



FAIRification workflow:

**Making data FAIR in practice
and ready for the Health-RI infrastructure**

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Content

- FAIR in the Health-RI infrastructure
- FAIRification workflows
- Mapping of FAIRification workflows
- Next steps

Health-RI overall design architecture

Last updated: v1.0, May 5, 2023

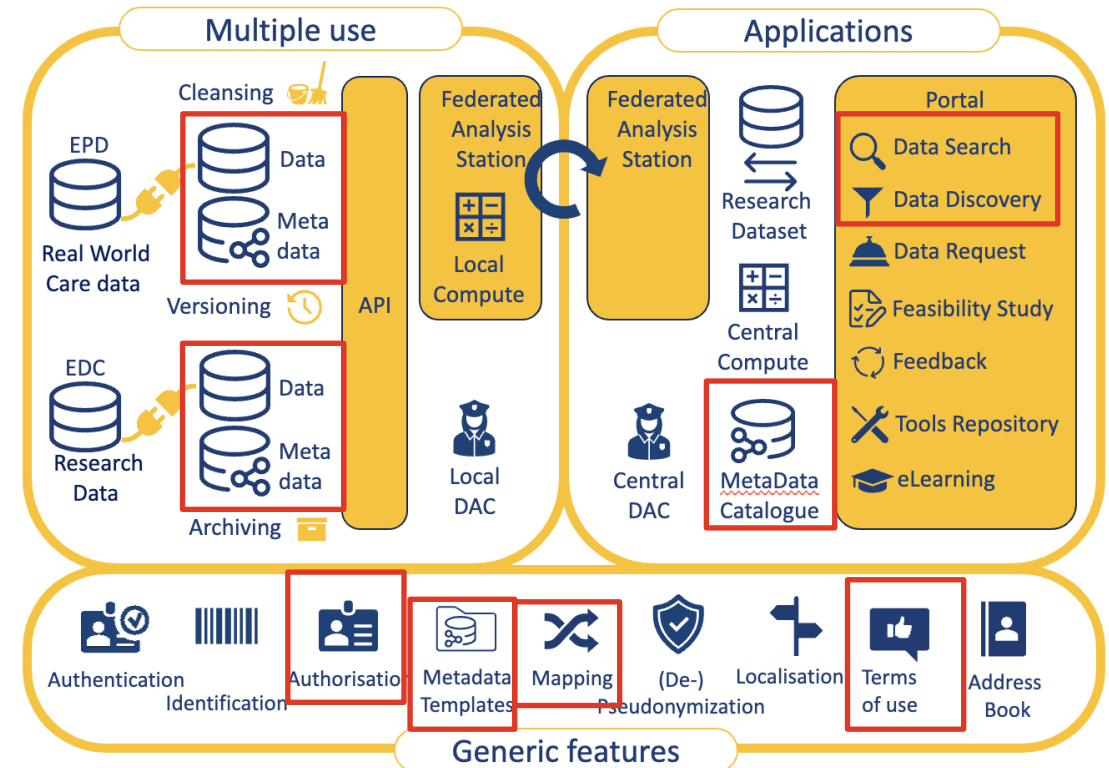
Together with the ministries of VWS, EZK, OCW and many field parties in the Obstakel Verwijder Traject, Health-RI is realising a national health data infrastructure for research and innovation.

- Link to [Health-RI Overall Architectuurontwerp v1.0](#)
- This includes FAIR DI elements as well (indicated in red boxes):
 - Data and metadata
 - Metadata catalogue
 - Mappings
 - Metadata templates
 - Terms of use (licensing)

Health data infrastructure for research and innovation

- **Portal**
 - ✓ Research Ecosystem
 - ✓ Facilitate re-usable results
 - ✓ Broad toolset
- **Metadata catalogue**
 - ✓ DCAT
- **Central analysis**
 - ✓ Secure analyse/process environment
 - ✓ Central compute
- **Federated analysis**
 - ✓ Local compute
- **Data Access Comity**
 - ✓ Central
 - ✓ Local

Involving FAIR



Onboarding (meta)data into Health-RI infrastructure

- ELSI requirements (Ethical, legal, societal implications)
- Architecture requirements
- FAIR requirements

Examples:

- Template for data sharing agreement
- Legal basis requirements (consent)
- Data is provided with clear terms of use
- ...

