



FAIRsFAIR

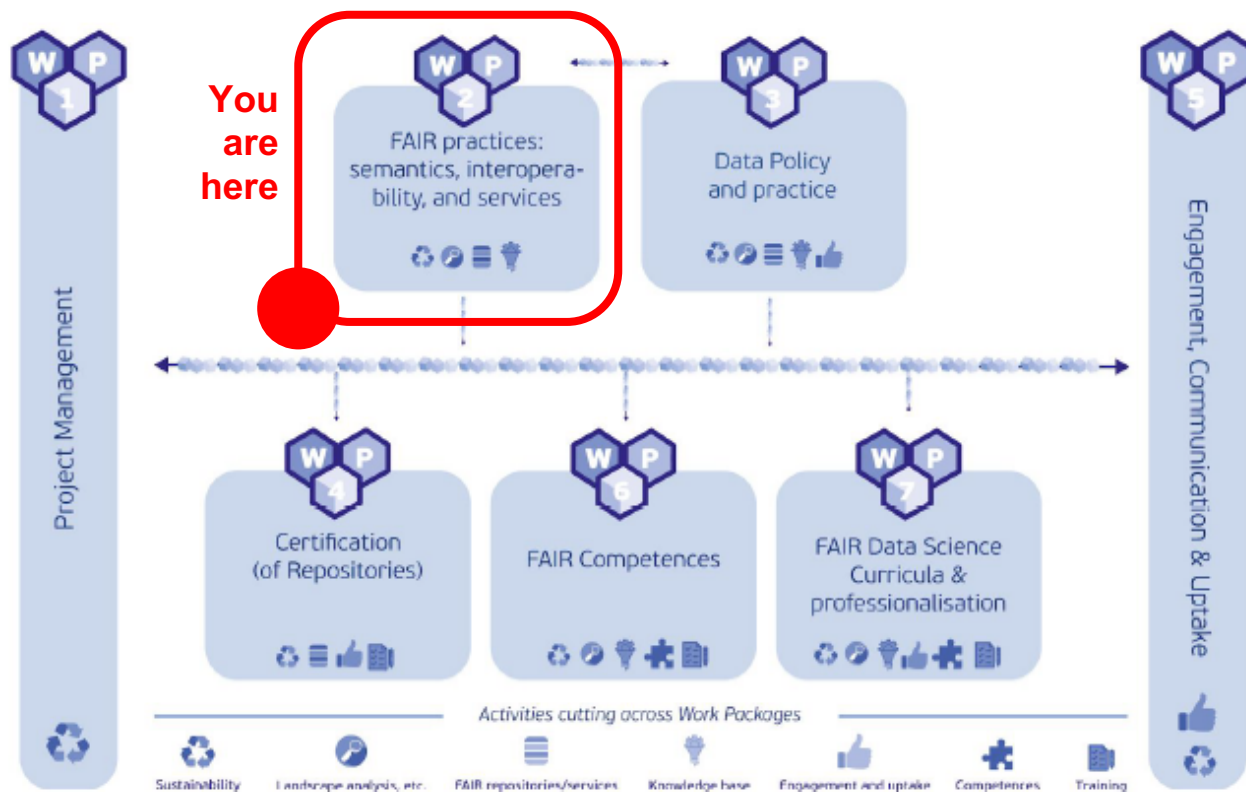
Fostering Fair Data Practices in Europe

FAIR assessment for data services

April 8, 2020



FAIRsFAIR "Fostering FAIR Data Practices In Europe" has received funding from the European Union's Horizon 2020 project call H2020-INFRAEOSC-2018-2020 Grant agreement 831558



What does it take ...



... for a service to
be 'FAIR?'

