

History of the FAIR Guiding Principles

Erik Schultes, Barbara Magagna, Andrea Tarallo

27 November 2024

IR0000032 – ITINERIS, Italian Integrated Environmental Research Infrastructures System
(D.D. n. 130/2022 - CUP B53C22002150006) Funded by EU - Next Generation EU PNRR-
Mission 4 “Education and Research” - Component 2: “From research to business” - Investment
3.1: “Fund for the realisation of an integrated system of research and innovation infrastructures”



GO FAIR Foundation's Capacity Building Programme (GFF CPB)



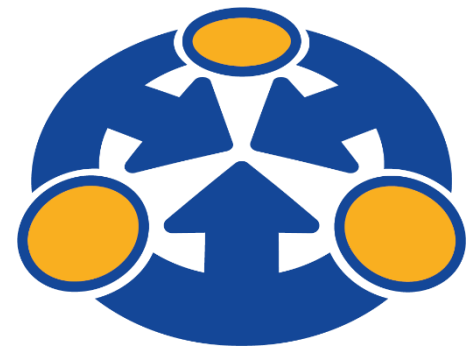
13:20-13:40
(Barbara)

GFF Three-Point FAIRification Framework (3PFF)



FAIR awareness

Understanding FAIR Principles and their relevance for research data



FIP Introduction

FIP

Selecting FAIR Enabling Resources to implement FAIR data
by creating FAIR Implementation Profiles

FIP consultation

FAIR
convergence



M4M schema

M4M

Creating FAIR Enabling Resources to implement FAIR data
with a special focus in domain relevant machine-actionable metadata

M4M
vocabulary

M4M applied

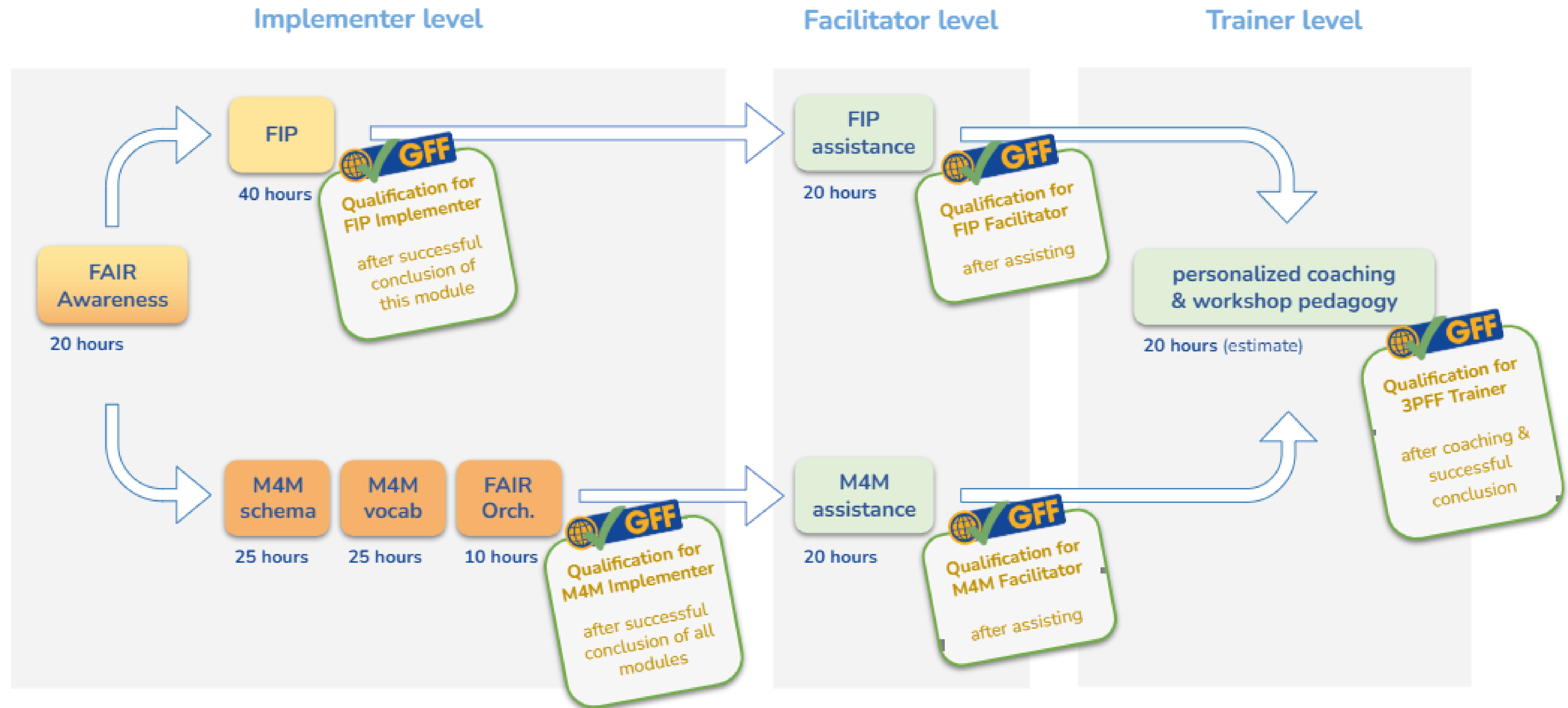


FO

FO

Deploying FAIR Supporting Resources to implement FAIR data
using FAIR Orchestration services