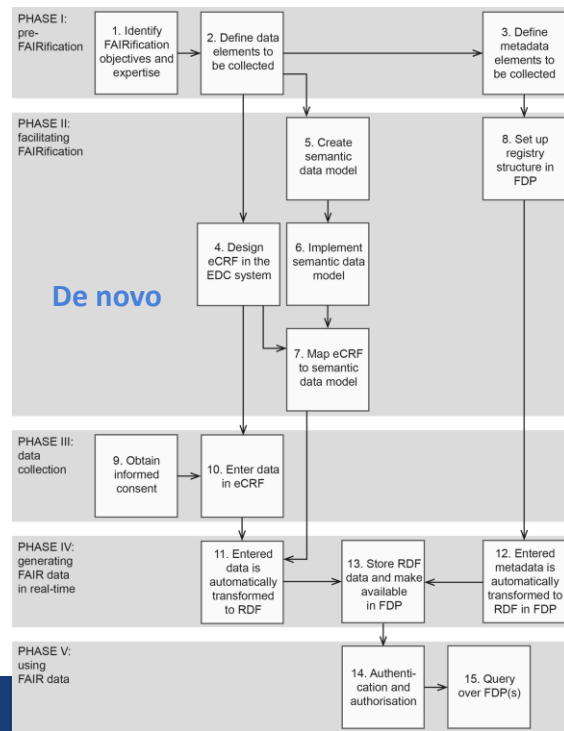
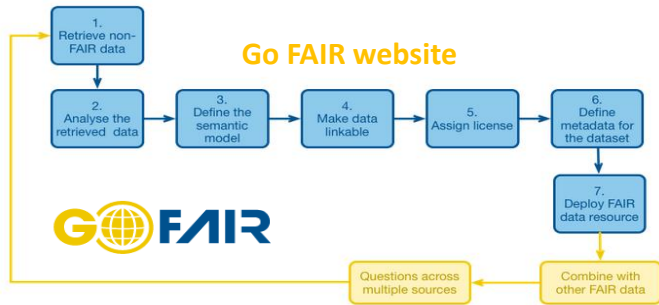
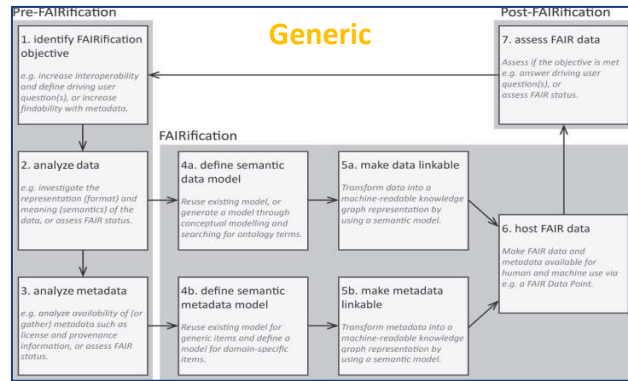
Examples:

- (Meta)data is made available through a FAIR data point
- (Meta)data is described according to Health-ri metadata schema
- ...

Examples:

- Data stewards and domain experts available to make (meta)data FAIR
- ...