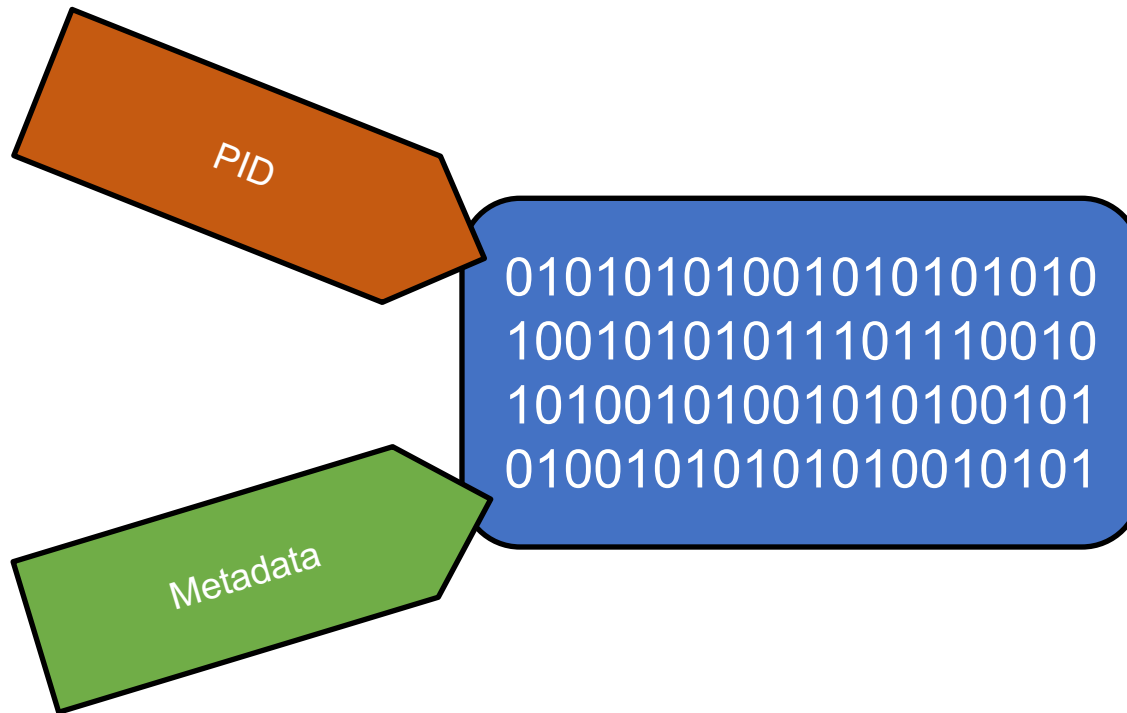


*(Is that even a
good question?)*




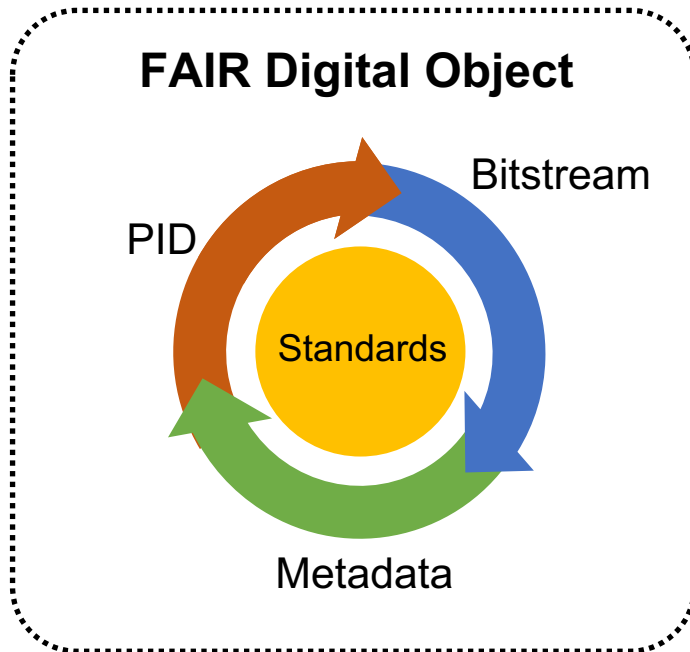
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F_{indable} A_{ccessible} I_{nteroperable} R_{eusable}