GFF Capacity Building Programme



Student Learning Outcomes **Implementer** level

FAIR Awareness:

- *Be able to explain* the FAIR Principles → GFF Interpretations → Implementation considerations
- *Be knowledgeable* about history and purpose of the FAIR Principles (and the GFF)
- *Be knowledgeable* about the 3PFF and the FAIR Hourglass
- *Be aware* of automated FAIR assessment tools
- *Be aware* of how FAIR fits into Data Management and Data Stewardship
- *Be aware* of good implementation examples including repositories (as well as examples of “Fake FAIR”)
- *Understand* how to prioritize FAIRimplementations in project proposals, roadmapping.



Student Learning Outcomes **Implementer** level

FAIR Implementation Profile (FIP):

Understand:

- The FIP Ontology
- Nanopublications
- FAIR Supporting Resources and FAIR Implementation Communities

Be able to:

- *Use* nanopublications in FIP/SIP Wizard and nanodash
- *Qualify* FAIR Supporting Resources



Student Learning Outcomes **Facilitator** level



FAIR Implementation Profile (FIP):

Understand:

- The FIP Ontology
- Nanopublications
- FAIR Supporting Resources and FAIR Implementation Communities

Be able to:

- *Use* nanopublications in FIP/SIP Wizard and nanodash
- *Qualify* FAIR Supporting Resources
- *Guide* through the FIP/SIP Wizard
- *Answer* FAIR Principles related questions
- *Understand* the different levels of convergence
- *Analyze* FIP results and produce a FIP matrix



Student Learning Outcomes **Implementer** level

Metadata for Machines (M4M):

- Be aware of existing semantic artifacts for the objects and predicates in the metadata schema
- Be able to build a metadata schema in different environments (CEDAR, DSW, nanopub)
- Be able to understand the concept FAIR Orchestration and give an overview of emerging tools
- Be knowledgeable about how FAIR Data Points and FAIR Data Stations



Student Learning Outcomes **Facilitator** level



Metadata for Machines (M4M):

- Be aware of existing semantic artifacts for the objects and predicates in the metadata schema
- Be able to build a metadata schema in different environments (CEDAR, DSW, nanopub)
- Be able to understand the concept FAIR Orchestration and give an overview of emerging tools
- Be knowledgeable about how FAIR Data Points and FAIR Data Stations
- Be able to explain the difference between metadata vs FAIR metadata
- Be able to facilitate a collaborative development of metadata schemas and vocabularies for a community



Trainer Qualification

- Passed exam for FIP
- Passed exam for M4M
- Assisted in FIP training events
- Assisted in M4M training events
- Got 1:1 coaching by GFF trainers



Training Methods

- GO FAIR wiki for implementers, facilitators and trainers
- e-Learning Platform (videos, tests)
- In Person training events
- Online training events
- Hands-on using online services
- Hackathons
- Q&A sessions
- Via Fellowship

Training media

- **ITINERIS:**
A resource that links out to all other resources for the ITINERIS group
- **Open Science Framework projects (open-access):**
A resource that links out to all other resources and includes presentations, recordings, links to minutes, links to the other platforms
- Module specific **Wikis** (*one time fee*) with GitHub account:
include step-by-step guidelines
- **GO FAIR Wiki** (open-access):
Stay tuned via published news
- **Mattermost** (open-access, by invitation):
enables interactions with other trainees
- **E-learning platform** (annual fee; available as of January 2025)
self-learning environment organized in modules with training videos and quizzes

Open Science Framework (OSF)



FA.4.2 | MusiCC FAIR Awareness 2

95.4MB Make Private Public 0 ...

Contributors: Erik Anthony Schultes, Barbara Magagna, Arie Baak, Jacintha Schultes

Date created: 2024-11-10 02:10 PM | Last Updated: 2024-11-13 09:43 PM

Create DOI

Category: Project

Description:

The second FAIR Awareness workshop for members of the Mucosal Immunity in human Coronavirus Challenge (MusiCC) project, November 20, 2024.

