

How to move from FAIR principles to FAIR practice

Current practices and recommendations for the future

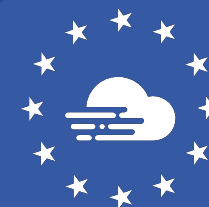
Rob Hooft, FAIR Working Group

Liisi Lembinen, FAIR Working Group

Neil Chue Hong, FAIR Working Group

Webinar

9 July 2020



**EUROPEAN OPEN
SCIENCE CLOUD**

Household rules

- Keep microphone muted and camera off during the presentation
- Prepare your questions for the discussion and Q&A
 - We will be running these through Google Q&A.
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 - We may ask you to clarify the topic you raise; please only unmute when we ask you to. If you don't want to be called out, you can ask anonymously.
 - Any **technical** issues with the webinar can be raised through the chat function of Zoom.
- The meeting is being recorded, if you don't want your image to be in the recording leave your camera off at all times

Introduction to session

- 14:00 CEST - Welcome remarks, Introduction
- 14:10 CEST - Explanation of the work undertaken by the FAIR practice task force
- 14:15 CEST - Demonstration of the key outputs
- 14:30 CEST - Getting your feedback
- 14:40 CEST - Q&A
- 15:00 CEST - End

Agenda

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EOSC Working Groups

- Established by the EOSC Governance in 2019
- Advise the Executive Board
- Topics:
 - Landscape
 - Architecture
 - Rules of Participation
 - Skills and Training
 - Sustainability
 - **FAIR**

FAIR WG

- Four Task Forces:
 - PID Policy
 - Interoperability
 - Metrics and Certification
 - **FAIR Practice**

- FAIR Practice had been assigned a supporting role

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Methodology

- Literature research (1 year) + expert contribution
- Spreadsheet - academic disciplines
- Detailed analysis - classification: technical solutions, social enablers, social impediments and technical impediments + FAIR principles
- 16-18 June 2020, report writing sprint

Limitations

- Resources list is not an exhaustive information on FAIR practices
- Lack of data or information on practices - informative
- Classification/categorisation based on team members' subjective view
- Desk research and subjective interpretation on written text

→ **Your input can help us to overcome these limitations** ←

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Reference list

- <https://doi.org/10.5281/zenodo.3898673>

June 18, 2020

Dataset

Open Access

FAIR in practice reference list

 Hooft, Rob;  Beyan, Oya;  Chue Hong, Neil;  Cozzini, Stefano;  Hoffman-Sommer, Marta;  Lembinen, Liisi;  Marttila, Juuso;  Teperek, Marta

Data collector(s)

 Davidson, Joy;  Genova, Francoise;  Whyte, Angus

This is a collection of information curated by the FAIR Practice Task Force of the EOSC FAIR Working Group.

It aims to provide a reading list of published information on efforts to apply the FAIR principles.

Please read the README tab in the spreadsheet for instructions on how to use this resource.

Corresponding author for this deposit is Neil Chue Hong

Files (69.4 kB)

Name	Size	
FAIR in practice reference list v1.0.0.xlsx	69.4 kB	 Download
md5:cb3bd15527dc4d0f20276b55e00aba12 		

64

 views

19

 downloads[See more details...](#)

Indexed in



Publication date:

June 18, 2020

DOI:

DOI [10.5281/zenodo.3898674](https://doi.org/10.5281/zenodo.3898674)

Keyword(s):

[FAIR](#) [FAIR principles](#) [FAIR practice](#)[Digital Research Objects](#)

Grants:

European Commission



A

B

1 FAIR in practice reference list

2

3 This is a collection of information curated by the FAIR Practice Task Force of the EOSC FAIR Working Group.

4 It aims to provide a reading list of published information on efforts to apply the FAIR principles.

5

6 How to use this resource

7

8 Documents that refer to some aspect of FAIR practice are listed in the "Input Documents" sheet.

9 These documents are reviewed by the task force to categorise the information they record.

10 Papers in red are still to be reviewed. green have been reviewed and contain information about FAIR practice, blue contain information about FAIR but not FAIR practice.

11

12 The "Conclusions per FAIR principle" sheet allows users of this resource to quickly identify information that might be relevant to them.

13

14 We recommend users of the reference list to find the information they need by following these instructions:

15

16 *In Microsoft Excel, for the version published in Zenodo:*

17 1. Select the "Conclusions per FAIR principle" sheet using the tabs

18 2. Under the "Data" menu, choose "Auto Filter"

19 3. Click on the filter symbol at the top right of the column heading that you wish to filter on (e.g. Type or Applicability) - the symbol looks like an inverted triangle

20 4. From the context menu which appears, select the values you wish to filter on. You can choose multiple values.