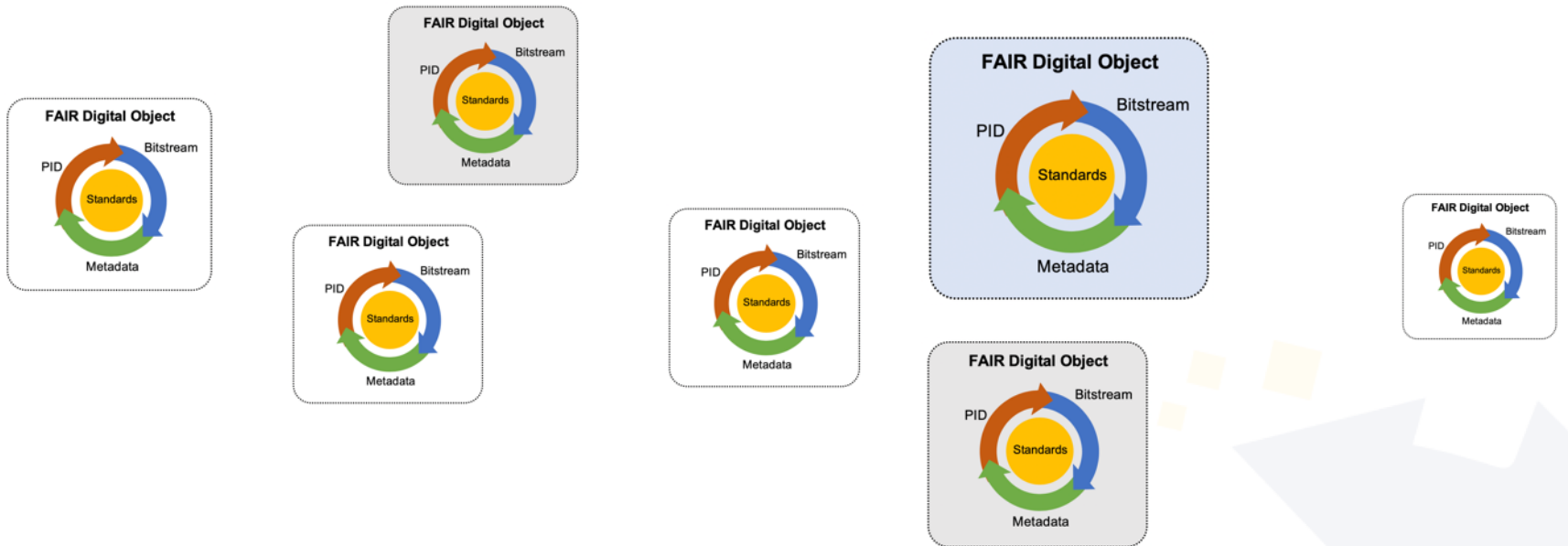


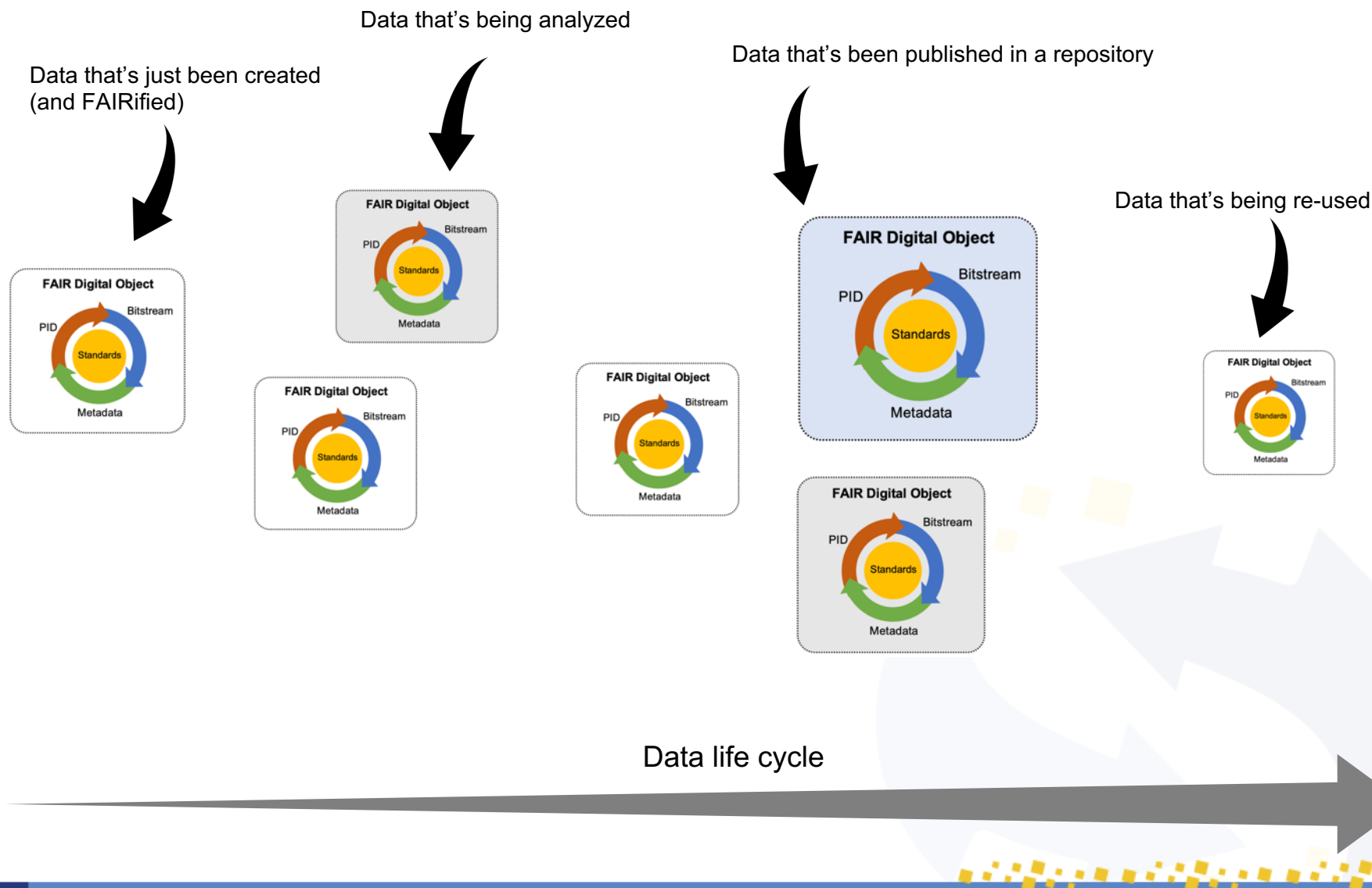


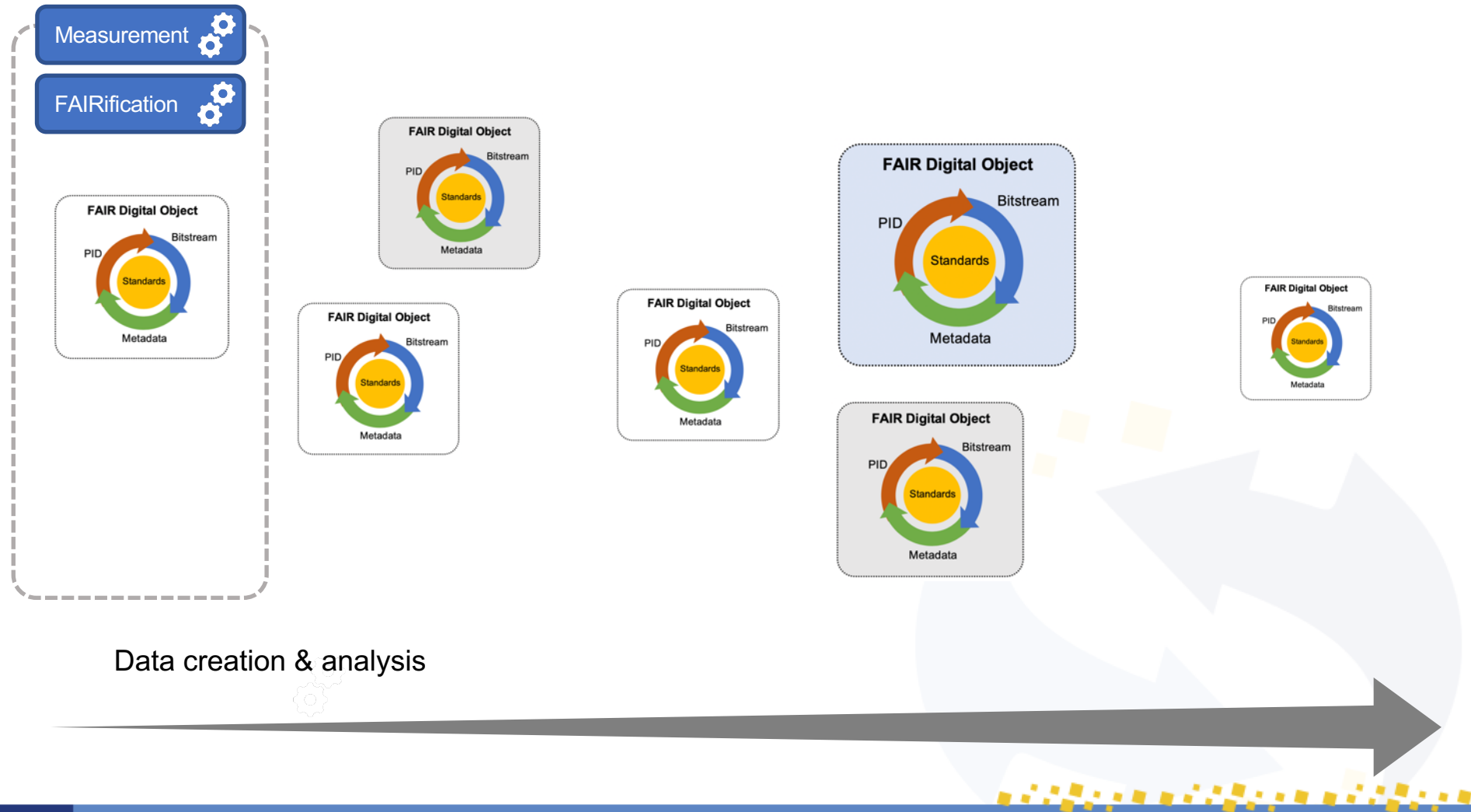
FAIR Digital Objects include many different types of academic outputs:

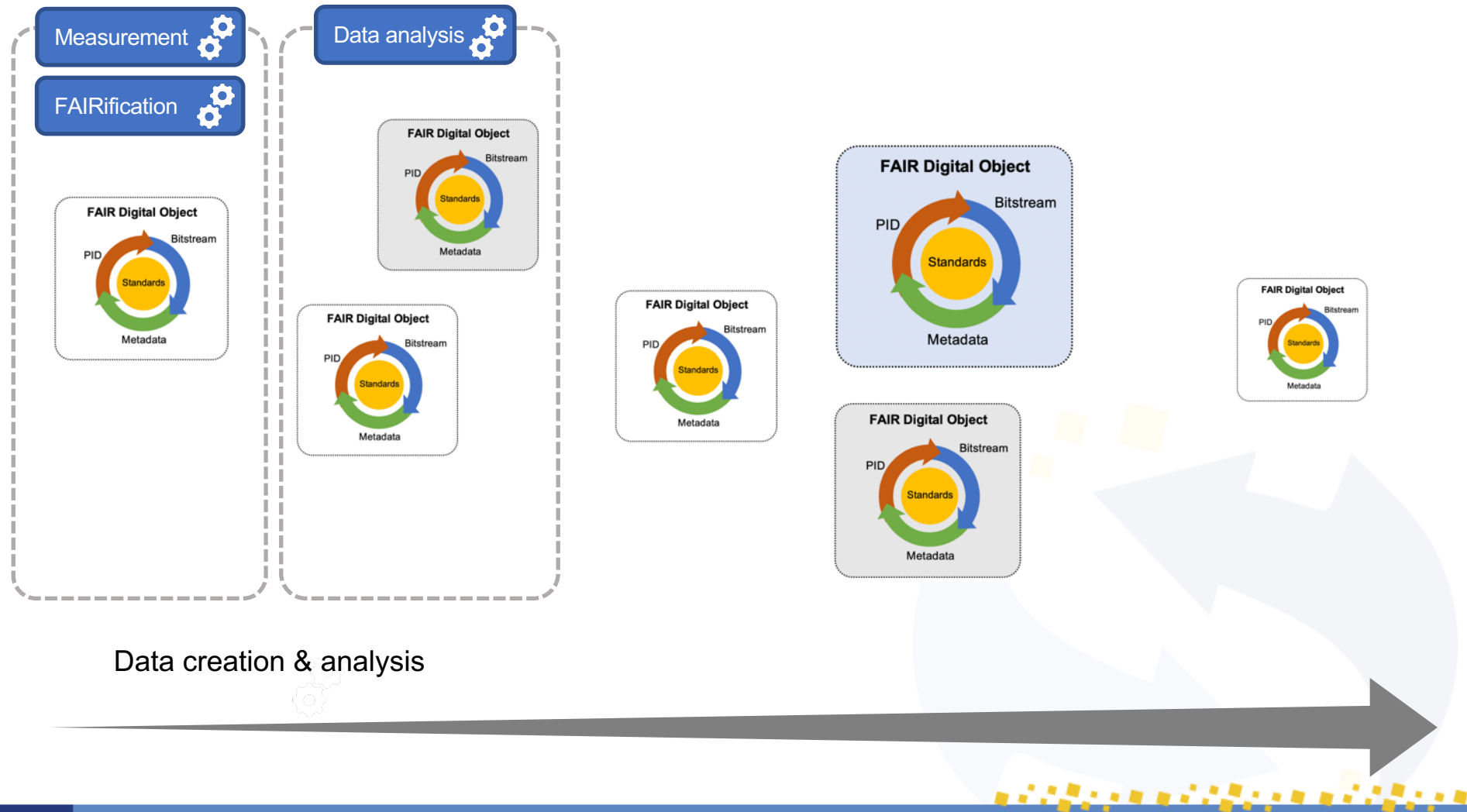
- Data sets
- Research software
- Methods
- Ontologies
- ...