License: CC-BY Attribution 4.0 International

Wiki

Background (April 2024): Mucosal Immunity in human Coronavirus Challenge (MusiCC)
<https://www.imperial.ac.uk/news/252855/imperial-led-global-human-challenge-consortium-kick/>
Agenda & Common Notes: https://bit.ly/FA-4-2_MusiCC

Files

Click on a storage provider or drag and drop to upload

Filter ⓘ

Name	Modified
FA.4.2 MusiCC FAIR Awareness 2	
OSF Storage (Germany - Frankfurt)	
FA.4.2 MusiCC.pdf	2024-11-13 09:43 PM

Citation

Components

Add Component Link Projects

Add components to organize your project.

Tags

Add a tag to enhance discoverability

Recent Activity



Training Wikis:

(e.g. <https://github.com/gofair-foundation/FA-training>)



The screenshot shows a GitHub Wiki page for the repository 'gofair-foundation / FA-training'. The page title is 'How to become a nanopublisher', edited by 'mabablue' 1 hour ago with 9 revisions. The page content includes:

- Introduction: In order to become a nanopublisher you need to have an [ORCID](#) that identifies you as a person. The **ORCID** is needed for capturing provenance information in the nanopublication.
- Platform: [Nanodash](#) is a platform for generating nanopublications. Please log in with your ORCID account and grant access.
- Step 1: Click on your ORCID number. A screenshot of the Nanodash interface shows the 'Publish' button and an ORCID ID field containing '0009-0006-9016-7024'.
- Step 2: See your profile details where your signature key is set.
- Step 3: You can see that your local key has not yet been approved by the community of nanopublishers. A section titled 'Key for Signatures' shows a local key 'M..7/z5e..' and a note that it is 'not approved'.
- Step 4: Check out the recommended actions. A section titled 'Recommended Actions' states 'It is recommended that you execute this action:' followed by a list item: 'Publish an introduction from scratch declaring your local key: [new introduction...](#)'

On the right side of the page, there is a 'Table of content' with links to 'Overview training media', 'How-to-become-a-nanopublisher', 'GFF Capacity Building Programme', 'References', and 'Using Github Wiki'. Below that is a 'Clone this wiki locally' section with the URL 'https://github.com/gofair-foundation' and a copy icon.



GO FAIR Foundation Wiki



[Home](#) [FIP](#) [Guide](#) [News](#) [FAIR Connect](#) [Contributing](#) [About](#)



[Website](#) [Email](#) [Github](#) [LinkedIn](#)

Wiki

This GO FAIR **wiki** is an effort to bring together past, current and future individual documentation efforts into one comprehensive resource. This website is still **under construction**. This wiki and all of its content are maintained by the [GO FAIR Foundation](#). The source files of this website can be found on [Github](#).

Latest news | [All news](#)

Oct 30, 2024
Norbert van Dijk

LIFES Network Meeting

See event published here on linkedIn for details.



Oct 14, 2024
Barbara Magagna

The I-ADOPT Variable Modeling Challenge 2

I-ADOPT is a candidate for an OGC standard. There are concrete plans to develop a semi-automatic I-ADOPT annotation service. In preparation, we would like to test the...



Aug 9, 2024
Barbara Magagna

GFF Capacity Building Programme Update

GO FAIR Foundation has updated its **GFF Capacity Building Programme**.



Mattermost communication platform: link



The screenshot displays the Mattermost interface. On the left is a sidebar with navigation options like 'GFF Fellows', 'Find channel', 'Threads', 'Drafts', and various channel categories. The main area shows a chat in the 'Town Square' channel. The chat history includes messages from 'mabablue' and 'System'. A thread is open on the right, titled 'Thread | rbramley', showing a discussion about removing a diagram. The thread contains messages from 'rbramley' and 'mabablue', along with two versions of a flowchart diagram. The bottom of the interface shows input fields for writing to the channel and replying to the thread.





[< Go to Dashboard](#)

The FAIR Implementation Profile (FIP)

0% complete

Search by lesson title

The FAIR Implementation Profile (FIP) 0/3 ^

Introduction and learning objectives

TEXT

The FAIR Implementation Profile (FIP)

VIDEO · 6 MIN

Recap questions

QUIZ · 3 QUESTIONS

The FAIR Implementation Profile (FIP)



GO FAIR
FOUNDATION
eLearning

The FAIR
Implementation
Profile (FIP)



COMPLETE & CONTINUE →





< Go to Dashboard

The FAIR Implementation Profile (FIP)

0% complete

Search by lesson title

The FAIR Implementation Profile (FIP) 0/3 ^

Introduction and learning objectives

TEXT

The FAIR Implementation Profile (FIP)

