDP	PHT-standard	PHT-standard	
15		Technology	Computer-actionable license description language			RDF	RDF	RDF	
16		Tooling	Repository (Data/Metadata)		DONA	IFDS Data Station	IFDS Data Station	ERN?	GERI
17		Tooling(Repository)	https://www.dataone.org						
18		Tooling	Registry Service		DONA	IFDS Station Registry	IFDS Station Registry	ERN?	
19		tooling	Metadata forms/creators			CEDAR/CASTOR			
20		Tooling	Search capability		DOIP	IFDS Station Registry	IFDS Station Registry	IFDS Station Registry	
21		Policy	Persistence Policy			TBD	TBD	TBD	
22		Technology	Computer-actionable policy description language			RDF	RDF	RDF	
23		Tooling	License protocols			TBD	TBD	TBD	



Kristina Hettne, CDS University Library

Matrix Development

June 13 2019

<https://osf.io/n7uwp/>



Kristina Hettne



Peter Wittenburg



Tobias Kuhn



Robert Pergl



Pete McQuilton



Universiteit
Leiden



RESEARCH DATA ALLIANCE



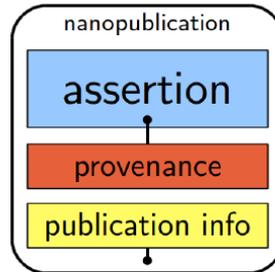
MAX-PLANCK-GESELLSCHAFT



CZECH
TECHNICAL
UNIVERSITY
IN
PRAGUE



UNIVERSITY OF
OXFORD



DSW
DATA STEWARDSHIP WIZARD

FAIRsharing.org
standards, databases, policies



Barbara Magagna

ENVRI-FAIR KICK OFF MEETING

Hotel International Prague, Czech republic
January 14-16, 2019
Register at www.envri.eu

umweltbundesamt
ENVIRONMENT AGENCY AUSTRIA

Public project on Open Science Framework

FAIR Convergence Matrix Working Group

Contributors: Erik Anthony Schultes, Prof. dr Barend Mons, Hana Pergl Sustkova, Kristina Hettne, Peter Wittenburg, Mascha Jansen, Peter Wittenburg, Peter Thijsse, Barbara Magagna, Annika Jacobsen

Date created: 2019-01-12 12:53 PM | Last Updated: 2019-09-16 01:41 PM

Identifier: DOI 10.17605/OSF.IO/N7UWP

Category: Project

Description:

Use this space to track planning and development for the Matrix. Creating a development plan for a bottom-up, community driven approach that maximizes reuse of existing resources for implementing EOSC and, more broadly, a global Internet of FAIR Data and Services. First face-to-face meeting of key developers June 13 2019. Following this meeting, there has been rapid development of Matrix components including the questionnaire, interfaces, semantics, and potential hosting. Other research communities such as the ENVRI-FAIR project, FAIRPlus project, and CS3 have independently developed their own approaches but with obvious synergetic overlaps. The Matrix Development Working Group now has regular meetings.

License: CC-BY Attribution 4.0 International

Wiki

[FAIR Implementation Matrix Working Group Rolling notes](#)

[Matrix Development Plan 2019](#)

Notes from first Working Group Meeting: June 13 2019

Matrix Wizard Interfaces:

- <https://gede.ds-wizard.org/dashboard>
- <https://fair-matrix.ds-wizard.org>

[GO FAIR IN Profile Matrix](#)

[GO FAIR IN Profile Survey Matrix \(Hettne\)](#)

[GO FAIR IN Profile Survey predicates](#)

[January 2019 Convergence Matrix Meeting \(Leiden\)](#)
[Read More](#)

Files

Click on a storage provider or drag and drop to upload

Filter

Citation

Components

Add Component Link Projects

IN Meeting (January 15-16 2019, Leiden)

Schultes, Mons, Sustkova & 7 more

June 13 2019 (Matrix Development Meeting)

Schultes, Thijsse, Mons & 8 more

Save the date, June 13 (10:000-16:00), for a status update and planning meeting of the GO Matrix. The meeting will be held at the GO FAIR Internat...

