



**FAIR-IMPACT**

Expanding FAIR solutions across EOSC

**FAIR Implementation  
workshop:  
Skills4EOSC Minimum Viable  
Skills Profiles:  
Implementation using FAIR  
Signposting**

2 July 2024

## Expanding FAIR Solutions across Europe

**Call HORIZON-INFRA-  
2021-EOSC-01-05**

*Enabling discovery and  
interoperability of federated  
research objects across scientific  
communities*

**Expanding FAIR  
solutions in Europe**

**Partly following up on  
FAIRsFAIR**

**EU funded project**

**Coordination and  
Support Action**

**10 million euro**

**36 months, starting  
1 June 2022**

**28 partners and  
affiliate entities**

**From 10 EU  
member states:  
NL, FI, FR, DK,  
IT, DE, ES, NO,  
BE, RO**

**and the UK**

## FAIR-IMPACT overall objective



### WHAT:

to realise a FAIR EOSC by **supporting the implementation** of FAIR-enabling practices across scientific communities and research outputs at a European, national, and institutional level;

### HOW:

- **identifying** current and emerging components for enabling FAIR (practices, policies, tools & technical specifications);
- **translating** viable solutions, guidelines and frameworks that have been developed for one domain or research output and **supporting** their application in others;
- taking the next step in implementation by **defining** the support, governance, and coordination mechanisms required to ensure the continuous function of FAIR-enabling practices in the EOSC.

**Skills  
4 eosC**

- Skills for the European
- Open Science
- Commons

# Introducing Minimum Viable Skills Profiles

2 July 2024 FAIR Signposting event

Angus Whyte, Digital Curation Centre  
*With thanks to T2.1 colleagues from UKIM,  
CNRS, Universite D'Aix Marseille*

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Co-funded by  
the European Union



UK Research  
and Innovation



# Skills 4 eosc



44 Universities 2 ESFRI Research Infrastructures = 46 partners, 18 Countries



“Key doers” in Open Science in their country, region, or domain



€ 7 million



September 2022 - August 2025



# Main Objective of Skills4EOSC

Advance Open Science skills by unifying the current training landscape into a common and trusted pan-European ecosystem, closing the three gaps identified in the **EOSC Strategic Research and Innovation Agenda 2021** in relation to Open Science competences:

- lack of clear definition of **data professional profiles and corresponding career paths**
- **fragmentation** in training resources
- lack of **Open Science and data expertise**



## Competences Definition



Skills4EOOSC defines a minimum set of competences for each target in the **Minimum Viable Skillset**

## Design learning paths & material



Through the **FAIR by design methodology**, learning materials for Training of Trainer programmes are developed for various targets

## Training of Trainers delivery



**Training of Trainers** delivered to a group of Master Trainers to multiply specific competences inside the Skills4EOOSC Consortium.

## Pilot courses training target roles



**Master Trainers** equipped with adequate competences, organise **pilot courses to train target roles** (researchers, data stewards, etc)



# Underpinned by co-creation

Key project outputs follow a co-creation process:

1) Consortium level 2) Community level

- Relevant stakeholders are invited to participate
- Draft materials are uploaded to the [Zenodo Community](#)
- A feedback survey/questionnaire is used to collect feedback
- Dedicated webinars/events to allow broader discussion





# Minimum Viable Skillset - MVS

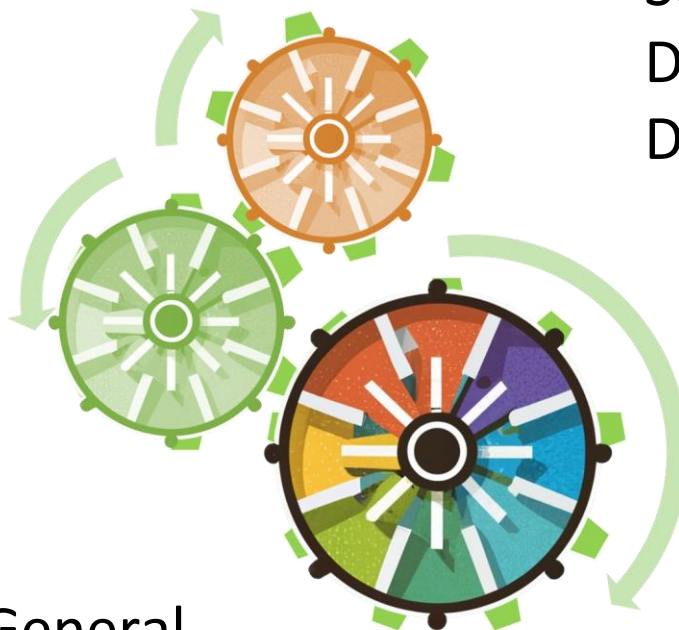
- Summarise **OS essentials** based on review of competence frameworks and skills resources.
- Profile the **skills needed** for EOSC actor roles, considering the OS mission, outcomes, activities they are expected to contribute to.
- Provide **high level guidance** to inform curricula, learning paths, materials.
- **Adaptable** to organisational & domain contexts.
- **Annotated** with skills ontologies: ESCO, terms4FAIRskills, & European Competence Framework for Researchers (ResearchComp).



# MVS Describe Diverse Roles

## Available \*

Data Steward  
Legal Expert  
Ethics Advisor  
Knowledge Broker  
Masters Student  
Undergrad Student  
Senior Researcher  
Early Career Researcher  
Policymaker – Research/ General  
Research Infrastructure Professional



## Progressing

Scholarly Communications Specialist  
Data Librarian / Professional  
Digital Collections Curator

## Considering

Data Analyst  
Data Scientist  
Data Engineer  
Research Manager  
Research Software Engineer  
Digital Preservation Specialist

\* Currently published MVS are here: <https://zenodo.org/records/8101903>

# MVS are about FAIR, and will be FAIR - Following FAIR-by-design Methodology



# E.g. Data Steward mission & outcomes

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## Coordinator Data Steward

Provides a 'centralised knowledge and communication hub' for researchers. Advises and trains on policy, guidelines, data management plans, institutional [infrastructure](#) and tools. These may include software code, and its development as a FAIR and open resource.

**Associated function titles:** Data Steward, Data Librarian, Research Data Management Specialist, Research Data Manager, Research Data Management Consultant, Research Data Coordinator. Reproducibility Librarian.

## Embedded Data Steward

Serves research teams, faculties, departments, sections of organisations directly involved in producing research outputs. Helps embed FAIR and CARE principles in research practices, meeting needs of researchers as they arise, and working with others to ensure the long-term **preservation** and reusability of research outputs. These may include software code, and its development as a FAIR and open resource.

**Associated function titles:** Data Steward, Data Manager, Data Curator, Research Data Manager

**Open Science mission:** Data Stewards work with stakeholders to establish, govern and maintain processes. These include collecting research data, making it usable for research objectives, facilitating its transformation into research outputs, assist in their quality assurance, and support informed decision-making on their [FAIRness](#) and openness for reuse, according to ethical, [legal](#) and social expectations.

- *Relevance of Open Science dimensions (1-Low to 3-High): Technology: 3, Interpersonal: 2, Domain: 2, Communication: 1; Leadership: 1*
- *Organisational context: Research Performing Organisations, Research Infrastructures, Service Providers, Competence Centres.*
- *Related [EOSC](#) learning paths: service and resource consumers and providers*

### **Contributes to which Open Science outcomes?**

- Research data and related digital objects are effectively managed to ensure their suitability for curating, sharing, and reuse, and potential impacts towards advancement of research methods appropriate to the discipline(s). Digital research objects are made as FAIR and open as possible, and as closed as necessary.
- Opportunities are identified for creating or connecting with professional Open Science networks at institutional, cross-institutional, regional, national, or international levels.
- Relevant competence centres with a FAIR data and Open Science support role are utilised effectively according to local needs and policies.
- Open Science skills and practices are facilitated and enhanced using, where appropriate, EOSC resources and services, including any relevant Open Educational Resources.

# Data Steward activities

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## ***Main activities - Coordinator***

- Contributes to Open Science policy development and community governance by engaging with (inter)national policymaking, bringing cross-disciplinary expertise to local policy development, implementation and monitoring.
- Develops institutional guidance on Data management Planning, e. g. templates offering cross-domain knowledge to contextualise data handling and advice on planning how to use local services or infrastructure.
- Understands research stakeholder needs and contributes to developing, implementing, and monitoring Data Policy and Governance, along with service level management to support this.
- Promotes and communicates the importance of Open Science and FAIR to all levels within the organization (e. g. policymakers, senior management, researchers, postgraduates etc.).
- Analyses trends through landscape analysis of data infrastructure, tools, and methods that may improve the organisation's implementation of FAIR and CARE principles to enhance support for decision-making on Open Science. Advises on (meta)data standards and contextual documentation for data archiving.
- Monitors relevant RDM skills of researchers and research support staff in the institute and refers researchers to RDM related facilities and services.
- Develops and delivers training tailored to learners' needs, aligned with wider institutional policies and plans.
- Maintains networks of research data managers (RDMs) and research support related colleagues.