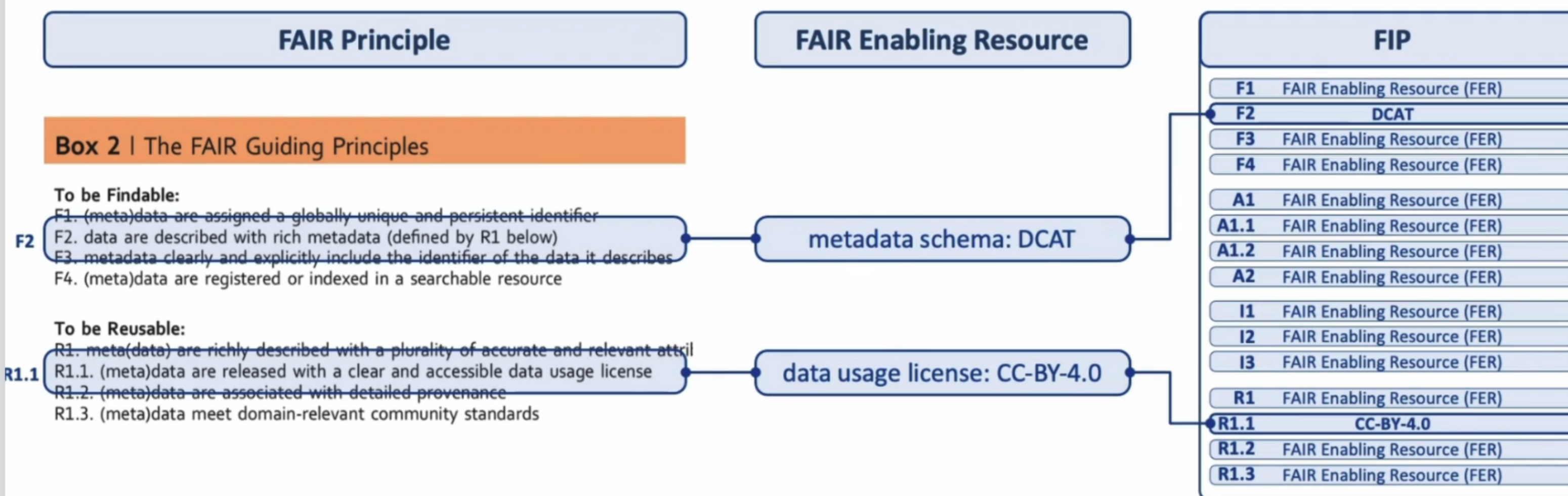
VIDEO · 6 MIN

Recap questions

QUIZ · 3 QUESTIONS

The FAIR Implementation Profile (FIP)