21



README ▾

5 Input Documents ▾

1 Conclusions per FAIR principle ▾



	A	B	C	P
1		Link to the resource	Description	
2				Interdiscip
3	The FAIR principles	https://www.nature.com/articles/sdata201618	Examples of FAIRness, and the resulting value-added	
4	GO-FAIR Convergence Matrix	https://docs.google.com/spreadsheets/d/1MUZn7uh4x5YLPiqxi-V8XubsSEonQWvx2jBlcyvNdU/edit#gid=0	List of technologies used/proposed by GO FAIR implementation networks	R
5	FAIRsharing	https://fairsharing.org/	Standards, databases, and journal policies and the links between them: e.g. which journals endorse what standards,	R
6	State of Open Data Report 2018	https://doi.org/10.6084/m9.figshare.7195058.v2	Survey by Digital Sciences among over 700 researchers from various disciplines. Looking into FAIR awareness among disciplines	M
7	State of open data report 2019	https://doi.org/10.6084/m9.figshare.9980783.v1		M
8	FAIR Data advanced use cases	https://doi.org/10.5281/zenodo.1246815	Case studies prepared by SURF about FAIR in practice in the Netherlands. Interviews + 1 case. Evaluation on 35 repositories and their FAIRness.	M
9	FAIR in practice report	https://doi.org/10.5281/zenodo.1245568	Report on FAIR practice prepared by Jisc	N
10	FAIR Data case studies in Engineering	https://rdm.engineering/fair-data-engineering/	Interviews with researchers from engineering domains about FAIR practices conducted by the CESAER network	M
11	eIRG report.. "National Nodes - Getting organised; how far are we?"	http://e-irg.eu/catalogue/eirg-1006	Not really any significant evidence of FAIR practice included in this report, but may be some in the other reports referenced.	R
	Open source scientific Software and Service		ESCAPE projekt WP 3 supports an open environment to guarantee cross-fertilisation and to develop community-specific data services that	



README ▾

5 Input Documents ▾

1 Conclusions per FAIR principle ▾



Explore


 EUROPEAN OPEN
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Example

and how can we play a role in the wider adoption of these principles in the cultural heritage sector?

How do the FAIR principles align with Europeana's?

There is much resonance between the FAIR principles and Europeana's values and objectives, as embodied in its [strategy](#). Our principles 'Usable, Mutual, Reliable' and the way we have implemented them in the past ten years align with FAIR's own 'Findable, Accessible, Interoperable, Re-usable' principles. We have been involved in the development of technology that has great potential for enhancing the FAIRness of data, such as open web APIs, Linked Data and the International Image Interoperability Framework (IIIF), implementing it for ourselves as well as encouraging everyone in our sector to adopt it.

Europeana and its wide [network](#) of partners have developed a Licensing [Framework](#) enabling fully open metadata and the mandatory labelling of content with standardised and interoperable [rights](#)

	A	B	E	F	G		
1	Community	Subcommunity	Type	Applicability	Text		
2	Generic						
3	Multidisciplinary group		Social impediment	Generic	Different interpretations of the meaning of FAIR.		
4			Technical impediment	Generic	Interdisciplinary standards do not have the same uptake everywhere. E.g. ORCID is not used throughout. Data infrastructure is often arranged at the national level rather than the disciplinary level.		
5			Technical impediment	F Findability	Ideally every metadata item should have a persistent identifier.		
6			Technical impediment	F Findability	Identifiers that are being used are not always a good fit to the data.		
7			Technical impediment	R Reusability	Ideally every metadata item should have a persistent identifier		
8			State of open data 2018		Social impediment	Generic	Older researchers have hard time grasping open science key concepts and details, such as licencing. Also younger scholars are much more prone to accept publishing their data
9					Social impediment	Generic	60% of respondees had never heard about FAIR.
10	Social impediment	Generic			Educating researchers fast enough so that they don't loose their funding for non-compliance		
11	Social impediment	A Accessibility			Researchers feel that they don't get enough recognition for publishing their data		
12	Technical impediment	I Interoperability			Interoperability was perceived as the most problematical aspect of FAIR.		
13	Technical impediment	Generic			Our ability to deal responsibly with data has not kept pace with generation and storage-capabilities		
14	Social impediment	R Reusability			Organizing the data in presentable and publishable manner is hard		
15	Social Enabler	Generic			Publisher and funder requirements for open data are of immense importance.		
16	Social Enabler	Generic			Embedding data stewards to units doing the research has improved quality of data and percentage of published data.		
17	Technical Solution	F Findability			Making citing data possible.		
18	Social Enabler	R Reusability	Spreading stories of succesful data sharing				
...	State of open data 2019		Social impediment	Generic	EOSC has been slow to create and present rules of enagagement for institutions and this		