## ***Main activities - Embedded***

- Develops Data Management Plans templates tailored for research teams, offering support in writing a DMP according to the relevant template. Includes provision for archiving and FAIR sharing (standards, metadata exposure, PIDs, licensing, data repository management/selection).
- Implements good practice on data and/or software/code during proposal development for funders, and as a regular aspect of doing research, and liaises with other experts inside and outside the institute to adopt effective solutions to challenges.
- Advises on technical support for researchers on data sharing and publication infrastructure and tools, adoption of innovations, including those provided by relevant (inter)national data-infrastructures (product management of technology platforms).
- Identifies gaps and takes action to ensure ethical conduct and awareness of the potential impacts of data reuse, management and sharing on wider society.
- Advises on the use of disciplinary standards and ontologies, and relevant community practices that are applied in producing FAIR research outputs.
- Supports researchers on legal and regulatory compliance aligning local practices with these through connections with the institutional privacy officers, legal advisers, and research ethics bodies.
- Develops and delivers training tailored to learners' needs, aligned with wider institutional policies and plans.
- Maintains networks of RDMs and research support related colleagues.

# Data Steward essential skills

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## *Essential skills and competences*

- Knowledge of Open Science practices, policies and regulation and translation of these (when necessary) to local level.
- Service provision to support specific Open Science practices including applying FAIR and CARE principles, Open Access (publishing), data curation and preservation.
- Knowledge brokering about Research Data Management, (personal) data governance and ethics, including to understand information security challenges, and provide access risk assessment and mitigation.
- Mentoring on open and fair methods, to develop professional practice including knowledge/awareness of programming, FAIR code and FAIR software and use of standards and ontologies.
- Advocacy, analysis and assessment on FAIR data criteria, FAIR code, and software preservation.
- Copy writing and editing guidance and advice material to support infrastructure and tools for data storage, versioning, publishing, and documentation.
- Support Open Science policies and practices through teaching and training design and delivery.
- Monitor the research and funding ecosystem and advise on securing sustainable funding, identifying conflicting motivations, drivers and incentives among different stakeholders.
- Moderation, mediation, and intervention through consulting and listening.
- Stakeholder engagement and collaboration building strategic relationships, bridging needs, and speaking and presenting to data creators, users, and research stakeholders about the value of good data management.
- Creativity, critical and analytical thinking, curiosity, openness, and cultural competence with a willingness to learn.
- Team- and project management and business modelling, working with researchers/professionals at varying levels of seniority to facilitate results-oriented planning and organising, evaluation and assessment.

# Annotating the Data Stewards MVS



Ontologies > T4FS en JSON

## terms4FAIRskills (T4FS)

Version 2023-03-02

terms4FAIRskills describes the competencies, skills and knowledge associated with making and keeping data FAIR. This terminology applies to a variety of use cases, including: assisting with the creation and assessment of stewardship curricula; facilitating the annotation, discovery and evaluation of FAIR-enabling materials (e.g. training) and resources; enabling the formalisation of job descriptions and CVs with recognised, structured competencies. It is intended to be of use to trainers who teach FAIR data skills, researchers who wish to identify skill gaps in their teams and managers who need to recruit individuals to relevant roles.

Imports from DC OWL DCTERMS OMO RDFS + 4



## Skills & competences

Select an ESCO version

ESCO dataset - v...

Search skills

Search ...

Find

Show filters

T - transversal skills and competences

+

S - skills

+

K - knowledge

+

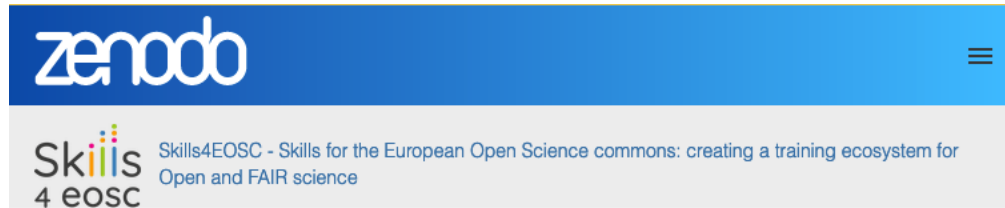
L - language skills and knowledge

+

- Apply research ethics and scientific integrity principles in research activities
- Interact professionally in research and professional environments
- Manage findable accessible interoperable and reusable data
- Interact professionally in research and professional environments
- Respect the diversity of cultural values and norms
- Increase the impact of science on policy and society
- Organise information, objects and resources
- Demonstrate disciplinary expertise
- Operate open source software
- Manage intellectual property rights
- Maintain psychological well-being
- Build mentor-mentee relationships
- Teach in academic or vocational contexts
- Promote open innovation
- Negotiate compromises
- Manage research data
- Develop networks
- Think critically
- Think analytically
- Advise others
- Adapt to change
- Lead others
- Work in teams
- Demonstrate curiosity
- Meet commitments
- Participate actively in civic life
- Approach challenges positively

Linking the MVS to related definitions

# Why use FAIR signposting?



Published June 30, 2023 | Version v1.2

Project deliverable Open

## D2.1 Catalogue of Open Science Career Profiles - Minimum Viable Skillsets

Whyte, Angus<sup>1</sup> ; Green, Dominique<sup>1</sup> ; Avanço, Karla<sup>2</sup> ;  
Di Giorgio, Sara<sup>3</sup> ; Gingold, Arnaud<sup>2</sup> ; Horton, Laurence<sup>1</sup> ;  
Koteska, Bojana<sup>4</sup> ; Kyprianou, Katerina<sup>5</sup>; Prnjat, Ognjen<sup>5</sup> ;  
Rauste, Päivi<sup>6</sup> ; Schirru, Luca<sup>7</sup> ; Sowinski, Claire<sup>8</sup> ;  
Torres Ramos, Gabriela<sup>8</sup> ; van Leersum, Nida<sup>9</sup> ; Sharma, Curtis<sup>9</sup> ;  
Méndez, Eva<sup>10</sup> ; Lazzeri, Emma<sup>3</sup> 

Show affiliations

This deliverable reports initial steps towards a catalogue of Minimum Viable Skillset (MVS) Profiles. These describe key skills and competences for roles that enable researchers, professionals, and stakeholders to practice Open Science (OS) with the support of the European Open Science Cloud (EOSC). MVS Profiles draw on available skills resources, including competence frameworks, and are proposed as an aid to developing skills through curricula and course design. Each MVS Profile relates the essential skills to the Open Science (OS) practices, activities, and outcomes that may typically be expected of the role concerned.

The Annex to D2.1 offers examples of Minimum Viable Skillset (MVS) Profiles, and provides an example

- MVS are catalogued in Zenodo
- Can we expose the metadata and ontology links to be more Findable and Interoperable?



# 7 Key Points about MVS

- Describe diverse roles that contribute to Open Science mission
- Synthesis based on competences in published sources
- High-level framing of learning objectives & outcomes
- Complements FAIR-by-design methodology for learning material
- Materials *about* FAIR and Open, and FAIR and Open themselves
- Accessible in Zenodo + FAIR signposting to make more Findable
- Please reuse!