The FIP approach - CC-BY-4.0 as FER for principle R1.1

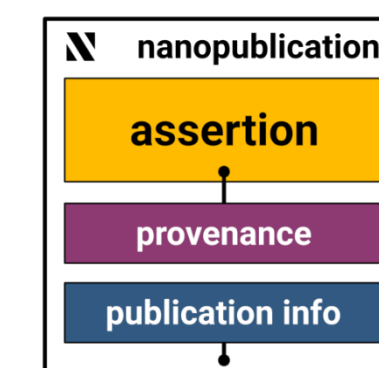


COMPLETE & CONTINUE →



GFF 3PFF Qualification

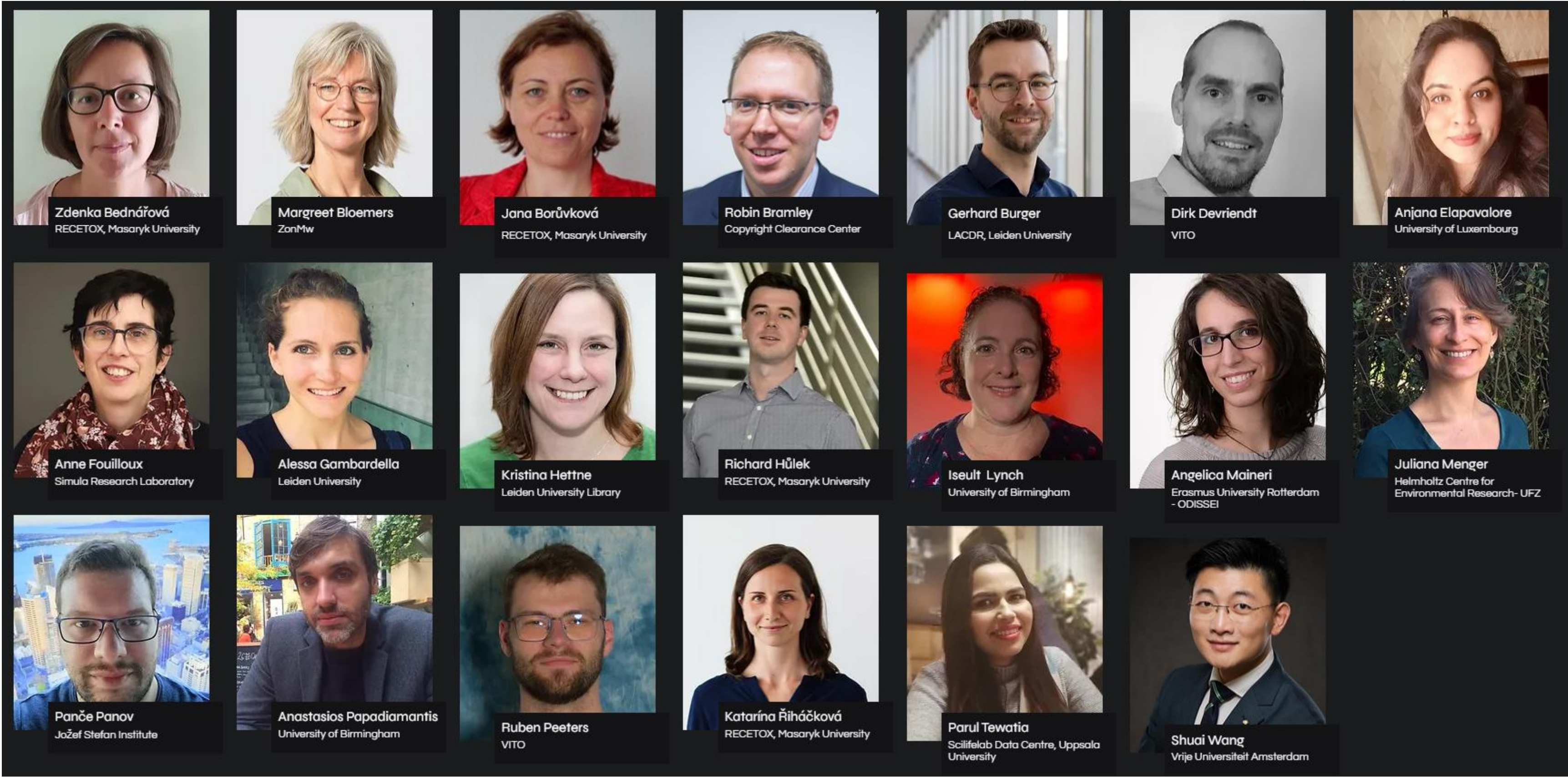
First facilitator qualification celebration day: <https://osf.io/a3cgj/>



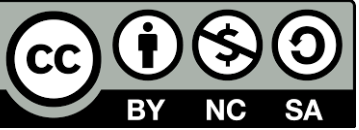
<https://w3id.org/np/RARnX0EDZbpTvjSem7xkx5KeTyyk-hAGNILETCnXCFuYA>



GFF qualified 3PFF Facilitators



















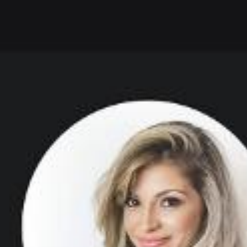
Up to 50 persons trained and becoming qualified until the end of the year!