README ▾

5 Input Documents ▾

1 Conclusions per FAIR principle ▾

Filtering ▾

Codes ▾

Explore



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Social impediment

Social impediment

Technical Solution

Social Enabler

Technical impediment



README ▾

5 Input Documents ▾

1 Conclusions per FAIR principle ▾

Filtering ▾

Codes ▾



Explore



	A	B	E	
1	Community	Subcommunity	Type	
2	Generic			
3	Multidisciplinary group		Social impediment	Gene
4			Technical impediment	Gene
5			Technical impediment	F Fir
6			Technical impediment	F Fir
7			Technical impediment	R Re
8	State of open data 2018		Social impediment	Gene
9			Social impediment	Gene
10			Social impediment	Gene
11			Social impediment	A Ac
12			Technical impediment	I Inte
13			Technical impediment	Gene
14			Social impediment	R Re
15			Social Enabler	Gene
16			Social Enabler	Gene
17			Technical Solution	F Fir
18			Social Enabler	R Re
	State of open data 2019		Social impediment	Gene

Generic

Generic
 F Findability
 F1 PIDs
 F2 Findability metadata
 F3 Searchable resource
 F4 Links between (meta)data
 A Accessibility
 A1 Standard retrieving protocol
 A1.1 Open Free protocol
 A1.2 Authentication / Sensitive
 A2 Accessible metadata
 I Interoperability
 I1 Metadata representation
 I2 FAIR (meta)data vocabularies
 I3 Qualified links between metad
 R Reusability
 R1 Metadata
 R1.1 including license
 R1.2 including provenance
 R1.3 meeting community standard

Differ

G
Text
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 itations of the meaning of FAIR.
 ill standards do not have the same uptake everywhere. E.g. ORCID is not used
 a infrastructure is often arranged at the national level rather than the disciplinary
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☰
README ▾
5 Input Documents ▾
1 Conclusions per FAIR principl

Explore



	A	B
1	Community	Sul
2	Generic	
3	Multidisciplinary group	
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8	State of open data 2018	
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19	State of open data 2019	
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22		

- Sort sheet by column A, A → Z
- Sort sheet by column A, Z → A
- Sort range by column A, A → Z
- Sort range by column A, Z → A
- Sort range
- Filter views
- Slicer New
- Data validation
- Pivot table
- Randomize range
- Named ranges
- Protected sheets and ranges
- Split text to columns
- Remove duplicates
- Trim whitespace
- Group Option+Shift+→
- Ungroup Option+Shift+←

- Create new temporary filter view
- Filter view options
- Temporary filter 1
- Type and Applicability
- Learn more

C	D	E
Reference	Year	Type
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		Technical impediment
		Technical impediment
		Technical impediment
		Social impediment
		Social impediment
		Social impediment
		Technical impediment
		Technical impediment
		Social impediment
		Social Enabler
		Social Enabler
		Technical Solution
		Social Enabler
084/m9.figshare.9980783.v1		Social impediment
		Social impediment
		Social impediment
		Social impediment

Year Type

Sort A → Z

Sort Z → A

Sort by color ▶

Filter by color ▶

▶ Filter by condition

▼ Filter by values

[Select all](#) - [Clear](#)

✓ Social Enabler

Social impediment

Technical impediment

Technical Solution

Cancel OK

Type Applicability

Sort A → Z

Sort Z → A

Sort by color ▶

Filter by color ▶

▶ Filter by condition

▼ Filter by values

[Select all](#) - [Clear](#)

✓ F Findability

✓ F2 Findability metadata

✓ F4 Links between (meta)data

Generic

Cancel OK

AutoSave OFF



Font settings: Arial, 9, Bold (B), Italic (I), Underline (U), Paragraph (¶), Fill Color (yellow), Text Color (red)

Formula bar: fx

A	B
Community	Subcommunity
Generic interdisciplinary group	https://docs
State of open data 2018	https://doi.o

- Sort... ⌘R
- ✓ Auto-filter**
- Clear Filters
- Advanced Filter...
- Subtotals...
- Validation...
- Table...
- Text to Columns...
- Consolidate...
- Group and Outline ▶
- Summarise with Pivot Table
- Chart Source Data...
- Chart Add Data...
- Table Tools ▶
- Get External Data ▶
- Refresh

Type

Sort

By colour:

Filter

By colour:

And Or

- (Select All)
- Social Enabler
- Social impediment
- Technical impediment
- Technical Solution
- (Blanks)

Applicability

Sort

By colour:

Filter

By colour:

- (Select All)
- A Accessibility
- F Findability
- F2 Findability metadata
- F4 Links between (meta)data
- Generic
- I Interoperability
- I2 FAIR (meta)data vocabularies
- R Reusability
- R1.1 including license

G

Text



Journal policies can mandate linking to (open) data. Data should be cited, not just described in a publication

CESSDA started up a task force on data citation, which is a prerequisite for acknowledgement on data sharing

Provide information about best practices in data citation to research communities and make it easy for data users to cite data

Use persistent author identifiers (e.g. VIAF, ISNI or ORCID)

The datasets themselves are sometimes searchable, and the objects inside them often get a dataset-level unique identifier.