- Skills for the European
- Open Science
- Commons



Supporting



Co-funded by  
the European Union



UK Research  
and Innovation

Skills4EOSC has received funding from the European Union's Horizon Europe Research and Innovation Programme under Grant Agreement No. 101058527 and from UK Research and Innovation (UKRI) under the UK Government's Horizon Europe funding guarantee, Grant No. 10040140

# Thank you! Questions?

Currently published MVS are here: <https://zenodo.org/records/8101903>

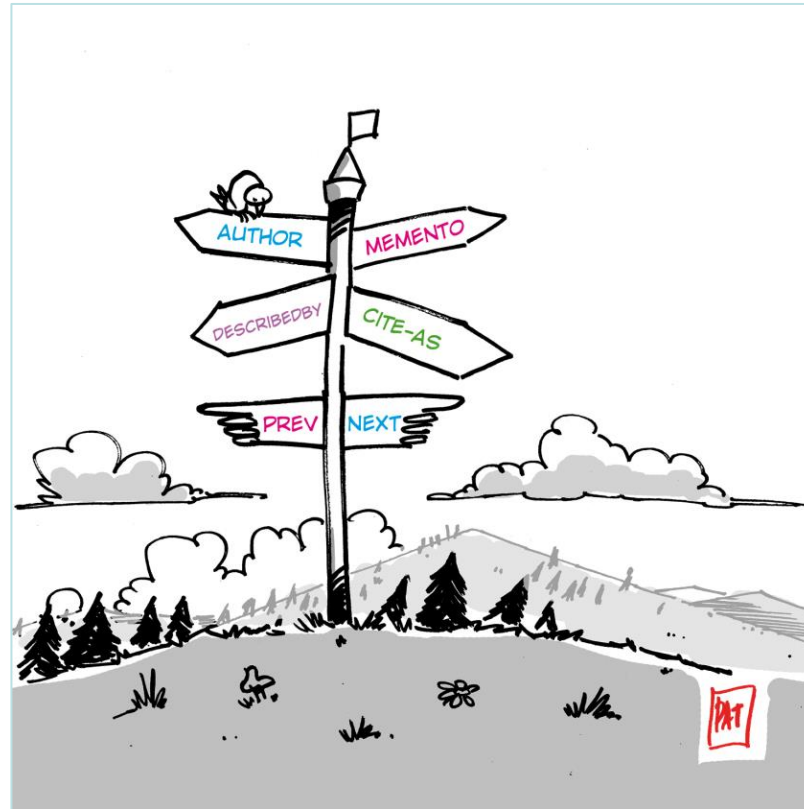
[My email: a.whyte@ed.ac.uk](mailto:a.whyte@ed.ac.uk)

[Project coordinator office:  
coordinator@skills4eosC.eu](mailto:coordinator@skills4eosC.eu)