Convergence Meetings

Schultes, Thijsse, Mons & 7 more

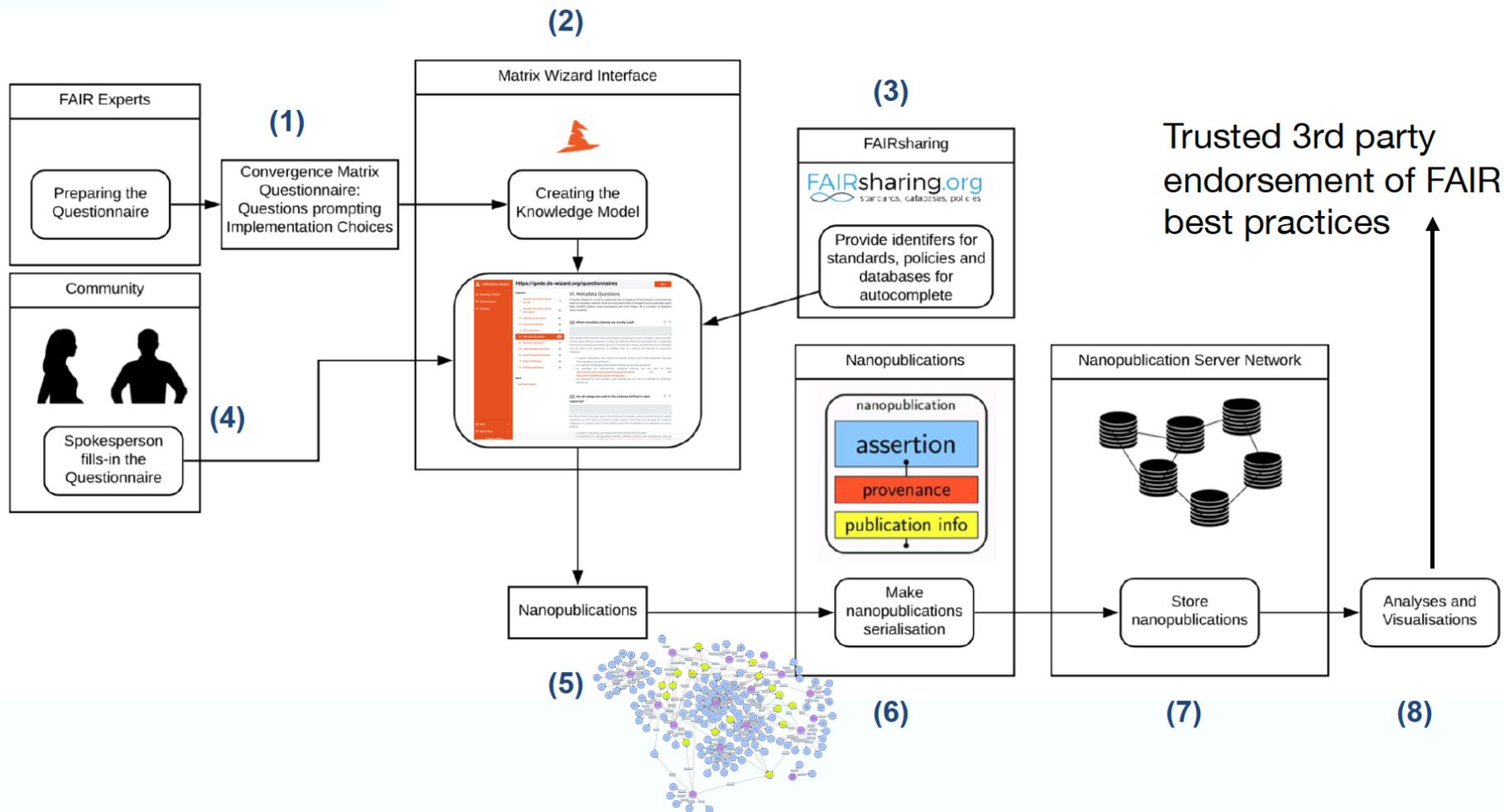
Here we collect slides and notes from a series of convergence meetings on the FAIR Digital Framework. These meetings are: @ Leiden (28.9.19) @ Washi...