Recommendations

- <https://doi.org/10.5281/zenodo.3904139>
- Also linked from the announcement of this webinar

June 23, 2020

Report Open Access

Seven Recommendations for Implementation of FAIR Practice

 Deniz Beyan, Oya;  Chue Hong, Neil;  Cozzini, Stefano;  Hoffman-Sommer, Marta;  Hooft, Rob;  Lembinen, Liisi;  Marttila, Juuso;  Teperek, Marta

Other(s)

 Ball, Michael;  Genova, Françoise;  Harrower, Natalie;  Molloy, Laura;  Whyte, Angus

The FAIR Practice Task Force was set up as one of the four task forces of the European Open Science Cloud FAIR Working Group. Its goal was to support the Working Group with oversight of FAIR practices: learning about the possibilities of future FAIR implementation from current experience.

This report can be seen as a followup on the 2018 report "Turning FAIR into reality" from the European Commission Expert Group on FAIR Data. Our primary aim was to translate our findings into actionable recommendations to the decision making entities of the European Open Science Cloud (EOSC), as well as research funders and policymakers on how to turn FAIR into practice.


After a section describing our methodology and the limitations of our study, this report contains a disciplinary and a regional perspective on FAIR implementation. The disciplinary perspective summarises what we have been reading on fair practices split into 2x2 parts: technical and social impediments on one side, and technical solutions and social enablers on the other. The regional perspective shows trends in regional policies and how they have so far driven the development of FAIR practices, highlighting the differences and commonalities.

A separate section details FAIR practices for digital objects other than research data.

We close the report with two sections with insights. The first one describes differences between disciplinary and regional implementations, what implications these differences have for policymakers turning FAIR into reality and how these differences can and should be addressed. Finally, we close off with our recommendations for the EOSC, research funders and policymakers.

FEEDBACK

191

 views

146

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Indexed in

**Publication date:**

June 23, 2020

DOI:DOI [10.5281/zenodo.3931993](https://doi.org/10.5281/zenodo.3931993)**Keyword(s):**

[FAIR](#) [EOSC](#) [research funders](#) [recommendations](#)
[FAIR practice](#) [data management](#) [digital outputs](#)

Communities:

[Data Stewards at TU Delft - collection of outputs and resources](#)

License (for files):

[Creative Commons Attribution 4.0 International](#)

Contents

- Disciplinary perspective: conclusions from the spreadsheet
- Regional perspective: eight different policy approaches
- FAIR for Software, Services, Workflows, and Executable Notebooks
- Addressing differences between communities
- Seven Recommendations; mostly for EOSC Governance

Recommendations

1. Fund community-specific activities to raise awareness about the FAIR principles, their prerequisites and their benefits, and to establish dedicated support for their practical implementation
2. Provide financial support for communities to develop, adopt, implement and maintain community standards, methodologies, tools and infrastructure
3. Provide funding for training and for sustaining coordination fora and expert groups to help communities with standard development
4. Incentivise development of community governance
5. Recognise that FAIR guidelines will require translation for other digital objects and support such efforts
6. Reward and recognise improvement of FAIR practice
7. Develop and monitor adequate policies for FAIR data

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Getting your feedback

Gathering feedback on both the “Seven Recommendations for Implementation of FAIR Practice” report and the “FAIR in practice reference list”

- Report: feedback as comments in the Google Docs [draft document](#)
- Reference list: feedback via the Google Sheet [version](#)

Suggested additions to the reading list, accompanied with draft conclusions
Comments and corrections on the existing Conclusions per FAIR principle

Comments can also be sent by email to: fair-practice@eoscssecretariat.eu

Deadline: 31 August 2020

What we're looking for

- Audience for recommendations primarily the EOSC, research funders and policymakers - is this report properly targeted to them?
- What are we missing?
 - Have we missed out a recommendation?
 - Have we missed practice from your domain?
- What have we not captured correctly?

We encourage you use the report and the reference list, and share these resources with others

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Q&A

- Go to the link displayed above
- Insert your own questions
- Vote for questions from others
- We will select questions to address
- Remaining questions will be addressed in a blog post

Your feedback will help shape the future of EOSC

Thanks!