This presentation is  
released under a  
CC-BY 4.0 license

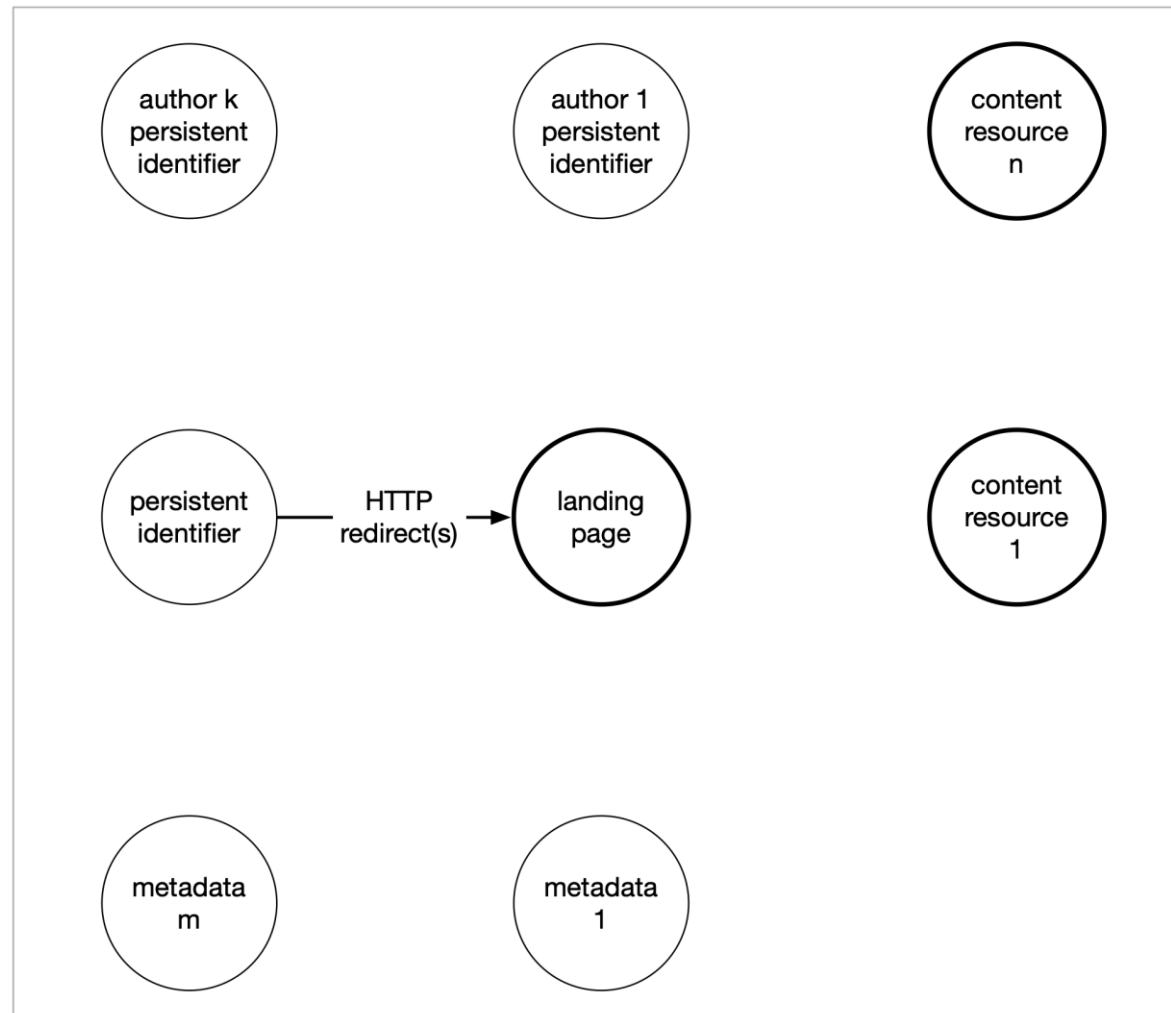
# FAIR Signposting



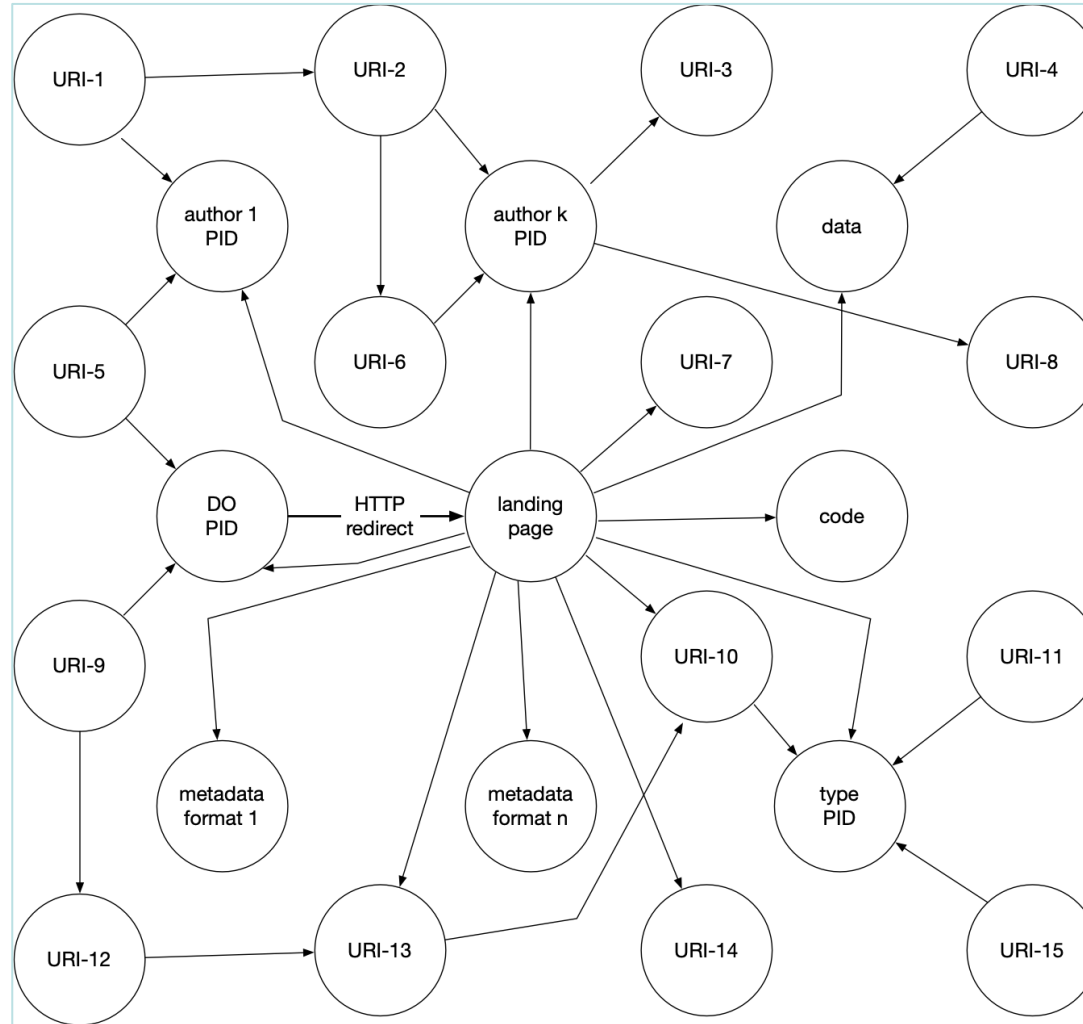
Cartoon by Patrick Hochstenbach

Herbert Van de Sompel, DANS  
<https://hvdsomp.info>

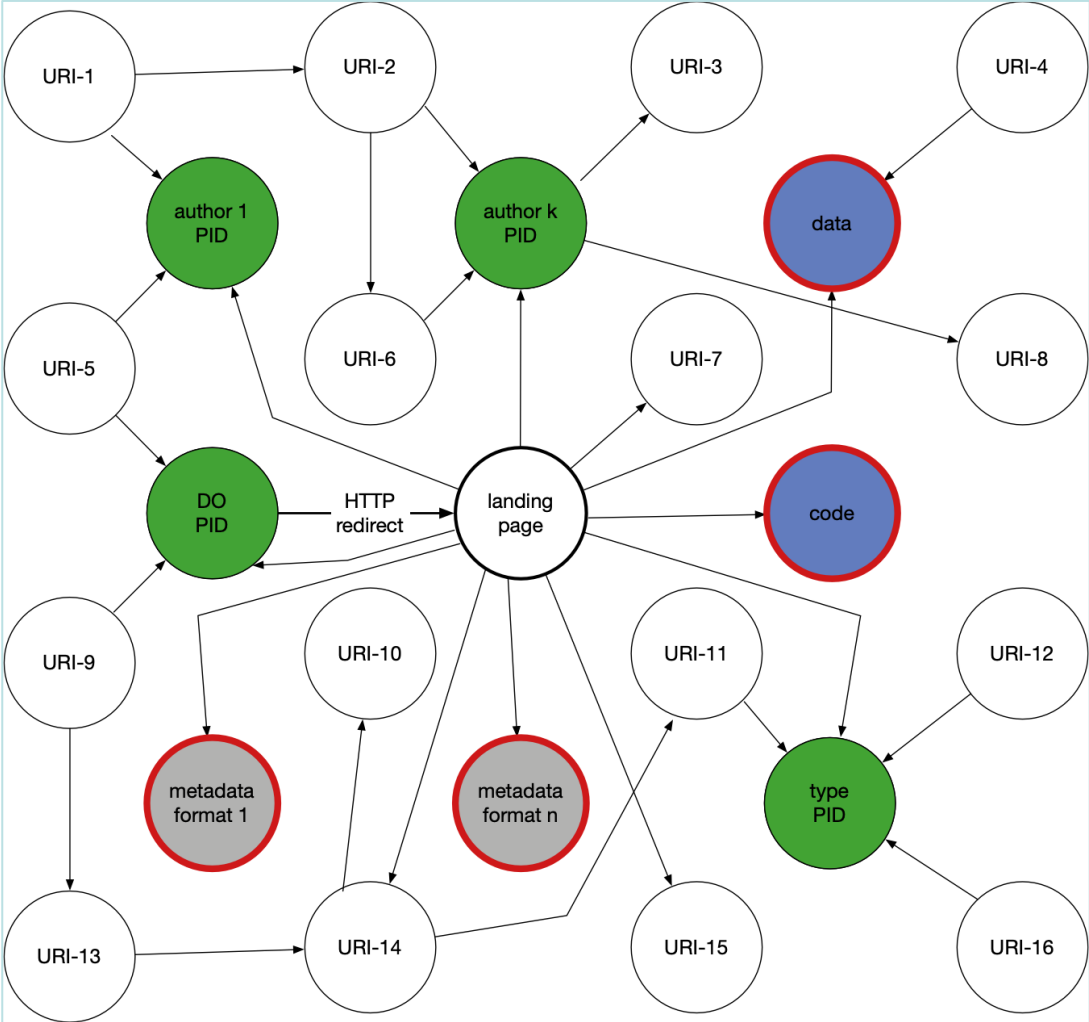
# Scholarly Object on the Web: Resources with HTTP URIs



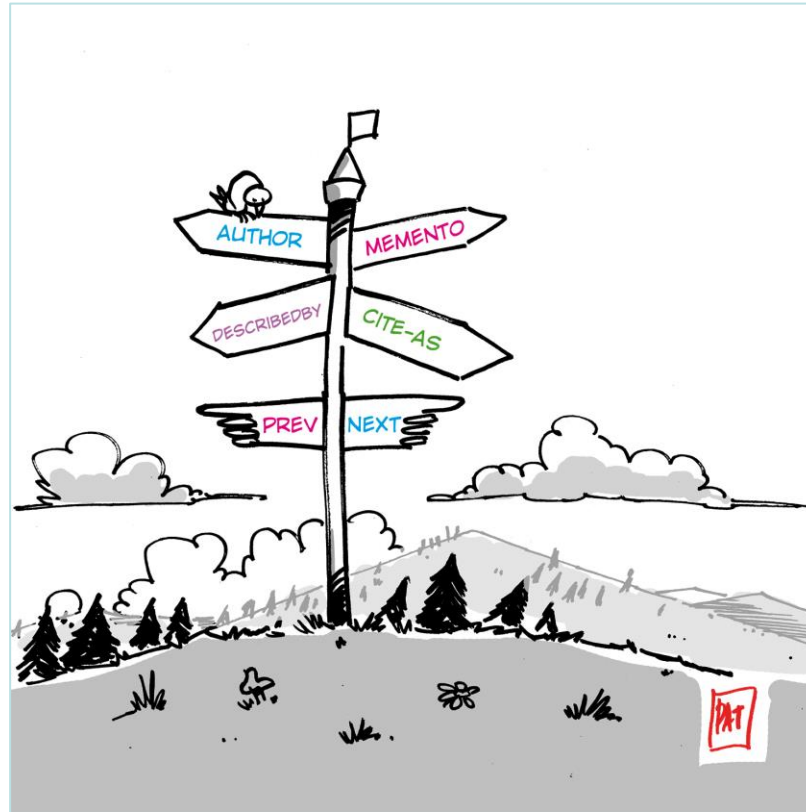
# Scholarly Object Resources: Someplace in the Web Graph



# How to Make a Scholarly Object Recognizable in the Web Graph?



# How to Make Scholarly Objects Recognizable in the Web Graph?



Signposting <sup>(1)</sup> approach in 2015

FAIR Signposting <sup>(2)</sup> Implementation Guidelines in 2020

Uses typed Web Links <sup>(3)</sup> to help machines navigate scholarly objects

# IANA Link Relation Type Registry



Internet Assigned Numbers Authority

Relation Name	Description	Reference
about	Refers to a resource that is the subject of the link's context.	[RFC6903], section 2
acl	Asserts that the link target provides an access control resource for the link context.	[https://solidproject.org/TR/wac#acl-link-relation]
alternate	Refers to a substitute for this context	[HTML]
amhtml	Used to reference alternative content that uses the AMP profile of the HTML format.	[AMP HTML]
appendix	Refers to an appendix.	[HTML 4.01 Specification]
apple-touch-icon	Refers to an icon for the context. Synonym for icon.	[Configuring Web Applications]
apple-touch-startup-image	Refers to a launch screen for the context.	[Configuring Web Applications]
archives	Refers to a collection of records, documents, or other materials of historical interest.	[HTML5]
author	Refers to the context's author.	[HTML]
blocked-by	Identifies the entity that blocks access to a resource following receipt of a legal demand.	[RFC7725]
bookmark	Gives a permanent link to use for bookmarking purposes.	[HTML]
canonical	Designates the preferred version of a resource (the IRI and its contents).	[RFC6596]
chapter	Refers to a chapter in a collection of resources.	[HTML 4.01 Specification]
cite-as	Indicates that the link target is preferred over the link context for the purpose of permanent citation.	[RFC8574]
collection	The target IRI points to a resource which represents the collection resource for the context IRI.	[RFC6573]
contents	Refers to a table of contents.	[HTML 4.01 Specification]
convertedfrom	The document linked to was later converted to the document that contains this link relation. For example, an RFC can have a link to the Internet-Draft that became the RFC; in that case, the link relation would be "convertedFrom".	[RFC7991]
copyright	Refers to a copyright statement that applies to the link's context.	[HTML 4.01 Specification]
create-form	The target IRI points to a resource where a submission form can be obtained.	[RFC6861]
current	Refers to a resource containing the most recent item(s) in a collection of resources.	[RFC5005]
describedby	Refers to a resource providing information about the link's context.	[Protocol for Web Description Resources]