CODATA Beijing September 19-20 2019

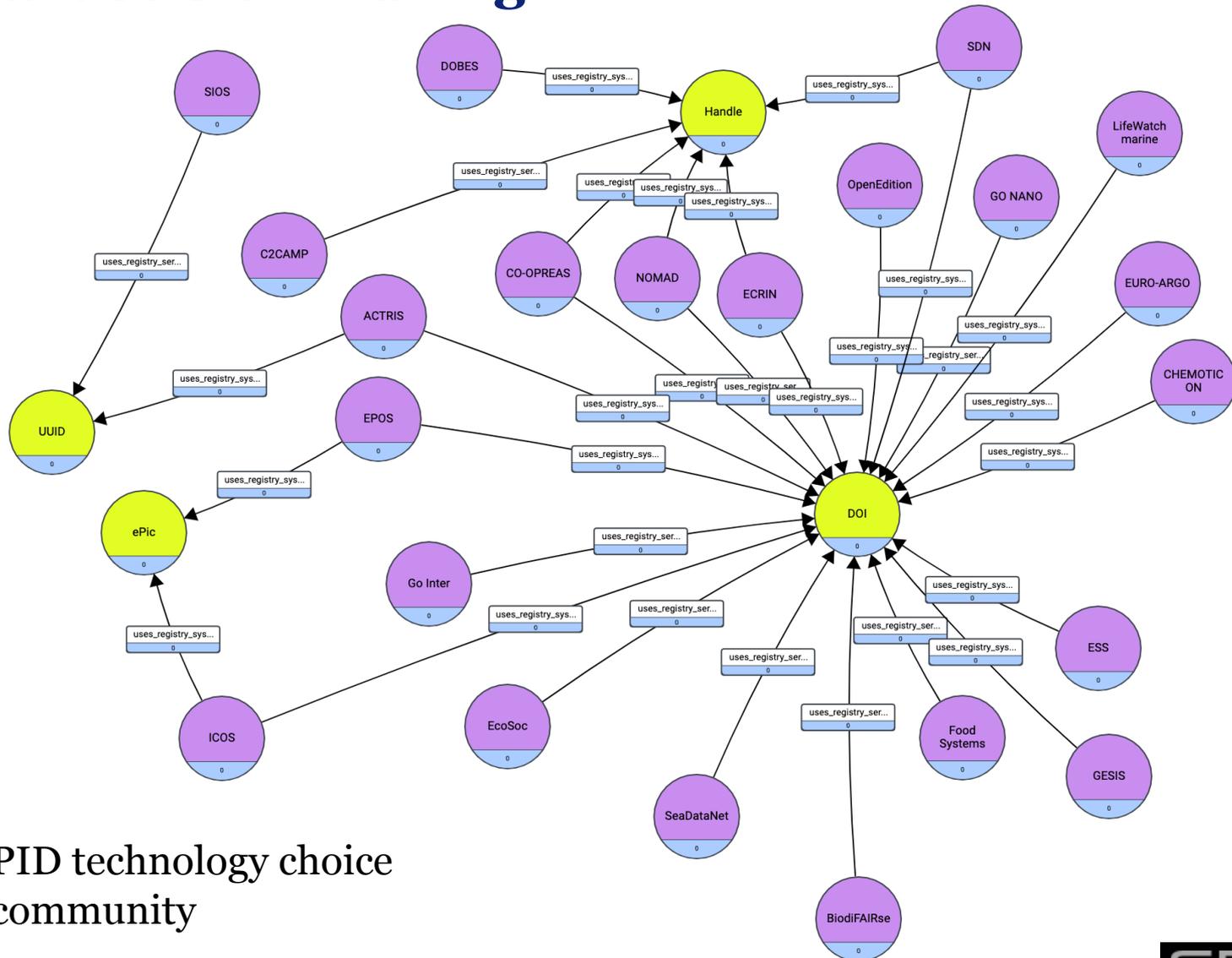
Schultes, Thijsse, Mons & 7 more

<http://www.codata.org/events/conferences/codata-2019-beijing>

Convergence Matrix Implementation workflow



Visual decision making



Yellow: PID technology choice
Purple: community

IN survey + ENVRI-FAIR + GEDE and 2nd IN survey: globally unique persistent identifier choice

Key factors for narrowing the gap

- Openness
 - Public project on Open Science Framework
 - Code on Github
 - All notes, presentations and results are open – i.e. we do not have to wait for the project deliverable or working group report to use the results
- Willingness to bridge and share
 - From all sides
- Common project of interest, directly useful for Leiden to:
 - Update Leiden Research Data Service Catalog
 - Advice researchers on current standards

A terminology for FAIR Stewardship Skills Workshop

CODATA, Paris, 20-21 May 2019

<https://terms4fairskills.github.io>

What did we do?

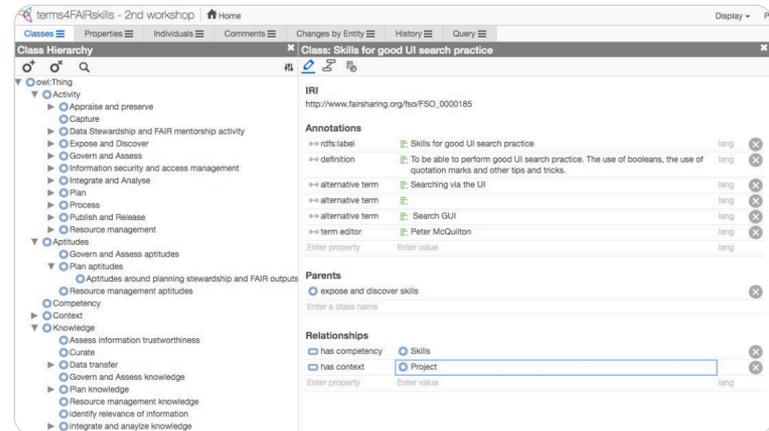
On 20-21 May 2019, representatives of the research data community met at the CODATA headquarters in Paris to take the first steps in building a terminology to describe FAIR stewardship skills (the skills necessary to make data FAIR and keep them FAIR): the tag #terms4FAIRskills was used on Twitter during the event.

Follow-up in October 2019, the Hague:



Pete
@Drosophilic

Three very productive days in the care of @DANSKNAW in The Hague, getting our hands dirty with the #terms4FAIRskills terminology. Always more to do, but we've made a lot of progress. Look how far we've come!



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4:43 PM · Oct 18, 2019 · [Twitter Web App](#)

Thank you



Universiteit
Leiden
The Netherlands