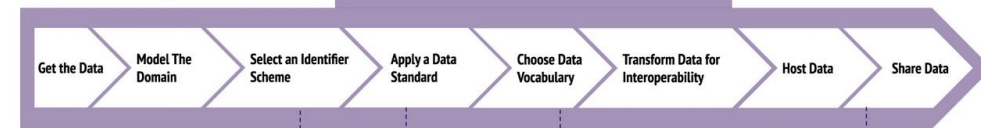
Existing FAIRification workflows



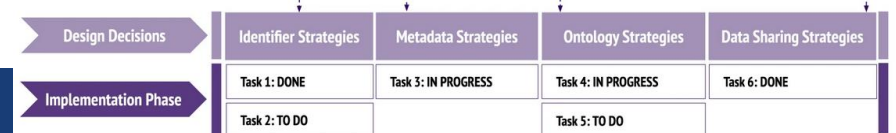
1. FAIRification Process



2. FAIRification Template

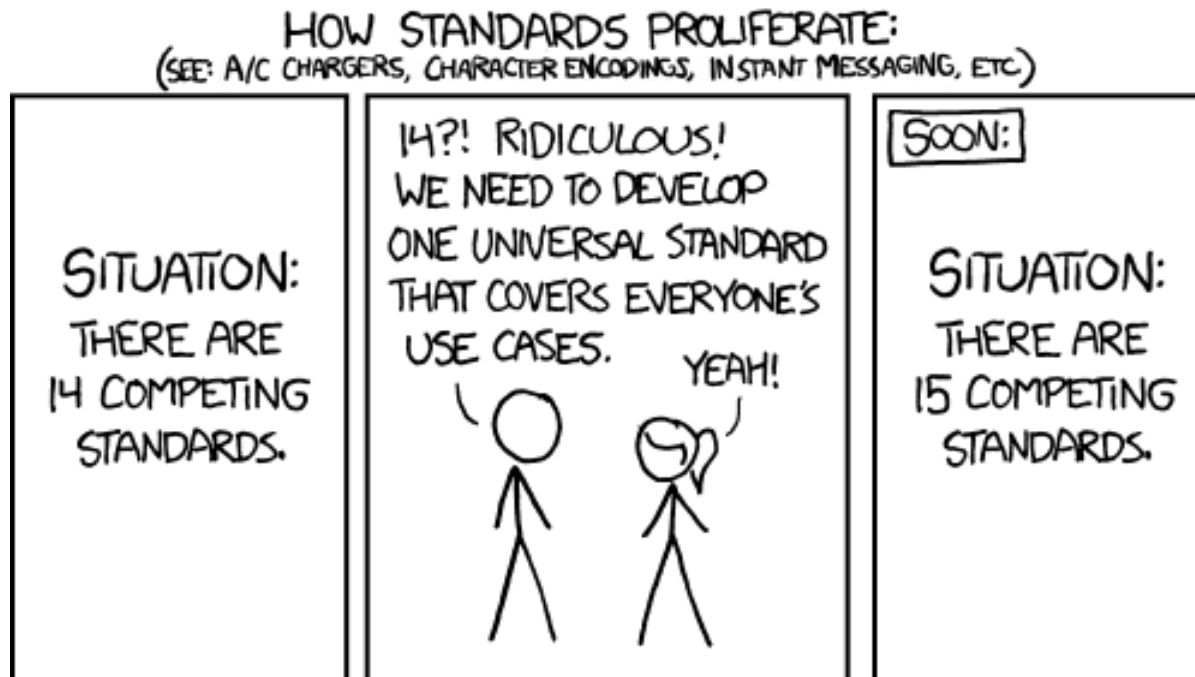


3. FAIRification Workplan



Not another new FAIR workflow, instead:

Map existing FAIR workflows and processes already in use, to identify the important and common steps



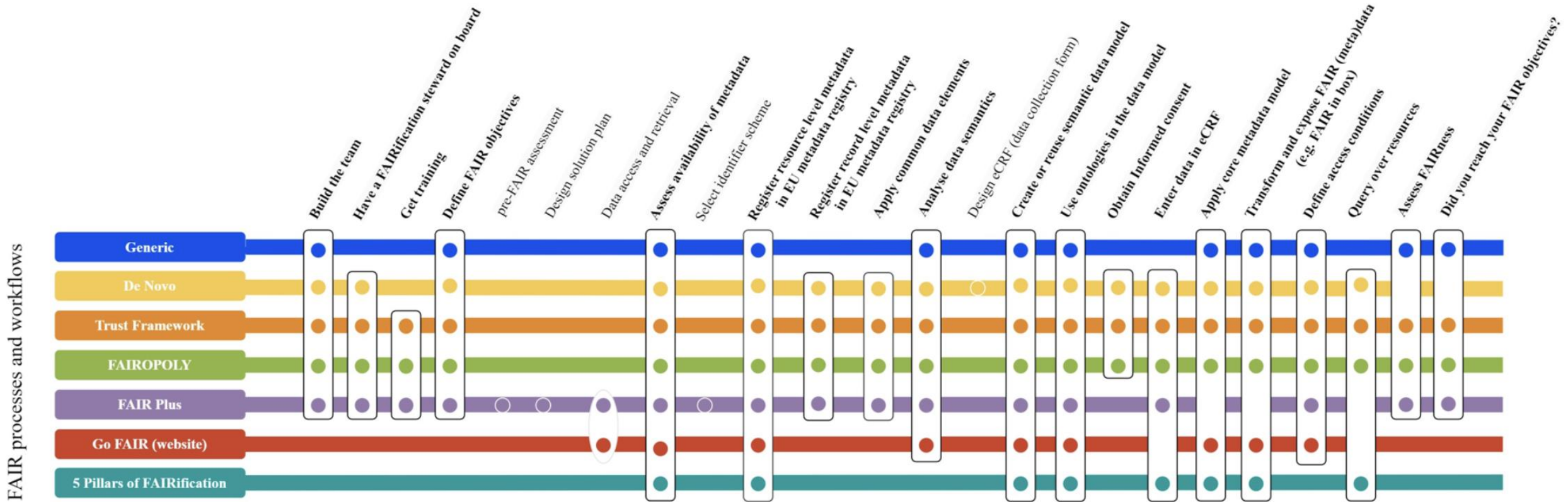
Mapping of the workflows

Started from FAIRopoly, adding rows for extra steps and columns for other workflows:

https://www.ejrbaresearch.org/fairopoly/			https://www.go-fair.org/fair-principles/fairification-process/			https://doi.org/10.1162/dint_a_00028			https://doi.org/10.1186/s13023-021-02004-y			LUMC presentation link (slide 6)			LUMC presentation link (slide 7+8)			http://doi.org/10.5281/zenodo.7157066		
FAIRopoly / EJP RD			GO FAIR Process website			Generic Workflow			De novo FAIRification / VASCA			Trust, Plan, FAIRification, Compliance			5 Pillars of FAIRification			FAIRplus Iterative FAIRification c)		
Phase	Step	Step Name	Phase	Step	Step Name	Phase	Step	Step Name	Phase	Step	Step Name	Phase	Step	Step Name	Phase	Step	Step Name	Phase	Step	Step Name
		Collect your steward's advice as you pass																		
Step 1: FAIR objective and expertise	1	Build your internal team FAIR community			no mapping	Pre FAIRification	1	FAIRification objective	Phase I Pre-FAIRification	1	Identify FAIRification objective and expertise		2	Plan (because they mention DMP)			no mapping (in the plan phase, not fairification)	Project examination (Orange)		Identify FAIR capabilities Resource
Step 1: FAIR objective and expertise	2	Get your FAIRification steward on board			no mapping			no mapping, not mentioned steward	Phase I Pre-FAIRification	1	Identify FAIRification objective and expertise		2	Plan (because they mention DMP)			no mapping (in the plan phase, not fairification)	Project examination (Orange)		Identify FAIR capabilities Resource
Step 1: FAIR objective and expertise	3	Get trained			no mapping			no mapping, not mentioned training precisely			no mapping, not mentions training		2	Plan (because they mention awareness)			no mapping (in the plan phase, not fairification)	Project examination (Orange)		Identify FAIR capabilities Resource
Step 1: FAIR objective and expertise	4	Define your FAIR objectives			no mapping	Pre FAIRification	1	FAIRification objective	Phase I Pre-FAIRification	1	Identify FAIRification objective and expertise		3	FAIRification (because they mention FAIR ambition)			no mapping (not mentioned in the pillar)	Define FAIRification goal		Define FAIR capabilities Resource
		NOT IN FAIROPOLY																Project examination (Orange)		Pre-FAIR assessment evaluator indicators
		NOT IN FAIROPOLY																Project examination (Orange)		Design sc
		NOT IN FAIROPOLY			1 Retrieve non FAIR data													FAIRification Cycles (Purple)	1 Get the data	11 data ac 12 data re
		If you skipped the previous step, go straight to all FAIR principles																		
Step 3: Define metadata elements to be collected	5	Assess availability of your metadata You can do it! Don't panic!			6 Define metadata for the dataset	Pre FAIRification	3	analyze metadata	Phase I Pre-FAIRification	3	Define metadata elements to be collected		3	FAIRification	FAIRifica	2	Pillar 2: data transformation/curation	Project examination (Orange)		Identify D. requirements
		NOT IN FAIROPOLY																FAIRification Cycles (Purple)	3 select the identifier scheme	31 identify 3.2. reuse identifiers

Making data FAIR in practice – the metro line

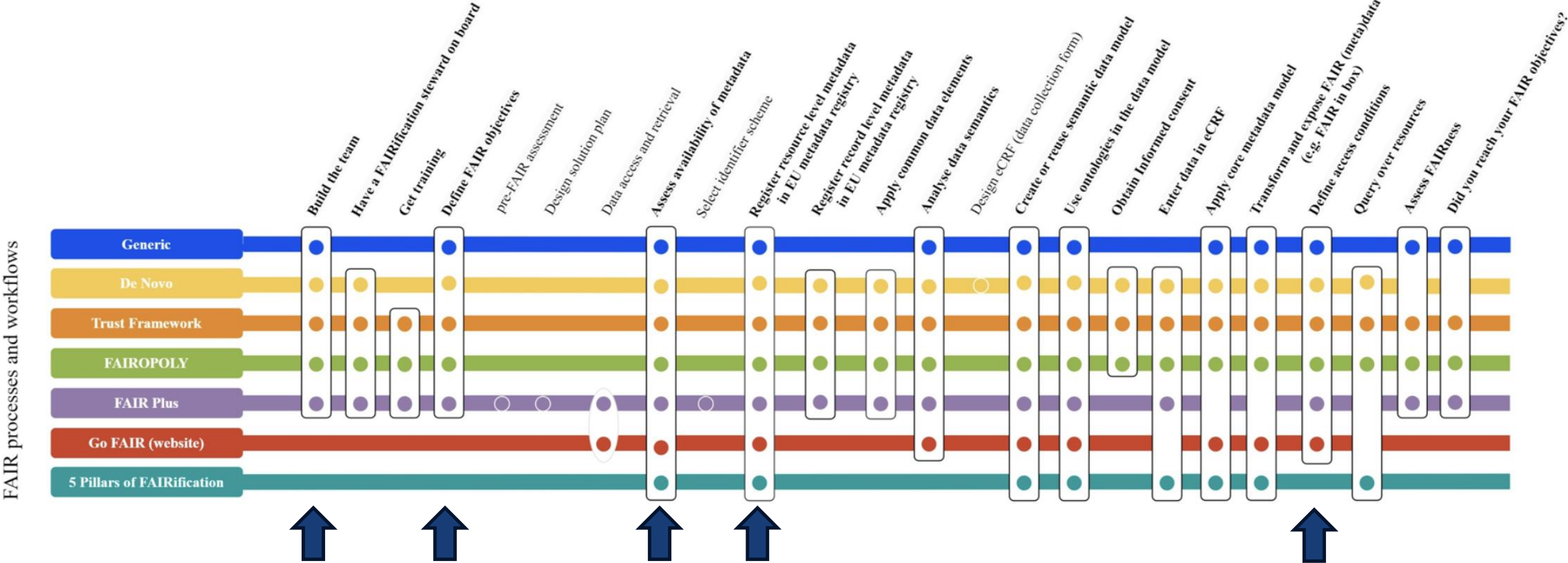
Mapped steps between FAIR processes and workflows