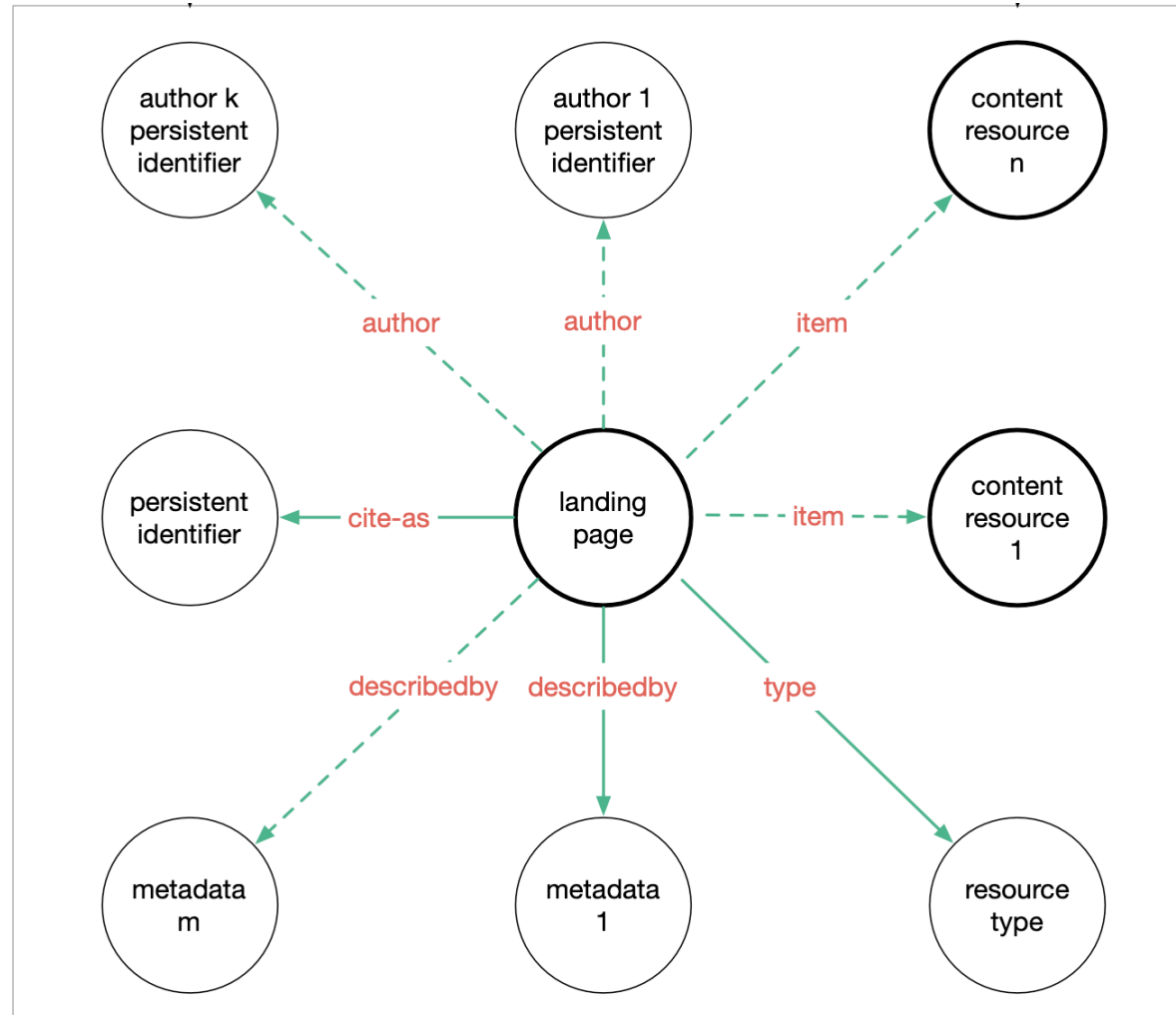
# FAIR Signposting: Which Typed Links to Provide?

## 1.3. Typed Links in the FAIR Signposting Profile

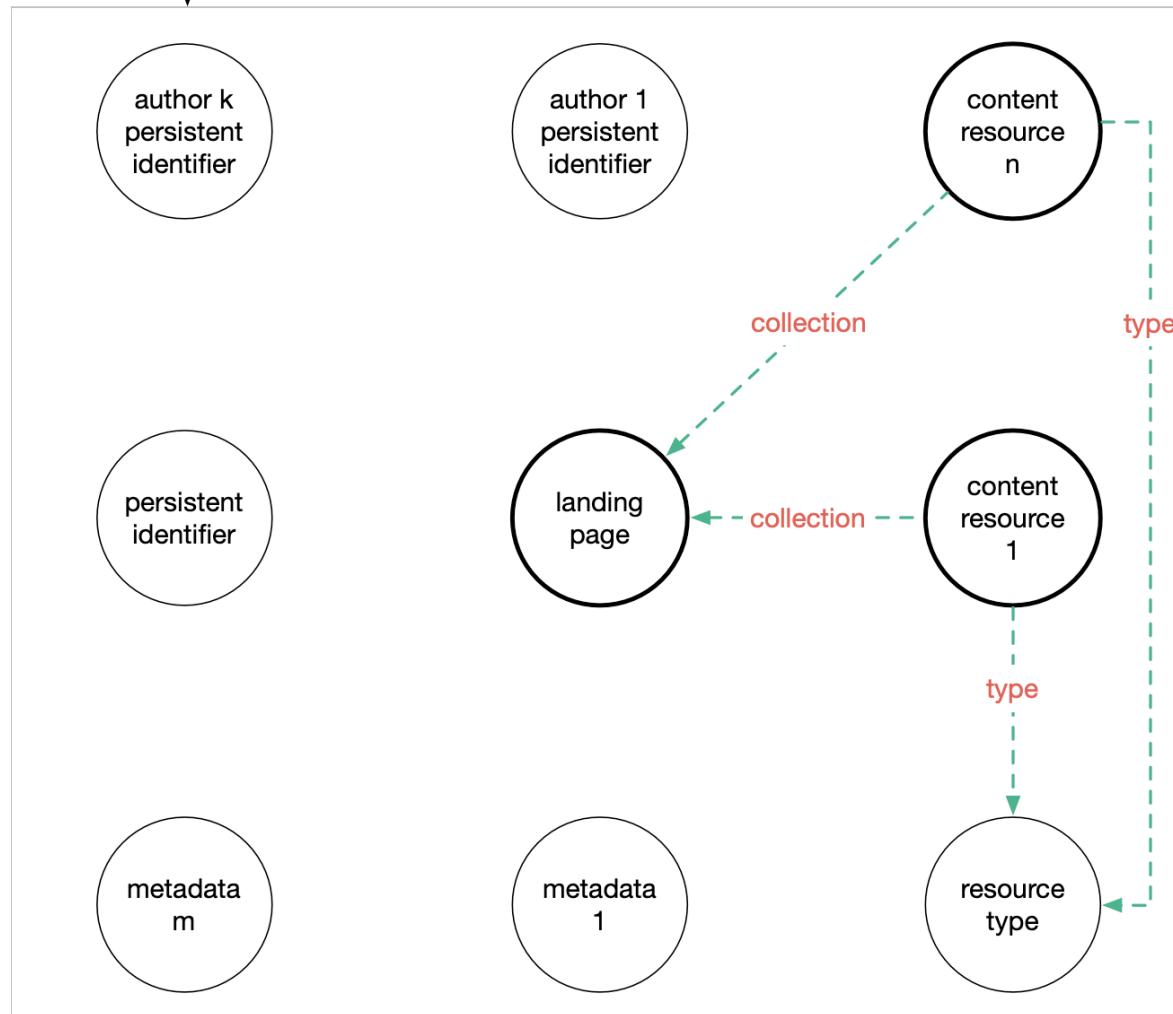
The Relation Types that are used for the FAIR Signposting Profile as a means to meaningfully interlink resources that represent a scholarly artifact on the web are shown in the below table. The general description of their meaning is based on the more formal language used in the specification that define them. Their specific use for the FAIR Signposting Profile is provided in the descriptions of [Level 1](#) and [Level 2](#), below.

Relation Type	Description
<code>author</code>	The target of the link is a URI for an author of the resource that is the origin of the link.
<code>cite-as</code>	The target of the link is a persistent URI for the resource that is the origin of the link.
<code>describedby</code>	The target of the link provides metadata that describes the resource that is the origin of the link.
<code>type</code>	The target of the link is the URI for a class of resources to which the resource that is the origin of the link belongs.
<code>license</code>	The target of the link is the URI of a license that applies to the resource that is the origin of the link.
<code>item</code>	The origin of the link is a collection of resources and the target of the link is a resource that belongs to that collection. It is the inverse of the <code>collection</code> relation type.
<code>collection</code>	The origin of the link is a resource that belongs to a collection and the target of the link is the collection to which it belongs. It is the inverse of the <code>item</code> relation type.