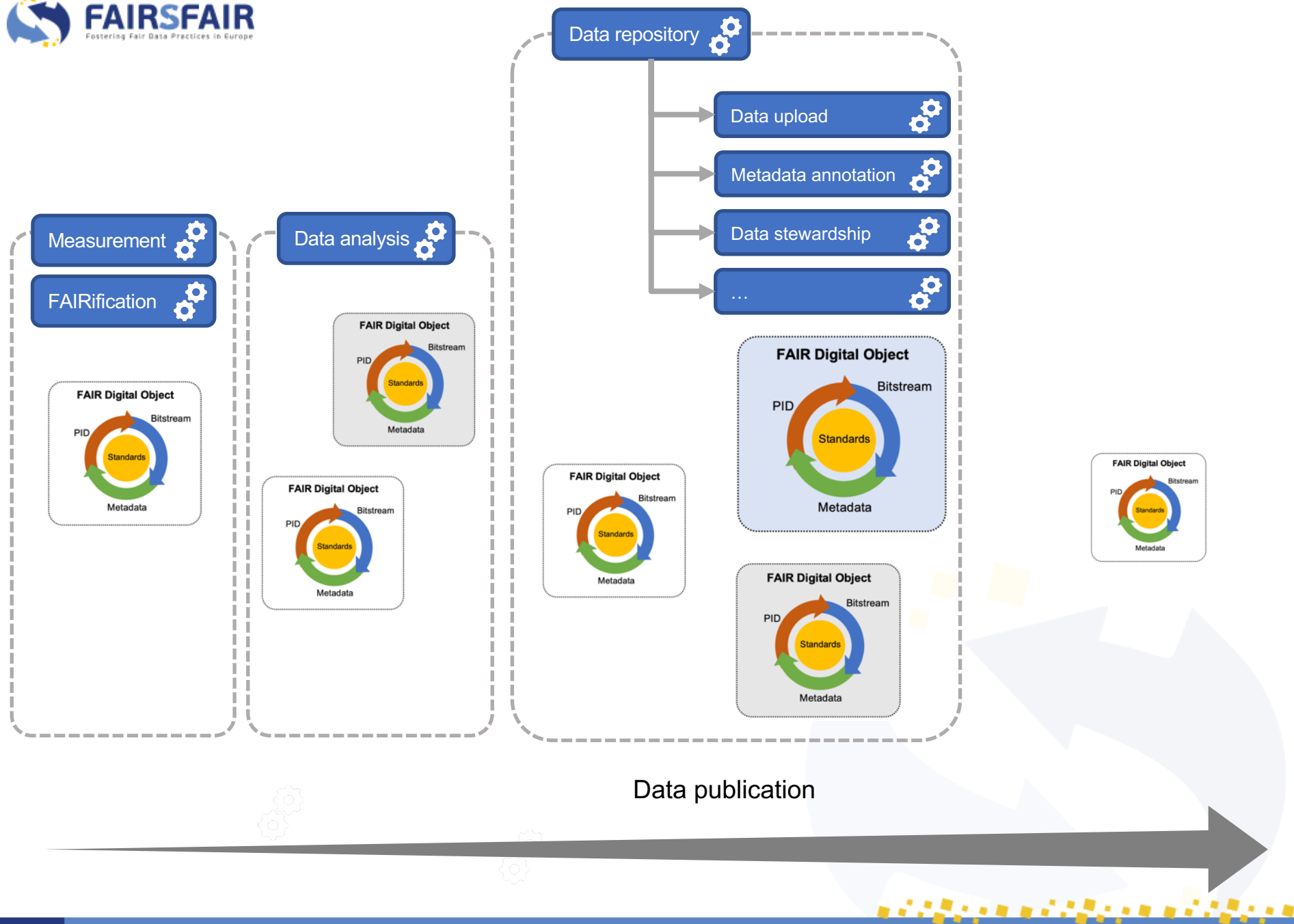


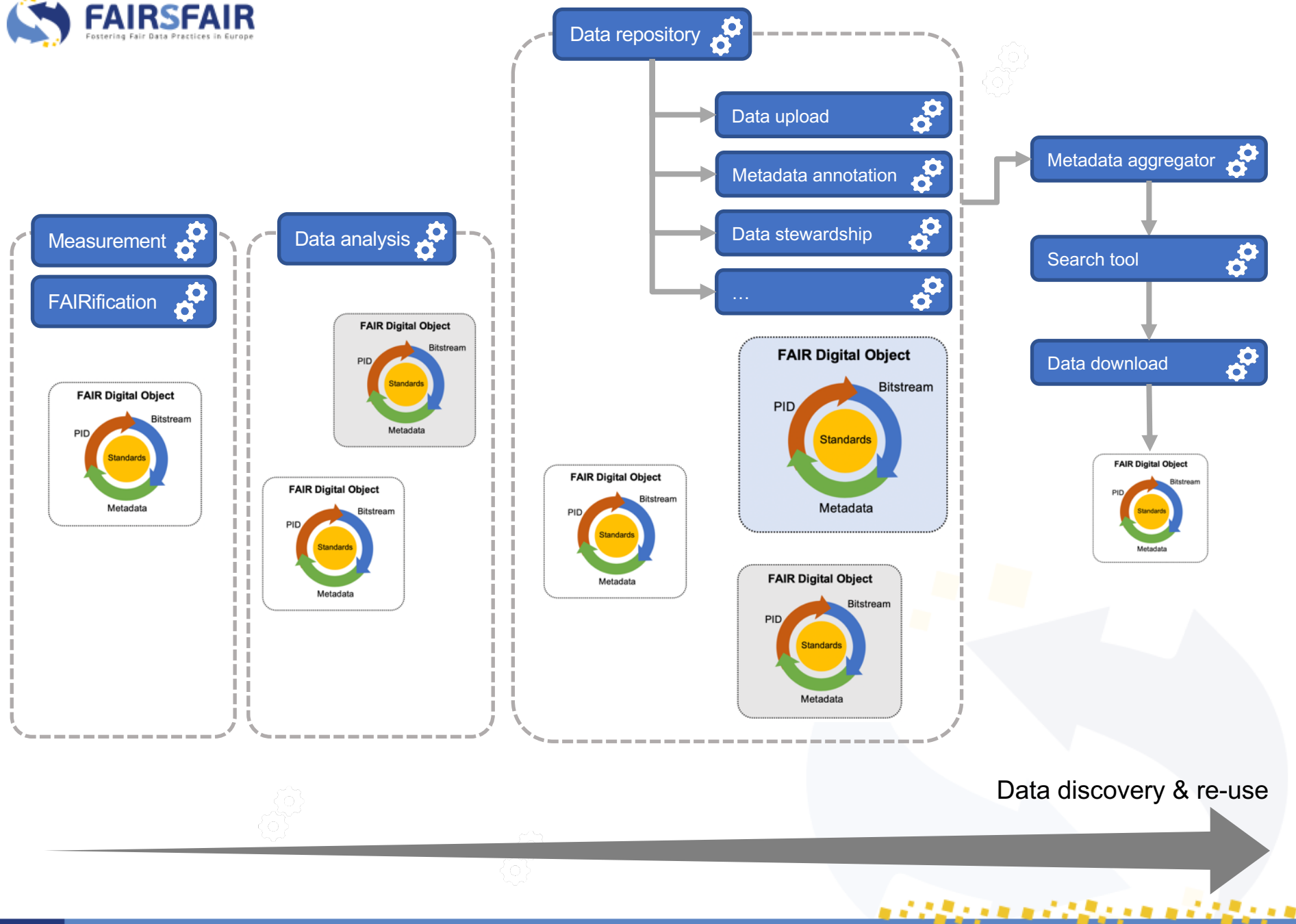


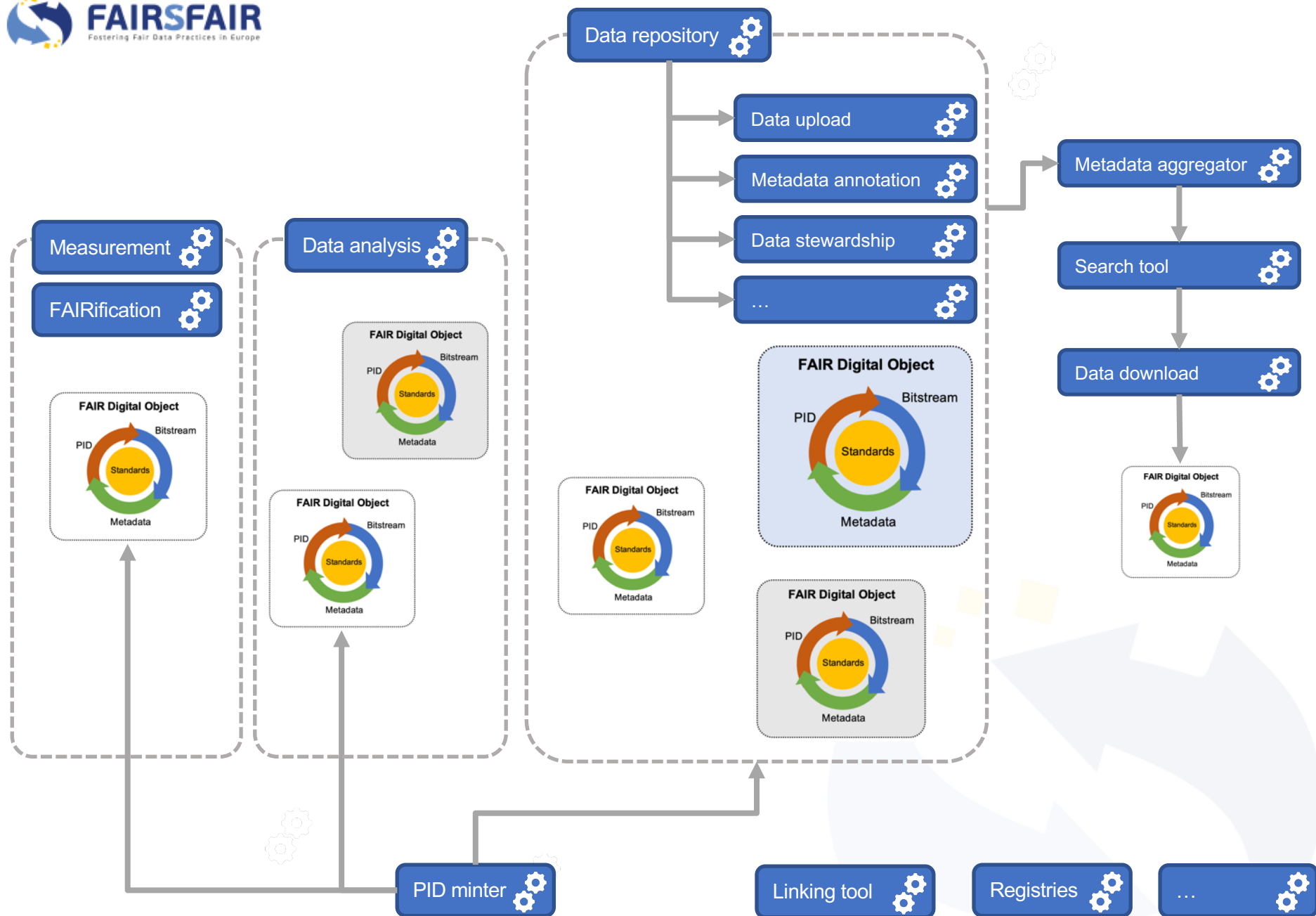












FAIR Digital Objects & Services: A perfect pair for a FAIR data ecosystem





The FAIR data ecosystem

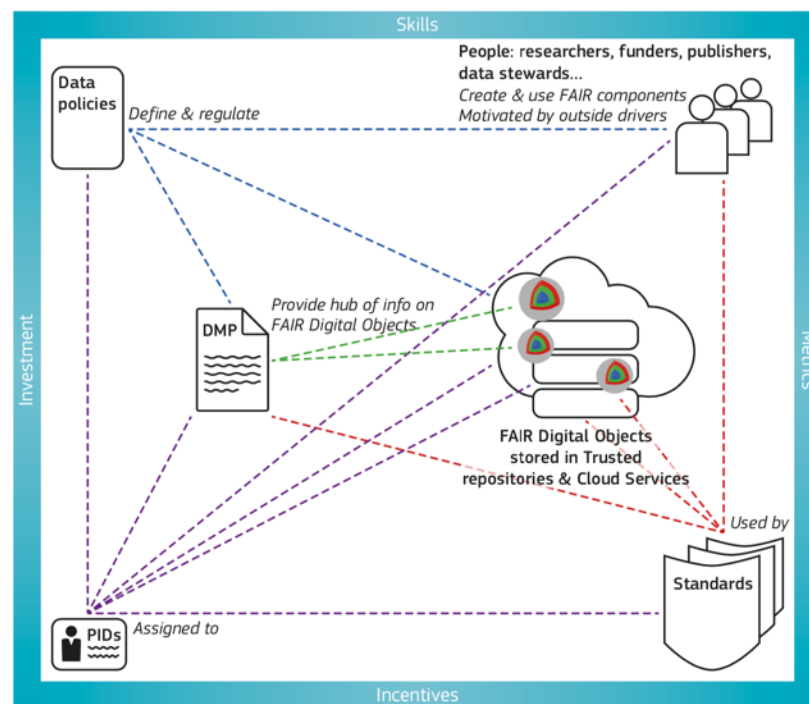
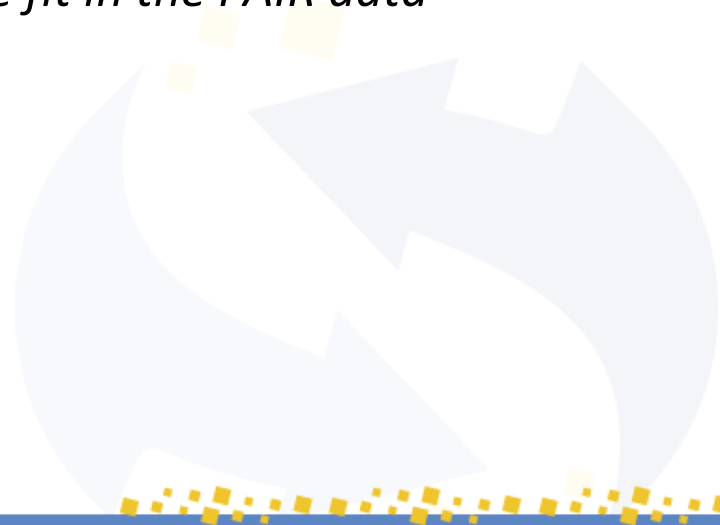


Figure 9. The interactions between components in the FAIR data ecosystem. Notes on this figure:

So.. what is the issue?

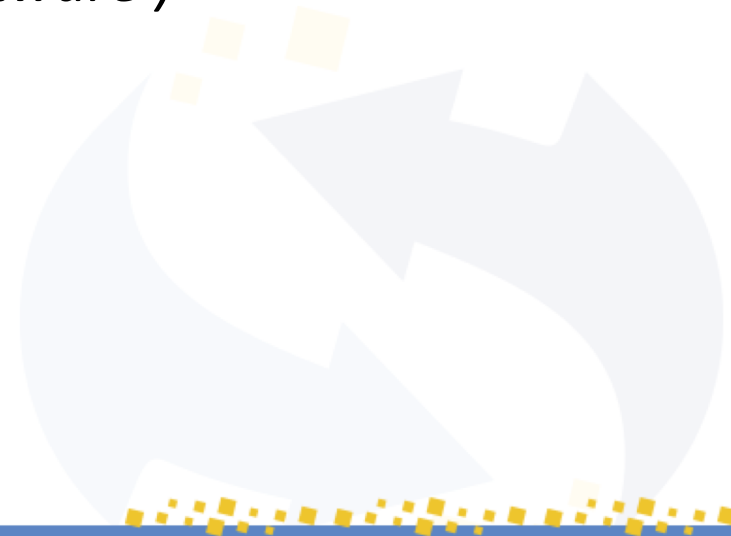
- FAIR is not an absolute, but rather a set of guiding principles that need further interpretation and definition by research communities to become truly actionable
- For 'FAIR data' there has been a lot of work on this recently, leading to check-lists, assessments, certification, etc.
- However, for services that is not the case → *There is little guidance for service owners on how to make their service fit in the FAIR data ecosystem*



Enter FAIRsFAIR Task 2.4: 'FAIR services & software)

Core Objective: To deliver an assessment framework for data services that will enable and stimulate such an interplay and thus help realize the full potential of a truly FAIR ecosystem.