<https://zenodo.org/record/7867293>

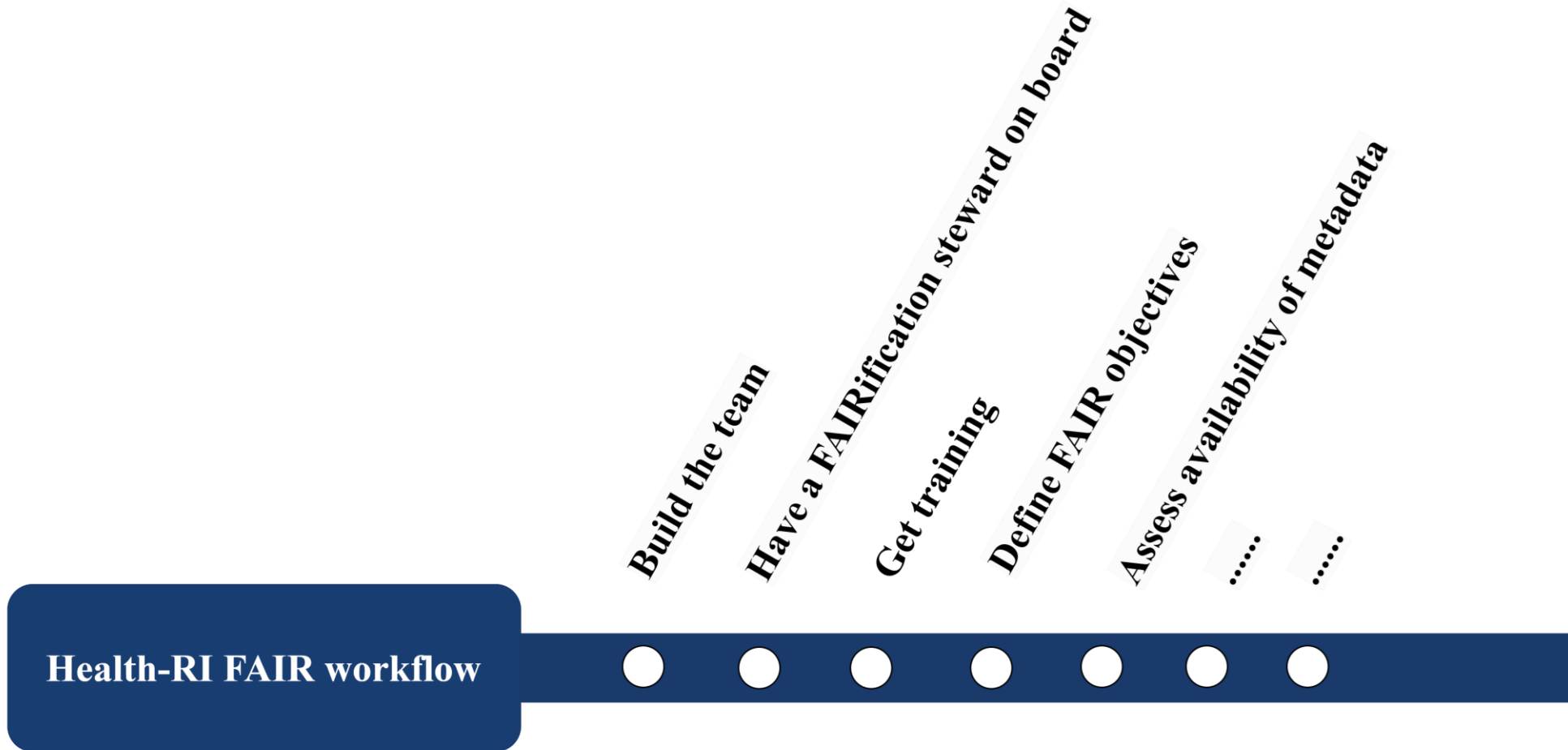
Steps for the Health-RI FAIR workflow

Mapped steps between FAIR processes and workflows



Decide which steps are necessary for Health-RI FAIR workflow (merge / rename if necessary...)