# HTTP Links from Landing Page



# HTTP Links from Other Resources



# FAIR Signposting: How to Provide Typed Links?

- Typed links <sup>(1)</sup> in FAIR Signposting can be provided:
  - By value: Using HTTP Links <sup>(2)</sup> (all media types)

(1) IANA Link Relations ; <https://www.iana.org/assignments/link-relations/>

(2) RFC8288 – Web Linking ; <https://www.rfc-editor.org/info/rfc8288>

# FAIR Signposting Using HTTP Links (all media types)

```
$ curl -I "https://example.org/page/7507"
```

```
HTTP/1.1 200 OK
```

```
Date: Fri - 9 Oct 2020 19:19:22 GMT
```

```
Content-Type: text/html
```

```
Content-Length: 25414
```

**Link:**

```
<https://doi.org/10.5061/dryad.5d23f> ; rel="cite-as" ,
<https://orcid.org/0000-0002-1825-0097> ; rel="author" ,
<https://example.org/file/7507/1> ; rel="item"
; type="application/zip"
; profile="https://w3id.org/ro/crate" ,
<https://example.org/meta/7507/json> ; rel="describedby"
; type="application/ld+json" ,
<https://schema.org/Dataset> ; rel="type" ,
<https://schema.org/AboutPage> ; rel="type"
```

# FAIR Signposting Profile: How to Provide Typed Links?

- Following pertinent standards, typed links <sup>(1)</sup> in FAIR Signposting can be provided:
  - By value: Using HTTP Links <sup>(2)</sup> (all media types)
  - By value: Using HTML <link>s (HTML only)

(1) IANA Link Relations ; <https://www.iana.org/assignments/link-relations/>

(2) RFC8288 – Web Linking ; <https://www.rfc-editor.org/info/rfc8288>

# FAIR Signposting Profile: How to Provide Typed Links?

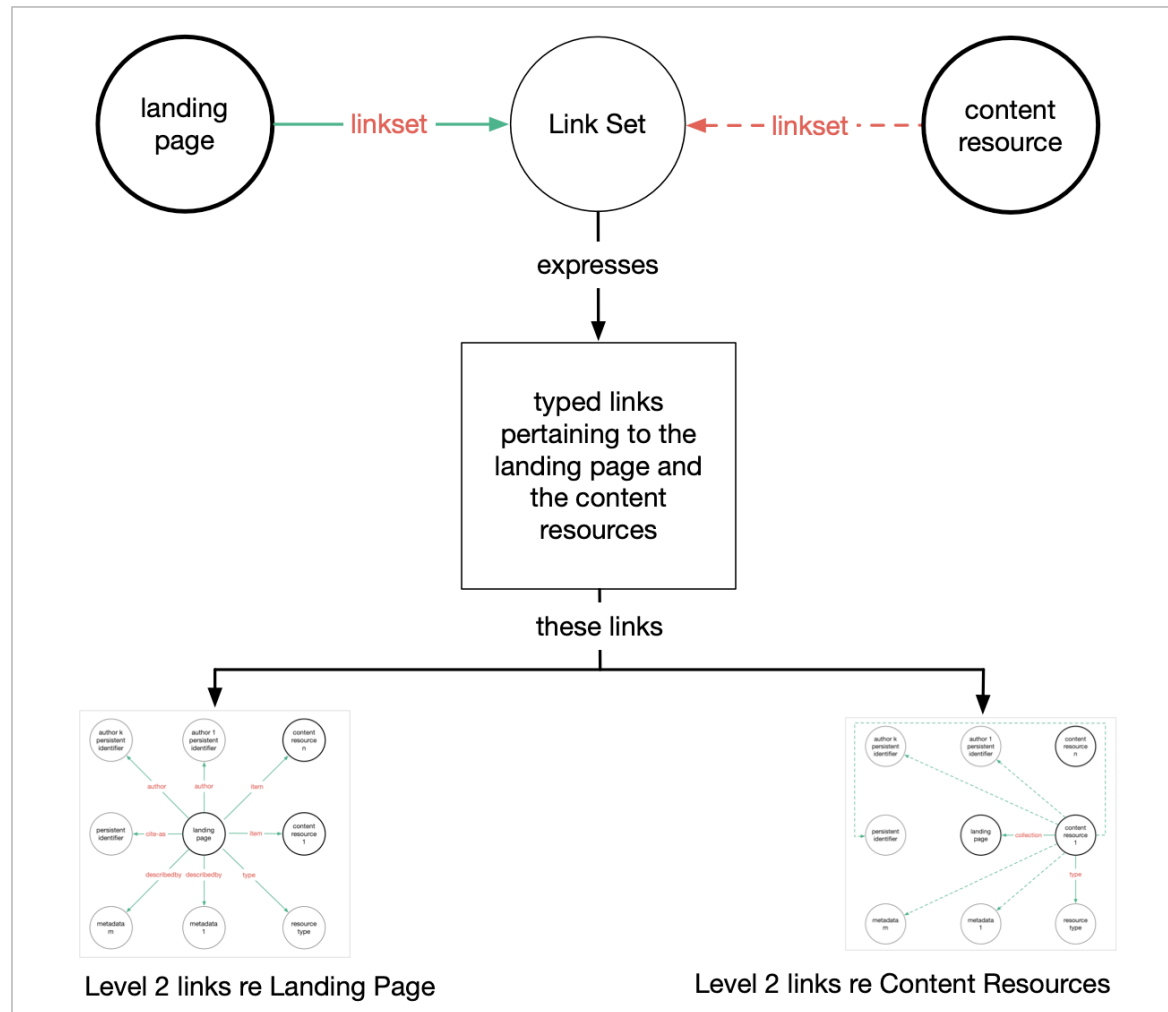
- Following pertinent standards, typed links <sup>(1)</sup> in FAIR Signposting can be provided:
  - By value: Using HTTP Links <sup>(2)</sup> (all media types)
  - By value: Using HTML <link>s (HTML only)
  - By reference: Using a Link Set document <sup>(3)</sup> (all media types)

(1) IANA Link Relations ; <https://www.iana.org/assignments/link-relations/>

(2) RFC8288 – Web Linking ; <https://www.rfc-editor.org/info/rfc8288>

(3) RFC9264 – Linkset ; <https://www.rfc-editor.org/info/rfc9264>

# Links in a Link Set





# Step 1: Discover Link Set Document (all media types)

```
$ curl -i "https://example.org/page/7507"
```

```
HTTP/1.1 200 OK
```

```
Date: Fri, 9 Oct 2020 19:19:22 GMT
```

```
Content-Type: text/html
```

```
Content-Length: 25414
```

```
Link:
```

```
<https://example.org/linkset/7507/1/json> ; rel="linkset"
```

```
<html lang="en">
```

```
  <head>
```

```
    <meta charset="utf-8">
```

```
    ...
```

## Step 2: Obtain Link Set Document (all media types)

```
$ curl -i " https://example.org/linkset/7507/1/json"
```

```
HTTP/1.1 200 OK
```

```
Date: Fri, 9 Oct 2020 20:23:44 GMT
```

```
Content-Length: 2214
```

```
Content-Type: application/linkset+json
```

```
Connection: close
```

```
{  
  "linkset": [  
    {  
      "anchor": "https://example.org/page/7507",  
      "cite-as": [  
        {  
          "href": "https://doi.org/10.5061/dryad.5d23f"  
        }  
      ],  
      "type": [  
        {  
          "href": "https://schema.org/Dataset"  
        }  
      ],  
    }  
  ]  
}
```

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- Open Science
- Commons

# Implementing FAIR Signposting for FAIR-by-Design Materials

Sonja Filiposka, UKIM

 [orcid.org/0000-0003-0034-2855](https://orcid.org/0000-0003-0034-2855)

Supporting

 eosoc



Funded by  
the European Union



# MVS Catalogue Development

- Git Pages based on MkDocs
  - Public GitHub repository <https://github.com/FAIR-by-Design-Methodology/MVS/>
  - Content is provided in MD files
  - Git pages are automatically built after every push
- Following the FAIR-by-Design Methodology



Interactive  
links to the  
terminology

Skill's 4 eosc Undergraduates MVS Search

[Introduction](#) [MVS Co-creation Approach](#) [Terminology](#) [How to contribute](#) [MVS Profiles](#) [MVS Template](#)

**MVS Profiles**

- Civil Servant >
- Data Steward >
- Knowledge Broker >
- Policymakers >
- Research Infrastructure Professionals >
- Researcher >
- Scholarly Communication Professionals >
- Students ▾
  - Graduate students MVS
  - Undergraduates MVS**

- Recognise reliable and trustworthy sources of data
- Evaluate the quality and reusability of the data
- Recognizing the different open access model for scientific publications
- Knowledge of how to share e FAIR research data (including code and software), including knowledge of how to use repositories

**Soft/ transversal skills**

- Collaboration and interpersonal skills, being particularly able to engage in teamwork
- Written communication skills
- Verbal communication skills
- Time management
- Problem solving skills
- **Critical thinking**

**Related MVS** Exercise critical judgement and thinking, develop own assumptions, and establish a way of working based on critical thinking.