GFF Fellowship



Meet the GFF Fellows

 <p>DeSci Labs Erik Van Winkle</p> <p>Erik is the first member of the GO FAIR Foundation Fellows Programme. His areas of interest include Persistent Identifiers, implementation of the Red Principles, helping keep GO FAIR Foundation up to date with emerging technology.</p> <p>ID</p>	 <p>Alfred-Wegener-Institut Juliana Menger</p> <p>Juliana is an ecologist working on biodiversity distribution and supporting the implementation of the FAIR Principles on biodiversity monitoring data and metadata.</p> <p>ID</p>	 <p>Copyright Clearance Center Robin Bramley</p> <p>Robin has 25 years of experience unlocking the value hidden in data. His work has helped UK police forces meet statutory reporting requirements, financial services firms transact online with business partners, publishers streamline production and achieve greater reuse of assets.</p> <p>ID</p>	 <p>Copyright Clearance Center David Schott</p> <p>David is the Senior Manager of the Research Analysis team at CCC. He has held roles in metadata research related to publishing as well as building bibliographic systems supporting the transformation, normalization and processing of bibliographic data.</p> <p>ID</p>	 <p>simula Simula Research Laboratory Anne Fouilloux</p> <p>Anne is an Open Science and FAIR Software and Data Advocate. She is working at Simula Research Laboratory (Oslo, Norway) and is leading the Nordic Infrastructure Collaboration on Earth System Tools (NICEST) at the Nordic e-Infrastructure Collaboration (NeIC).</p> <p>ID</p>	 <p>Uppsala University Parul Tewatia</p> <p>Parul is a data steward and is working towards helping researchers, scientists and especially infrastructures to make data FAIR. Her interest lies in metadata curation.</p> <p>ID</p>	 <p>4MedBox Rick Overkleeft</p> <p>Rick has a BSc in bioinformatics on sequencing and rare disease. He has gained experience in enterprise architecture, machine learning and pharmacogenetics. He co-founded 4MedBox to facilitate personal ownership of data and being able to provide services on that data.</p> <p>ID</p>
 <p>4MedBox Sander van Boom</p> <p>Sander has a background in bioinformatics. He worked for some time in automation for biomedical organisations before starting infrastructure companies active in decentralized personalized medicine.</p> <p>ID</p>	 <p>ZonMw Margreet Bloemers</p> <p>Margreet implements FAIR data practices at ZonMw, the Dutch public health research funder. Funders can drive (require from) researchers to FAIRify data. Together with the GO FAIR Foundation and Health-RI, Margreet co-developed domain-specific data FAIRification in COVID-19 research.</p> <p>ID</p>	 <p>Ministry of the Interior and Kingdom Relations Norbert van Dijk</p> <p>Norbert is an experienced policy advisor with a background in information management, CIO-advisory, portfolio management, enterprise architecture, ICT-architecture, design, and development. Strong interest in the use of data and evidence-based policy in public administration.</p> <p>ID</p>	 <p>IOS Press Louis Ter Meer</p> <p>Louis is a researcher and program director in information projects, ICT aspects and publishing. Understanding the user and what change can bring them. Working on the patient as a FAIR digital object is our challenge to come.</p> <p>ID</p>	 <p>DeSci Labs Elianna DeSota</p> <p>Elianna is a recent Social Sciences graduate from Minerva University currently working with DeSci Labs. She is interested in contributing to FAIR by understanding how to provide leading to researchers which facilitates their focus on research.</p> <p>ID</p>	 <p>NL Health-Holland Health-Holland Marin Beirns</p> <p>Marin has a background in neurosciences. She started working at Health-Holland in October '22 as an analyst. She became acquainted with FAIR data and started working on the implementation of FAIR data within Health-Holland in collaboration with other funders in the Netherlands.</p> <p>ID</p>	 <p>NL Health-Holland Health-Holland Anna Dirks-Yazbeck</p> <p>Anna has a background in microbial biotechnology. She has a keen interest in all data-related matters and eventually made this her main focus of work. Anna pursues the implementation of the FAIR data principles by collaborating with parties that share similar aspirations.</p> <p>ID</p>
 <p>Leiden University Alessa Gambardella</p> <p>Alessa is a Data Steward at the Faculty of Science at Leiden University, where she helps develop RDM policy and education, advises researchers on RDM best practices, and stimulates FAIR awareness and implementation within the Faculty. She holds a PhD in Analytical Chemistry.</p> <p>ID</p>	 <p>Leiden University Kristina Heftne</p> <p>Kristina is a Librarian at the Leiden University Libraries' Centre for Digital Scholarship. She helps researchers navigate Open Science and shape its future as well that of FAIR research data management. She holds a PhD in Bioinformatics and MSc in Computer Science.</p> <p>ID</p>	 <p>IBICT - Brazilian Institute of Information in Science and Technology Luana Sales</p> <p>Luana Sales is a Brazilian professor of Information Science. She began her professional career working as a data librarian in the Nuclear area. As an academic, her research focuses on Knowledge Organizations Systems (SKOS), metadata and semantic networks. She currently leads the GO FAIR Brazil Office.</p> <p>ID</p>				

Up to 20 Fellows
1 year - 250 hours interaction
€ 2500
A family of FAIR experts working together
on small projects on FAIR implementation



FIP

M4M

FO



Workshops



Training



Services

<https://www.gofair.foundation/training>

Workshops



Course Overview

The FAIR Awareness Training consists of 5 training units:

Unit 1: November 27, 2024 (afternoon 13:00-17:00 CET) - 1. History of FAIR

Unit 2: November 29, 2024 (afternoon 13:00-17:00 CET) - 2. FAIR Principles (F, A, I, R)