Steps for the Health-RI FAIR workflow



Making data FAIR in practice and ready for the Health-RI portal

Step: Define FAIR Objectives

Short Description

A critical step in making data FAIR, is defining your FAIR goals [1,2,3]. These goals may be set by, for example, funders or journals, who may require datasets to be published in a FAIR way, but may also be objectives of projects, such as creating FAIR registries. Goals can vary from making a complete research ecosystem, requiring data to be completely FAIR, to focusing on a single aspect of FAIR, such as making a dataset Findable.

Why is this step important (what do you achieve by completing this step)

...

Expertise requirements for this step (build the team aspect)

...

How to (checklist)

...

Examples from the Community (how did others go about this step)

...

Further reading / References

...



Making data FAIR in practice and ready for the Health-RI portal

Step: Define FAIR Objectives

Short Description

...

Why is this step important

...

Expertise requirements for this step

...

How to

...

Practical Examples from the Community

...

Further reading/ References

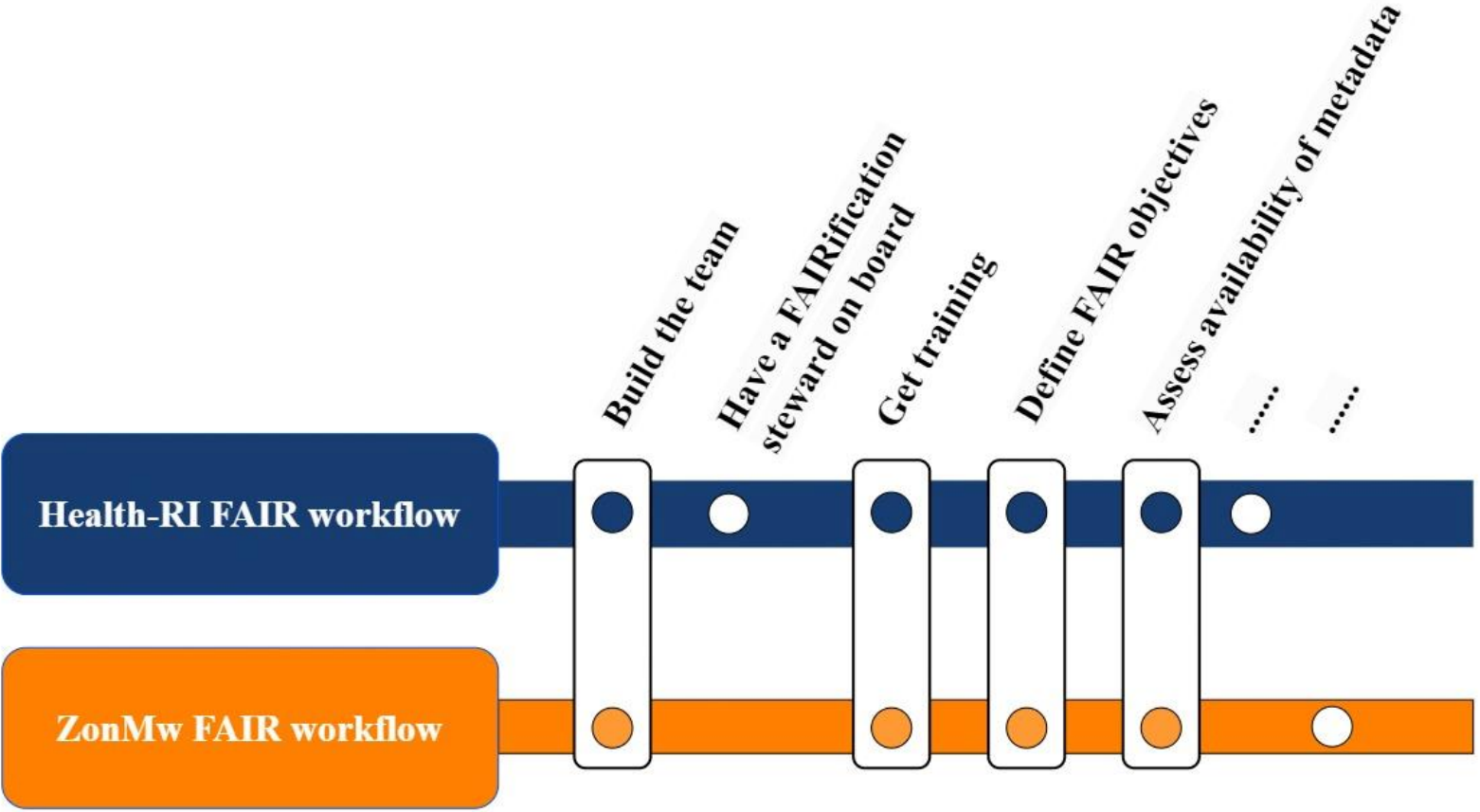
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- **Practical approach based on best-practises from the field.**
- **Write new recipes/guidelines where needed, reuse where possible:**