(+ FAIR assessment framework for software)



What we have done so far

- Review of FAIR assessment frameworks for data (14 in total)
- Review existing assessment frameworks for services (not necessarily 'FAIR')
- Case studies: 'How is this service *enabling FAIR*' ?
- Formulate guiding principles for the assessment framework (so, still 'meta')

And, of course, lots of interactions and discussions with stakeholders and related working groups & projects



Review of FAIR assessment frameworks for data

14

5-star Data Rating tool	
Created by: CSIRO (OzName)	
Links:	
<ul style="list-style-type: none"> Che Doc 	
Scope: Datas	Created by: RDA FAIR Maturity WG
Purpose: "To service is."	Links:
Target audience	<ul style="list-style-type: none"> Draft list RDA WG
Type: Online	FAIR metrics Gen2: Bootstrap FAIR maturity indicators
Status: Live	Created by: FAIR metrics group
	Links:
	<ul style="list-style-type: none"> Prototype evaluator software: https://w3id.org/AmlFAIR Publication: Evaluating FAIR maturity through a scalable, automated, community-governed framework (10) Documentation and code: https://github.com/FAIRMetrics/Metrics
	Scope: Digital resources (including both data and software)
	Purpose: "(To provide) a roadmap for incremental improvements in the FAIRness of a resource"
	Target audience (if specified)
	Type: Automated tests
	Status: Live (initial release)
	Elements
	Maturity Indicators and Compliance Tests that assess certain elements or specifications of the FAIR guidelines

Review of FAIR assessment frameworks for services

- Assessment frameworks, including more formal certification schemes, for data repositories, notably CoreTrustSeal
- “Rules of Engagement” and other lists with criteria for services to be included in catalogues such as the European Open Science Cloud (EOSC) or the ELIXIR Core Data Resources
- General service quality requirements stemming from IT service management, for example the FitSM framework.



Case Study: How is B2FIND helping to make data FAIR?

For each FAIR principle:

- **Enable (color-coded in green):** the service actively helps to realize this particular FAIR principle — for example by adding metadata or enabling discoverability;
- **Respect (in blue):** the service does not actively enable this particular FAIR principle, but also does not interfere with it — it can be said to respect the “FAIR-in-FAIR-out” principle;
- **Reduce (in red):** the service actually makes data less FAIR — at least for a particular principle — for example by detaching metadata or a PID when it acts on a digital object;
- **N/A (not clear or not applicable; in white):** This particular FAIR principle is not relevant for the service, or there was insufficient information to determine if the FAIR principle applies.

4.2. Case Study 1: B2FIND

Service Summary B2FIND ²¹ is a metadata aggregator. The service harvests metadata from different community repositories and harmonises them such that users and services can search through the combined metadata. B2 FIND offers a rich faceted graphical search interface and a HTTP REST API that has been implemented in python for EUDAT's B2FIND Training ²² URL: http://b2find.eudat.eu/ EOSC: https://marketplace.eosc-portal.eu/services/b2find															
Users The service targets two types of user groups: <ul style="list-style-type: none">Scientific communities that can provide their metadata and integrate via the B2FIND service with other metadataScientists who can employ the service to search for interesting research data across different communities simultaneously.								Services <ul style="list-style-type: none">Metadata harvesting and harmonisation to communities with a tool to search across the metadata for scientists.The relevant metadata of a DO is shown and a link to the metadata provenance is provided. Target Digital Objects <ul style="list-style-type: none">Metadata entries Examples <ul style="list-style-type: none">B2FIND entry (KONTROL 1984²³)OAI-PMH dataset's metadata²⁴-							
Purpose B2FIND is a metadata aggregator. It gathers metadata from communities and repositories and integrates the different types of metadata. It provides a graphical user interface and an API to present the metadata and allows faceted searches across the metadata corpus.								Documentation EUDAT provides guidelines on how to use the B2FIND services ²⁵ as well as detailed guidelines for harvesting and mapping metadata ²⁶							
FAIR enablement mapping (see Annex C for details)															
F1	F2	F3	F4	A1	A1.1	A1.2	A2	I1	I2	I3	R1	R1.1	R1.2	R1.3	

Case Study: How is B2FIND helping to make data FAIR?

F2. data are described with rich metadata.

ENABLE: B2FIND relies on the provided metadata by the harvested repositories. B2FIND does not further enrich metadata. **Enhances** F2 with citation metadata

F1. (meta)data are assigned a globally unique and eternally persistent identifier.

RESPECT: B2FIND relies on the harvested repositories to attach a PID to its records and expose that as part of the metadata. If the provided metadata contains a PID B2FIND represents this PID and uses it to link the harvested metadata to the original data object in the repository.