Unit 3: December 4, 2024 (afternoon 13:00-17:00 CET) - 3. Good FAIR Practices

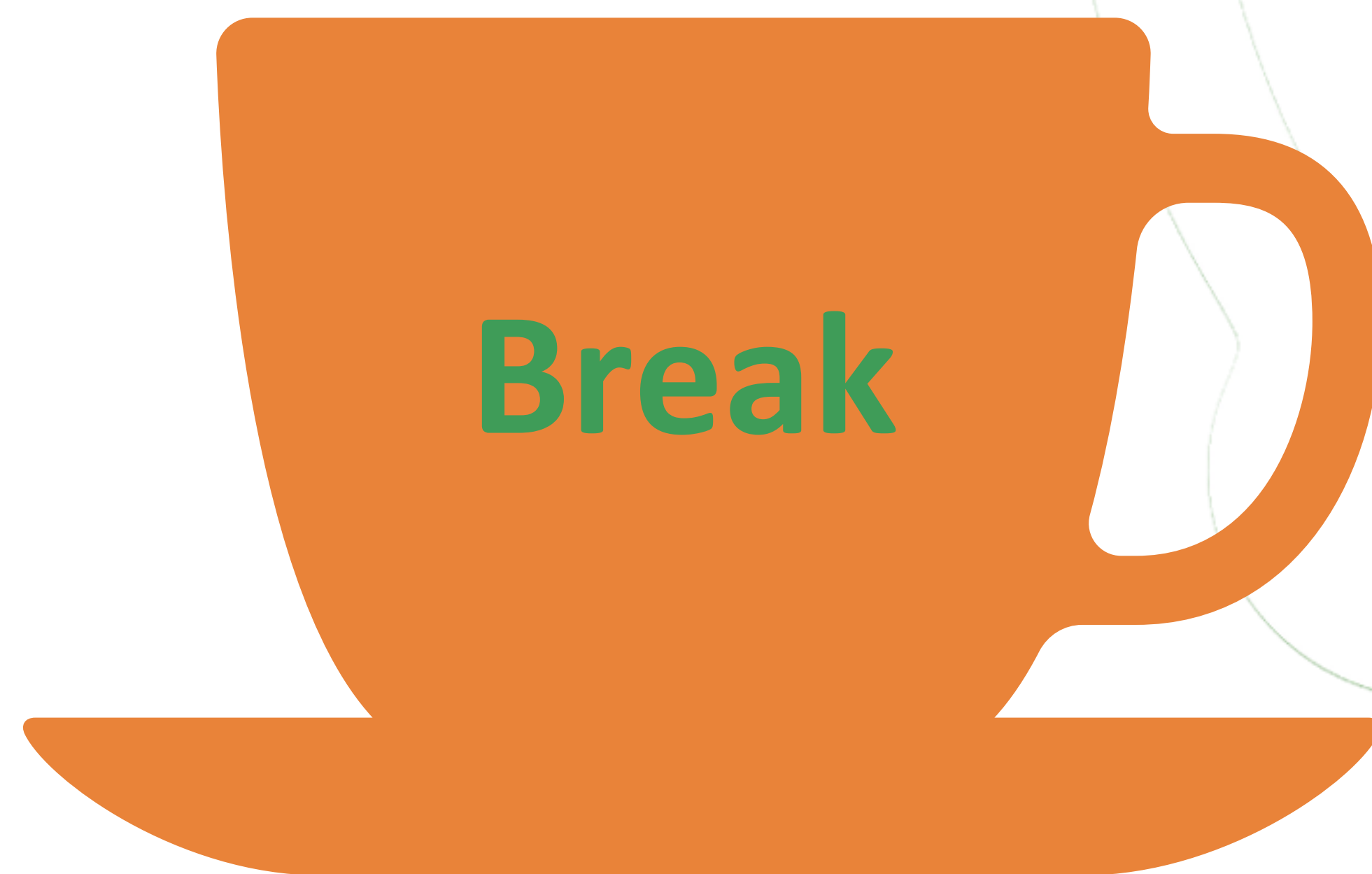
Unit 4: December 5, 2024 (afternoon 13:00-17:00 CET) - 4. FAIR Data Stewardship

Unit 5: December 11, 2024 (afternoon 13:00-17:00 CET) - 5. FAIR Assessment tools

Historical Context of FAIR

14:00-14:45
(Erik)