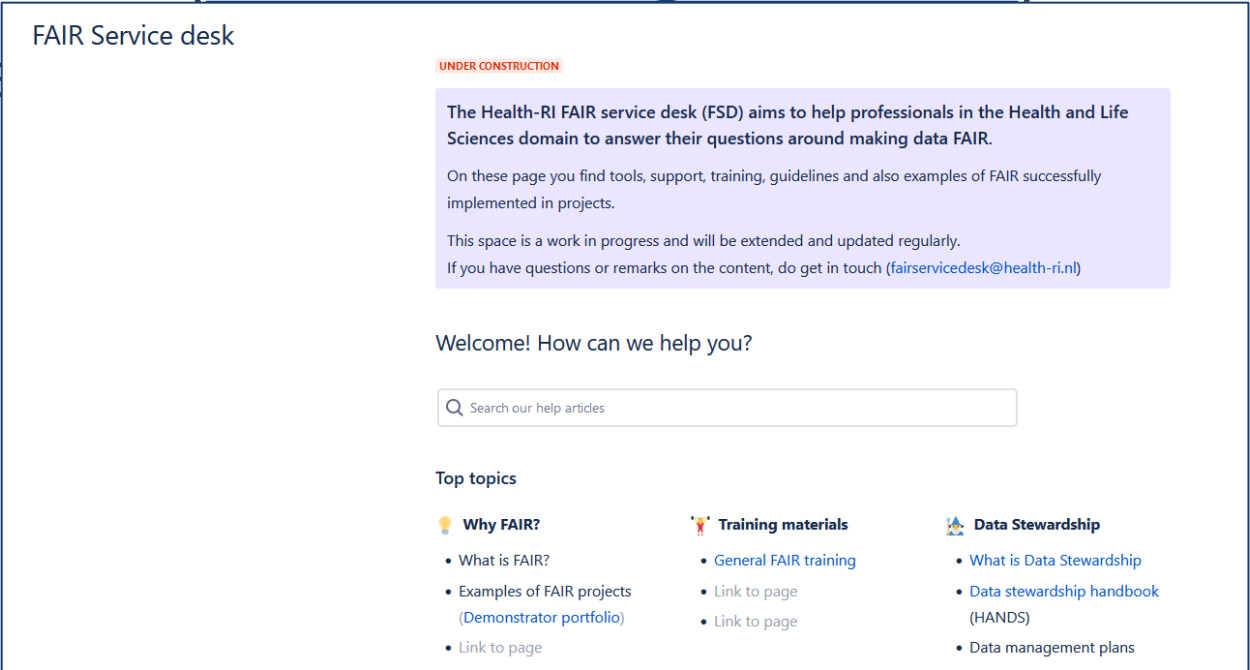


Reuse services/recipes for FAIR steps



FAIR Service Desk (under construction)

- [Website](#) (different navigation options depending on your goal)
- Email address for FAIR related questions (fairservicedesk@health-ri.nl)
- Expert team helping to answer questions



FAIR Service desk

UNDER CONSTRUCTION

The Health-RI FAIR service desk (FSD) aims to help professionals in the Health and Life Sciences domain to answer their questions around making data FAIR.

On these page you find tools, support, training, guidelines and also examples of FAIR successfully implemented in projects.

This space is a work in progress and will be extended and updated regularly.
If you have questions or remarks on the content, do get in touch (fairservicedesk@health-ri.nl)