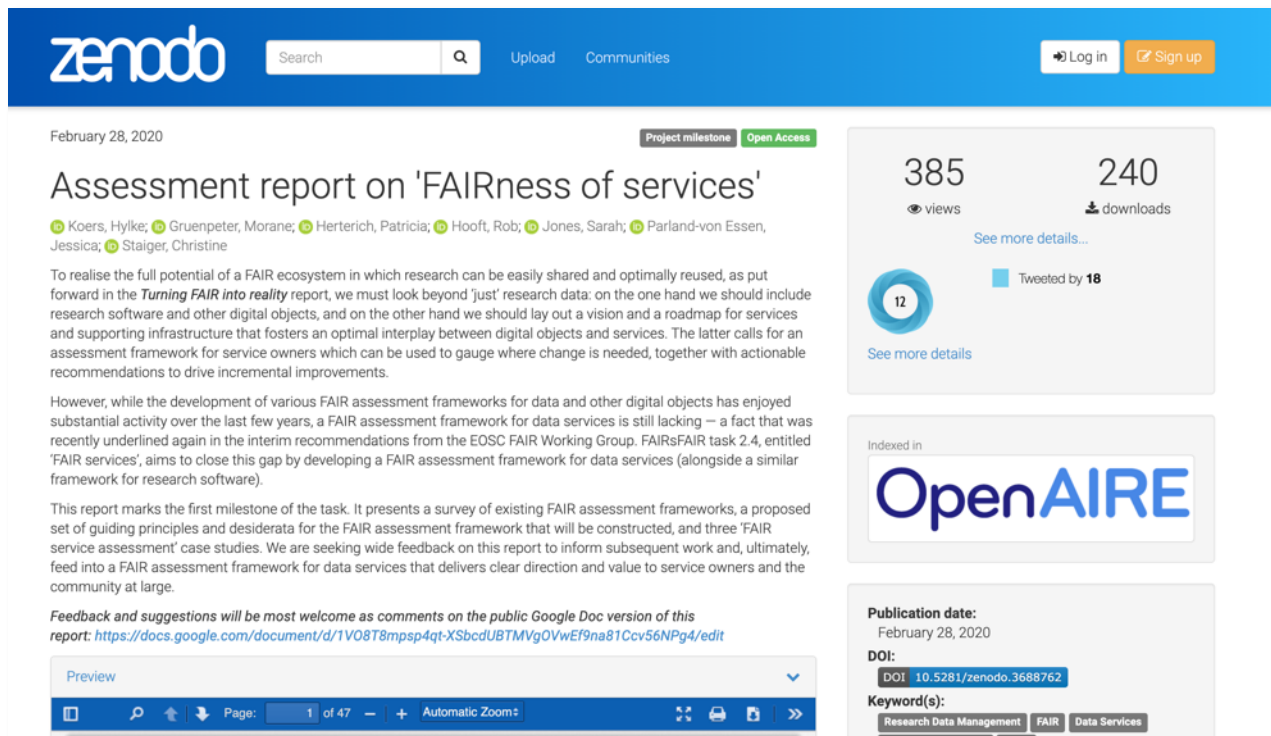
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Adoption By now B2FIND hosts 824566 metadata entries harvested from 22 communities. We were unable to establish from the documentation how many users use B2FIND.								Documentation EUDAT provides guidelines on how to use the B2FIND services ²⁵ as well as detailed guidelines for harvesting and mapping metadata ²⁶							
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F1	F2	F3	F4	A1	A1.1	A1.2	A2	I1	I2	I3	R1	R1.1	R1.2	R1.3	

Draft guidelines for a FAIR assessment framework for services

- **Be comprehensive**, in that it applies to a broad range of functionalities across the data life cycle and across academic disciplines;
- **Be inclusive**, in that it addresses a wide array of service providers including commercial and public organizations;
- **Be rooted in FAIR data**, in that it clearly relates the FAIRness of a service to the FAIRness of the digital object that it acts on (thereby making an explicit connection to the original FAIR Data Principles);
- **Build upon existing work** as much as possible, for example extending concepts and criteria from frameworks such as CoreTrustSeal where possible;
- **Consider several dimensions of a service**, i.e. not only functional aspects ('utility' in FitSM terms) but also aspects that speak to quality, documentation, sustainability and trustworthiness ('warranty') — where human factors including capacity building and training will be critical;
- **Be actionable** and aligned with the needs of the intended audience, in that parties developing or delivering data services can use it to, very practically, know what to put on their development roadmaps;
- **Be validated** by pilots and tests, in that the framework does not just live on paper but has been tested and practice — ideally with working exemplars; and
- **Be supported by the community**, in that it may count on informal support and formal endorsement by the broader community.

First report on Zenodo



The screenshot shows the Zenodo record page for the 'Assessment report on FAIRness of services'. The page is dated February 28, 2020, and is marked as a 'Project milestone' and 'Open Access'. The title is 'Assessment report on FAIRness of services'. The authors listed are Koers, Hylke; Gruenpeter, Morane; Herterich, Patricia; Hooft, Rob; Jones, Sarah; Parland-von Essen, Jessica; and Staiger, Christine. The abstract discusses the need for a FAIR assessment framework for data services, highlighting the current lack of such a framework and the goal of the report to provide a survey of existing frameworks and propose guiding principles. The report is available as a public Google Doc, with a link provided for feedback. The page also shows 385 views, 240 downloads, and 12 tweets. The report is indexed in OpenAIRE. The publication date is February 28, 2020, and the DOI is 10.5281/zenodo.3688762. The keywords are Research Data Management, FAIR, and Data Services.

February 28, 2020 Project milestone Open Access

Assessment report on 'FAIRness of services'

Koers, Hylke; Gruenpeter, Morane; Herterich, Patricia; Hooft, Rob; Jones, Sarah; Parland-von Essen, Jessica; Staiger, Christine

To realise the full potential of a FAIR ecosystem in which research can be easily shared and optimally reused, as put forward in the *Turning FAIR into reality* report, we must look beyond 'just' research data: on the one hand we should include research software and other digital objects, and on the other hand we should lay out a vision and a roadmap for services and supporting infrastructure that fosters an optimal interplay between digital objects and services. The latter calls for an assessment framework for service owners which can be used to gauge where change is needed, together with actionable recommendations to drive incremental improvements.

However, while the development of various FAIR assessment frameworks for data and other digital objects has enjoyed substantial activity over the last few years, a FAIR assessment framework for data services is still lacking – a fact that was recently underlined again in the interim recommendations from the EOSC FAIR Working Group. FAIRsFAIR task 2.4, entitled 'FAIR services', aims to close this gap by developing a FAIR assessment framework for data services (alongside a similar framework for research software).

This report marks the first milestone of the task. It presents a survey of existing FAIR assessment frameworks, a proposed set of guiding principles and desiderata for the FAIR assessment framework that will be constructed, and three 'FAIR service assessment' case studies. We are seeking wide feedback on this report to inform subsequent work and, ultimately, feed into a FAIR assessment framework for data services that delivers clear direction and value to service owners and the community at large.

Feedback and suggestions will be most welcome as comments on the public Google Doc version of this report: <https://docs.google.com/document/d/1VO8T8mpsp4qt-XSbcdUBTMVgOVwEf9na81Ccv56NPg4/edit>

Preview

Page: 1 of 47 Automatic Zoom

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Indexed in

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Publication date: February 28, 2020

DOI: 10.5281/zenodo.3688762

Keyword(s): Research Data Management FAIR Data Services

Report

https://zenodo.org/record/3688762#.XoY_W9MzbOR

Feedback very welcome through public Google Doc:

<https://docs.google.com/document/d/1VO8T8mpsp4qt-XSbcdUBTMVgOVwEf9na81Ccv56NPg4/edit>

Team 2.4

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- Patricia Herterich (DCC)
- Rob Hooft (DTL)
- Sarah Jones (DCC)
- Hylke Koers (SURF, task lead)
- Jessica Parland-von Essen (CSC)

And earlier contributions from:

- Christine Staiger (DTL)



Do you run a data service?



Email me at hylkek@surfsara.nl

What does it take for a service to be FAIR?



What does it take
for a service to **enable**
FAIR?



A FAIR assessment framework for *data services*



We're on it



And you can help!