Resume 16:00 CET

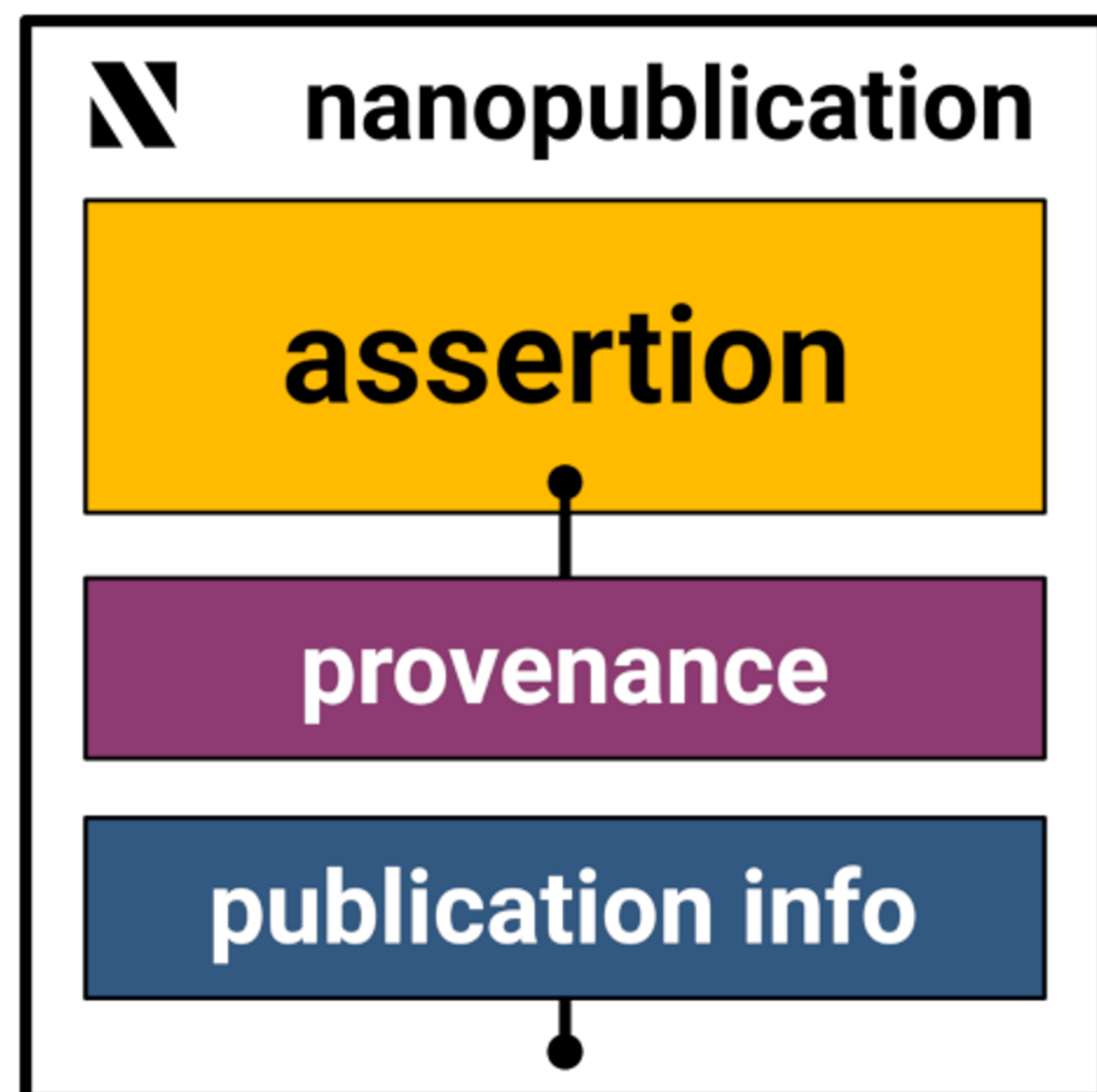
Become a nanopublisher

16:00-17:00

(Barbara & Andrea)



Nanopublication



A nanopublication is a small knowledge graph implemented in RDF with metadata about that knowledge graph structured into three elements:

- Assertion
- Provenance
- Publication information

FAIR Implementation Community

Definition: A FAIR Implementation Community (FIC) is a self-identified collection of people and/or organizations with the aim to implement the FAIR Principles

Fortunately, the FIC for ITINERIS was already created by Andrea Tarallo:

Find [here](#) the nanopub representation

FAIR Data Stewardship Event

Definiton: A meeting specifically designed for current or aspiring data stewards to provide a rigorous understanding of the FAIR principles from theory to their concrete implementation.

Let's define this FAIR Awareness training event creating some metadata:

Short name: FA.5.T.1 (it is the 5th training for FAIR Awareness)

Long name: FA.5.T.1 | ITINERIS FAIR Awareness training session 1

Date/time/duration

3PFF type: FAIR awareness

Workshop type: training

ORCIDs of the facilitators and assistants

The participating community: ITINERIS

Link to the online resource: [OSF](#) and ITINERIS

Event type: virtual event

Andrea will be define it in <https://nanodash.knowledgepixels.com/> using this [template](#)



Become a nanopublisher

Requirement:

- ORCID
- You need to be “approved” by someone else
- Go to GitHub FA training page “[How to become a Nanopublisher](#)”

Please write your introduction nanopub into the common notes:

<https://bit.ly/FA-5-T-1> ITINERIS

Register your attendance at this FAIR Awareness event

Now let's declare our participation at this 3PFF event in <https://nanodash.knowledgepixels.com/> using this [template](#)

This event is called “FA.5.T.1”:

- Choose in the first drop-down **participated as participant in**
- Type **FA.5.T.1** in the second box

And publish 🍊

Homework

Read the FAIR Principles paper from 2016:
<https://doi.org/10.1038/sdata.2016.18>

Watch this movie (Not FAIR):

<https://www.youtube.com/watch?v=N2zK3sAtr-4>





FAIR
Well!

THANKS!

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