Link to any other MVS that this MVS is based on (from those in Skills4EOSC D2.1)

**Reference sources**

1. European Commission, Directorate-General for Research, Innovation, N Manola, E Lazzeri, M Barker, I Kuchma, V Gaillard, and L Stoy. *Digital skills for FAIR and Open Science – Report from the EOSC Executive Board Skills and Training Working Group*. Publications Office, 2021. [doi:doi/10.2777/59065](https://doi.org/10.2777/59065).
2. European Commission, Directorate-General for Research, Innovation, C O'Carroll, B Hyllseth, R Berg, U Kohl, C Kamerlin, N Brennan, and G O'Neill. *Providing researchers with the skills and competencies they need to practise Open Science*. Publications Office, 2017. [doi:doi/10.2777/121253](https://doi.org/10.2777/121253).
3. Melissa K Kjelvik and Elizabeth H Schultheis. Getting messy with authentic data: exploring the potential of using data

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- Essential Skills and Competences
  - [Technical skills and competences](#)
  - Soft/ transversal skills
- Related MVS
- Reference sources

# MVS FAIR Signposting

## Goal

- Provide a way for machine-based agents to "understand" the MVS catalogue

## Step 0

- Use meta fields with the RDA minimum metadata schema

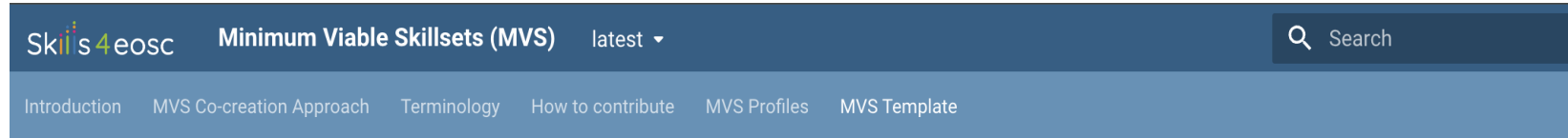
## Step 1

- Create a template for MVS profiles

## Step 2

- Extend and automate the MVS MkDocs Book to implement FAIR Signposting

# The MVS Template



MVS Template  
Skills4EOSC MVS Template v1.0

Minimum Viable Skillset Template v1.0 by Angus Whyte last modified on Feb 9th, 2024

This template can also be found on Zenodo as [Template for a Minimum Viable Skillset](#).

## Minimum Viable Skills for **Role name**

This is the **title** of the MVS and includes a 2-5 word role name, that performs activities aiming for Open Science outcomes that are within the overall mission described in the Horizon Europe Guidelines or the UNESCO Recommendation for Open Science, or similar national or regional-level policy.

### Mission

50 words or less: statement describing the role's responsibilities for carrying out activities that aim for an OS outcome on behalf of an organisation e.g. Competence Centre, Research Infrastructure, Research Performing Organisation. This statement is also **an abstract for the MVS**.

### OS Activities

3-9 activities each described in around 10-20 words:

- Each describes an activity involved in delivering the overall mission for the role. The description should implicitly or explicitly relate to the competences a learner would need to have to perform the activity, i.e. it should be consistent with the skills listed below.

Search

Introduction MVS Co-creation Approach Terminology How to contribute MVS Profiles MVS Template

Table of contents

Mission

OS Activities

OS Outcomes

Essential Skills and Competences

Technical skills and competences

Soft/ transversal skills

Related MVS

Reference sources

- [Developed a template for the description of each MVS profile](#)
- Published on Zenodo
  - [Template for a Minimum Viable Skillset](#)
- Registered with IANA as an official Profile URI
  - [List of Profile URIs](#)

# Learning Object on the Web

- Level 2 – set of typed links via link set
  - MkDocs Git Pages home page = landing page
  - Link to all other resources
    - MVS profiles
  - Metadata
    - Author = content developers
    - Cite-as – the Git Pages themselves do not have a unique PID
    - Described by = published Zenodo record
    - License = CC BY
    - Type = learning object





# MVS FAIR Signposting Implementation

- Linkset

- `<link  
rel="linkset"  
type="application  
/json+linkset"  
href="https://raw  
.githubusercontent.com/FAIR-by-  
Design-  
Methodology/MVS/1  
.0.0/linkset.json  
>`

```
▼ object {1}
  ▼ linkset [1]
    ▼ 0 {7}
      anchor : https://fair-by-design-  
methodology.github.io/mvs/latest/
      ▶ type [2]
      ▶ author [15]
      ▶ item [14]
      ▼ describedby [1]
        ▼ 0 {3}
          href : https://raw.githubusercontent.com/FAIR-by-  
Design-Methodology/MVS/main/CITATION.cff
          type : application/yaml
          profile : https://citation-file-  
format.github.io/1.2.0/schema.json
        ▼ license [1]
          ▼ 0 {1}
            href : https://spdx.org/licenses/CC-BY-4.0.html
        ▼ related [1]
          ▼ 0 {2}
            href : https://doi.org/10.5281/zenodo.11469300
            type : text/html
```

# MVS FAIR Signposting Implementation

- Generated automatically with each release
  - [Signposting job](#)
- Extended mkdocs.yml with signposting settings

```
signposting_linkset: https://raw.githubusercontent.com/FAIR-by-Design-Methodology/MVS/1.0.0/linkset.json
signposting_default_profile: "https://zenodo.org/records/10977747" # update with an URL towards the profile used for the Markdown pages
# signposting_gitbook_url: https://gitbook.example.com # leave commented if using GitHub Pages with the default domain
signposting_exclusions:
  - 'venv/**'
  - 'external-resources/**'
  - 'Feedback/**'
  - 'index.md'
  - '02 process_description.md'
  - '03 glossary.md'
  - 'MVS Template/template.md'
```