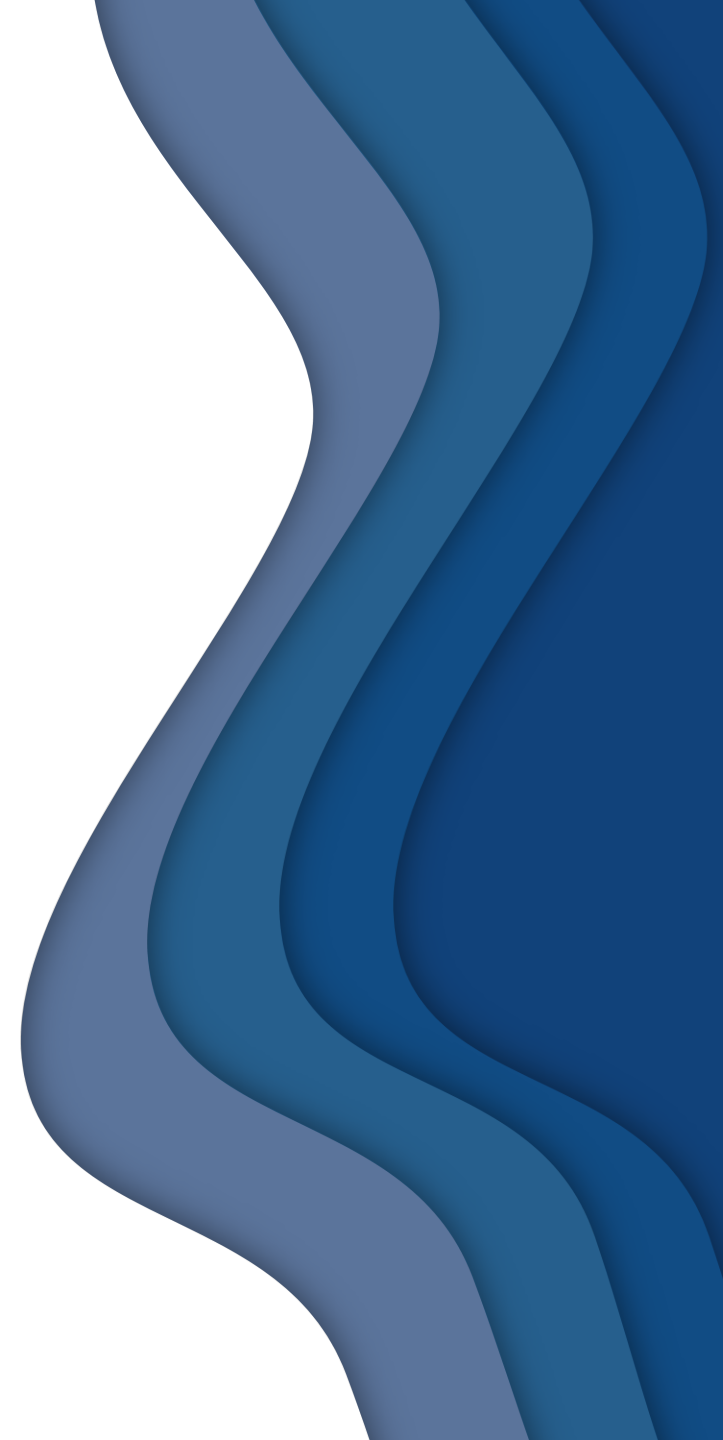
Welcome! How can we help you?

Top topics

- Why FAIR?**
 - What is FAIR?
 - Examples of FAIR projects (Demonstrator portfolio)
 - Link to page
- Training materials**
 - General FAIR training
 - Link to page
 - Link to page
- Data Stewardship**
 - What is Data Stewardship
 - Data stewardship handbook (HANDS)
 - Data management plans

To Do's

- Complete the descriptions of what is meant by a step and why the step is important
- Decide together with UMCs and other major partners in Health-RI on most relevant steps
 - Prioritise steps (“low hanging fruit”, ZonMw services)
- Work towards scalability by creating FAIR recipes/ guidelines together with domain experts
- Align with the requirements for the Health-RI Portal
 - e.g. *How to move from completing a FAIR step to being onboarded in the Health-RI portal?*



Take aways

- Don't reinvent the wheel, reuse existing FAIR processes/recipes/practices
- You can get involved in this activity:
 - If you want to help deciding on the steps that Health-RI should include
 - If you have FAIR expertise (all levels) yourself or in your organisation
 - If you want to help fill the “how to” sections of the steps

Contact your Health-RI FAIR coordinator.

Further reading

- [Critical steps towards large-scale implementation of the FAIR data principles](#)
- FAIR workflows:
 - [Generic workflow](#)
 - [De novo FAIRification / VASCA](#)
 - [FAIRopoly](#) (EJP RD)
 - [FAIRplus](#) Iterative FAIRification cycle
 - [GO FAIR](#)
- Links to guidelines, **recipes**:
 - [RDMkit](#)
 - [FAIR cookbook](#)
- [FAIR Data Implementation team webpage](#)
- [Demonstrator portfolio](#)
- [Data champions portfolio](#)
- [Health-RI Overall Architectuurontwerp v1.0](#)

Acknowledgements

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- Efi Gkoumassi, Morris Swertz (UMCG)
- Martijn van Marle (UMCU)

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Questions