← Publish as Git Book on GitHub Pages

✓ Update RELEASE\_NOTES.md #82

🏠 Summary

Jobs

- ✓ signposting ^
- ✓ signposting
- ✓ Deploy docs

Run details

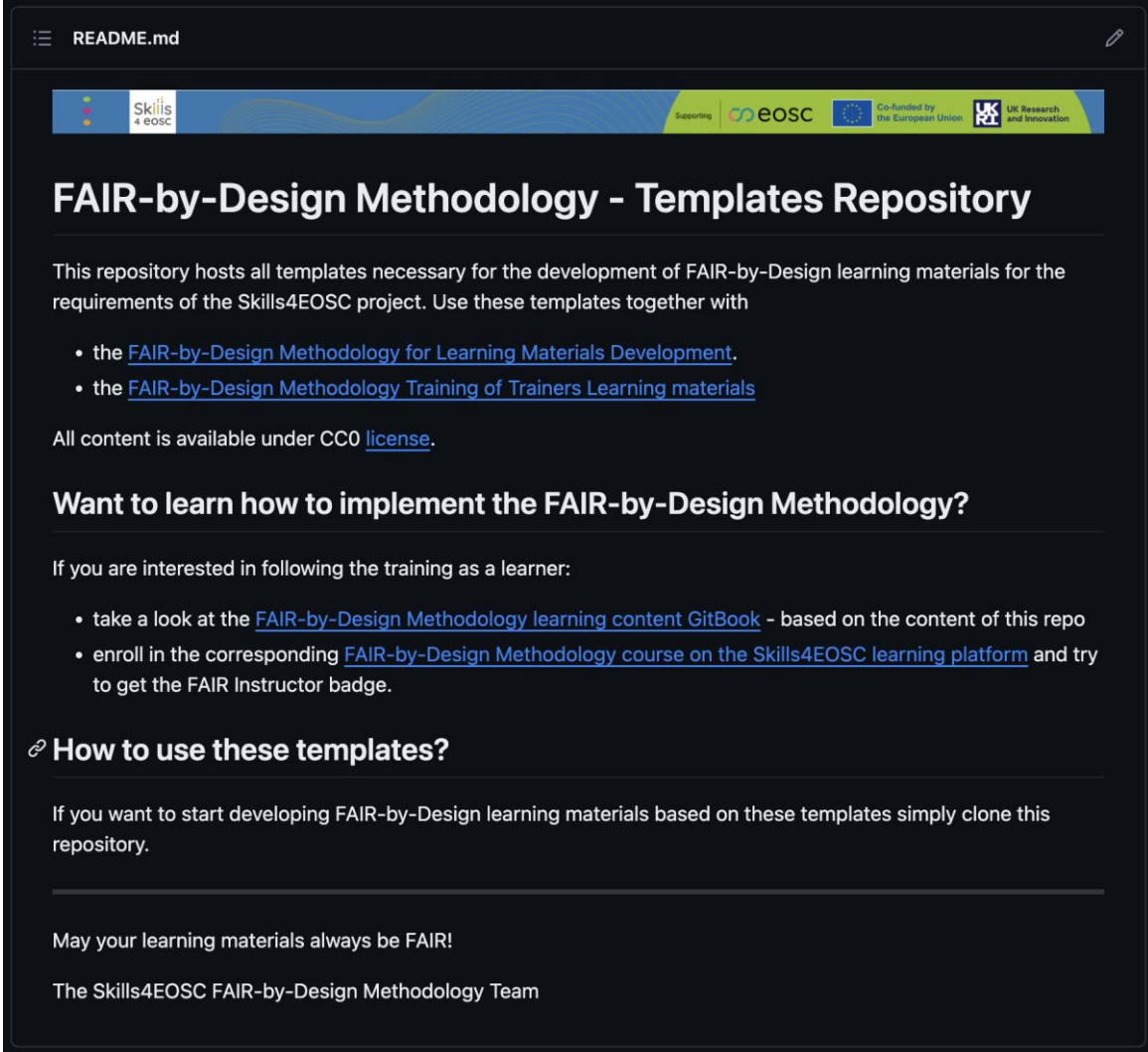
- 🕒 Usage
- 📄 Workflow file

**signposting / signposting**  
succeeded on May 10 in 13s



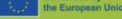

- > ✓ Set up job
- > ✓ Pull mikefarah/yq:4-githubaction
- > ✓ Build korvoj/signposting@1.0.0
- > ✓ Check out a copy of the repository
- > ✓ Read variables from mkdocs.yml
- > ✓ Extract information
- > ✓ Update variables
- > ✓ Check for changes
- ⊗ Commit and push
- > ✓ Post Check out a copy of the repository
- > ✓ Complete job

<https://github.com/FAIR-by-Design-Methodology/templates>

# Templates Repository now extended with FAIR Signposting



README.md

Supporting    Co-funded by the European Union  UK Research and Innovation

## FAIR-by-Design Methodology - Templates Repository

This repository hosts all templates necessary for the development of FAIR-by-Design learning materials for the requirements of the Skills4EOSC project. Use these templates together with

- the [FAIR-by-Design Methodology for Learning Materials Development](#).
- the [FAIR-by-Design Methodology Training of Trainers Learning materials](#)

All content is available under CC0 [license](#).

### Want to learn how to implement the FAIR-by-Design Methodology?

If you are interested in following the training as a learner:

- take a look at the [FAIR-by-Design Methodology learning content GitBook](#) - based on the content of this repo
- enroll in the corresponding [FAIR-by-Design Methodology course on the Skills4EOSC learning platform](#) and try to get the FAIR Instructor badge.

### 🔗 How to use these templates?

If you want to start developing FAIR-by-Design learning materials based on these templates simply clone this repository.

---

May your learning materials always be FAIR!

The Skills4EOSC FAIR-by-Design Methodology Team

# Linkset information

- Items included
  - All visible git pages
  - Configurable

```
▼ object {1}
  ▼ linkset [1]
    ▼ 0 {7}
      anchor : https://fair-by-design-methodology.github.io/fair-by-design\_tot/latest/
      ▼ type [2]
        ▼ 0 {1}
          href : https://schema.org/LearningResource
        ▼ 1 {1}
          href : https://schema.org/AboutPage
      ► author [4]
      ► item [27]
      ▼ describedby [1]
        ▼ 0 {3}
          href : https://raw.githubusercontent.com/FAIR-by-Design-Methodology/FAIR-by-Design\_ToT/main/CITATION.cff
          type : application/yaml
          profile : https://citation-file-format.github.io/1.2.0/schema.json
      ► license [1]
      ▼ related [1]
        ▼ 0 {2}
          href : https://doi.org/10.5281/zenodo.11186654
          type : text/html
```

# FAIR-by-Design Training includes additional info on how to use FAIR signposting

## FAIR-by-Design Training of Trainers

FAIR-by-Design Methodology for Learning Materials Training of Trainers

- 00 Welcome >
- Stage 1 – Prepare >
- Stage 2 – Discover >
- Stage 3 – Design >
- Stage 4 – Produce >
- Stage 5 – Publish >
  - 16 Publishing Preparations >
    - Publishing Preparations**
  - 17 Zenodo Publishing >
  - 18 Publishing to learning platform >
- Stage 6 – Verify >

## Customizing the Signposting Information

The [automated workflows](#) provide an easy way of implementing [Signposting](#) for the developed content.

Minimal changes are needed to the `mkdocs.yml` to configure the automated workflow for [Signposting](#). The `mkdocs.yml` file acquired from the `templates` repository has 3 dedicated parameters related to the implementation of [Signposting](#):

- `signposting_linkset` - should never be changed manually; its content is handled by the workflow itself.
- `signposting_default_profile` - in case the source markdown files for the learning content follow a standardized and registered format, they can be further described by providing a link to the upstream profile. This is an optional field that can be left blank, in which case no profile information will be provided. More information is available on the [Signposting docs page](#).
- `signposting_gitbook_url` - an optional parameter that is commented by default. It should be uncommented only in cases when a custom domain is configured for hosting the Git book, instead of the default provided by GitHub. Uncommenting can be performed by removing the leading `#` character.
- `signposting_exclusions` - a list of file names that should **not** be referenced in the generated [Signposting](#) linkset description. Accompanying material such as activities, lesson plans, and feedback templates are already excluded by default. Pattern matching is supported. A single `*` matches any character in files at the current folder level, while `**` applies to all subfolders as well, irrespective of their position in the directory hierarchy.

In most cases, such as when [Signposting Level 1](#) is sufficient, no manual changes need to be performed. If the content follows a well-defined template, then `signposting_default_profile` needs to be updated so that it points to the URL containing the template's description.

As a result of running the [Signposting](#) workflow a `linkset.json` file is placed in the root of the repository.

## Table of contents

- Learning Objectives
- Target Audience
- Duration
- Prerequisites
- Learning Tools
- Preparing the Collaborative Environment
- Files Description
  - Activity: Publishing Preparation in Practice - Customizing Accompanying Files
    - Setting up the Environment
    - Filling out CITATION.cff
    - Filling out README.md
    - Filling out CODE\_OF\_CONDUCT.md
    - Filling out RELEASE\_NOTES.md
  - Customizing the Signposting Information
  - Committing Changes
- Key Takeaways
- Suggested Reading

# FAIR-by-Design Methodology Details

## Up-to-Date Methodology

- [https://fair-by-design-methodology.github.io/FAIR-by-Design\\_Book/](https://fair-by-design-methodology.github.io/FAIR-by-Design_Book/)

## Training GitBook

- [https://fair-by-design-methodology.github.io/FAIR-by-Design\\_ToT/latest/](https://fair-by-design-methodology.github.io/FAIR-by-Design_ToT/latest/)
- GitHub
  - [https://github.com/FAIR-by-Design-Methodology/FAIR-by-Design\\_ToT](https://github.com/FAIR-by-Design-Methodology/FAIR-by-Design_ToT)
- LMS course
  - <https://learning.skills4eosc.eu/course/view.php?id=19>

## Microlearning unit

- <https://fair-by-design-methodology.github.io/microlearning/latest/>

# How to contribute to the MVS Profiles

## Contribution methods using GitHub tools

- [Issues](#)
- [Discussions](#)
- [Fork and pull workflow](#)

## Contributing via a direct contact with the MVS team

- [reach out directly via email and start a discussion regarding the MVS profiles](#)

## Use the template to submit proposals for new profiles

- use the [Zenodo MVS template](#) to create a new profile
- or use the [MD format for the template](#) available in the MVS repository

# Help us improve

---

- We are very interested in your thoughts and ideas
- Let us co-create and make a new, improved, version of the FAIR-by-Design materials together
- [https://ec.europa.eu/eusurvey/runner/FAIR-by-Design Open Survey](https://ec.europa.eu/eusurvey/runner/FAIR-by-Design_Open_Survey)





- Skills for the European
- Open Science
- Commons



Supporting



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# Thank you! Questions?

Sonja Filiposka – [sonja.filiposka@finki.ukim.mk](mailto:sonja.filiposka@finki.ukim.mk)

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