



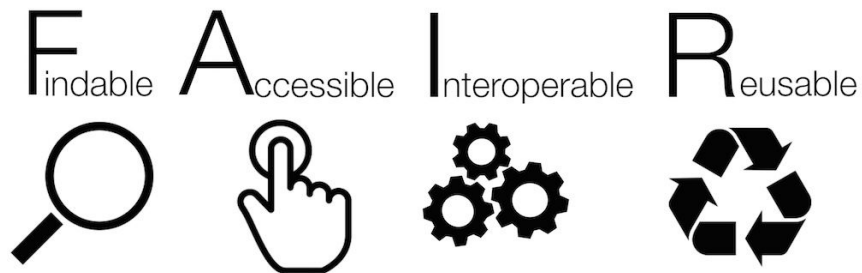
FAIR as a journey

*Lessons learned and takeaways from building the GoTriple
Discovery Platform for SSH*

Luca De Santis - Net7

September 14th 2023 - PUBMET 2023, Zadar

FAIR as a goal



SCIENTIFIC DATA 

OPEN **Comment: The FAIR Guiding Principles for scientific data management and stewardship**

SUBJECT CATEGORIES

- » Research data
- » Publication characteristics

Mark D. Wilkinson *et al.*[#]

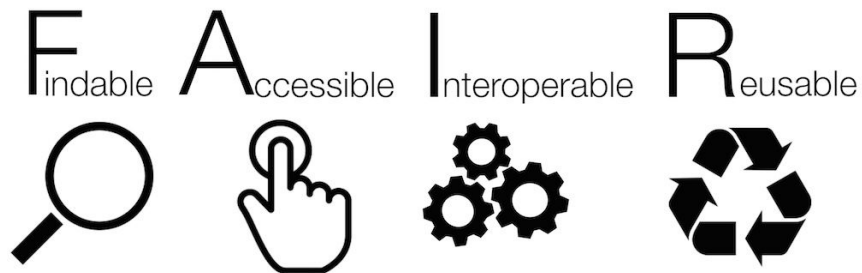
Received: 10 December 2015
Accepted: 12 February 2016
Published: 15 March 2016

There is an urgent need to improve the infrastructure supporting the reuse of scholarly data. A diverse set of stakeholders—representing academia, industry, funding agencies, and scholarly publishers—have come together to design and jointly endorse a concise and measurable set of principles that we refer to as the FAIR Data Principles. The intent is that these may act as a guideline for those wishing to enhance the reusability of their data holdings. Distinct from peer initiatives that focus on the human scholar, the FAIR Principles put specific emphasis on enhancing the ability of machines to automatically find and use the data, in addition to supporting its reuse by individuals. This Comment is the first formal publication of the FAIR Principles, and includes the rationale behind them, and some exemplar implementations in the community.

There is an urgent need to improve the infrastructure supporting the reuse of scholarly data



FAIR as a goal



There is an urgent need to improve the infrastructure supporting the reuse of scholarly data

From “guiding principles to enable a full *exploitation* of data and their metadata”... .. to something actionable

- FAIR Data Maturity Model: Indicators + Priorities + Evaluation Methods
- EOSC Metrics



FAIR “as a journey”



Findable



Accessible



Interoperable

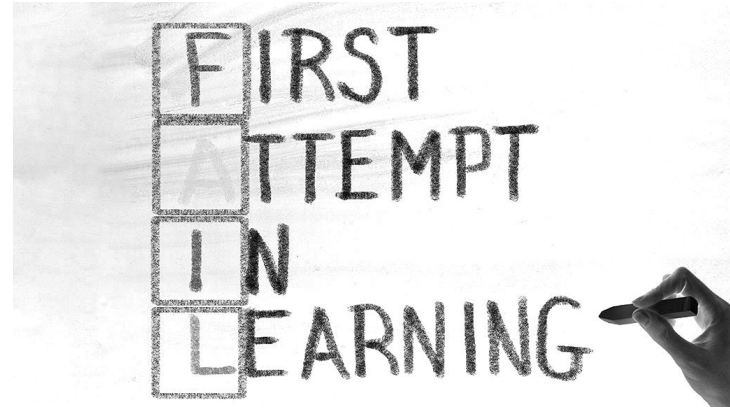
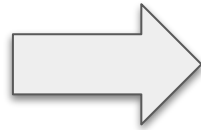


Reusable

- *FAIR should be seen as a journey*
- *Every community should define how to implement FAIR*
- *Inclusiveness: taking diversity into account*



FAIR “as a journey”



- *Plan in advance, but...*
 - *...mistakes might happen!*
(and learn from them...)



Not only a *techie* thing

FAIR	ID	Indicator	Priority
F1	RDA-F1-01M	Metadata is identified by a persistent identifier	●●● Essential
F1	RDA-F1-01D	Data is identified by a persistent identifier	●●● Essential
F1	RDA-F1-02M	Metadata is identified by a globally unique identifier	●●● Essential
F1	RDA-F1-02D	Data is identified by a globally unique identifier	●●● Essential
F2	RDA-F2-01M	Rich metadata is provided to allow discovery	●●● Essential
F3	RDA-F3-01M	Metadata includes the identifier for the data	●●● Essential
F4	RDA-F4-01M	Metadata is offered in such a way that it can be harvested and indexed	●●● Essential
A1	RDA-A1-01M	Metadata contains information to enable the user to get access to the data	●● Important
A1	RDA-A1-02M	Metadata can be accessed manually (i.e. with human intervention)	●●● Essential
A1	RDA-A1-02D	Data can be accessed manually (i.e. with human intervention)	●●● Essential
A1	RDA-A1-03M	Metadata identifier resolves to a metadata record	●●● Essential
A1	RDA-A1-03D	Data identifier resolves to a digital object	●●● Essential
A1	RDA-A1-04M	Metadata is accessed through standardised protocol	●●● Essential
A1	RDA-A1-04D	Data is accessible through standardised protocol	●●● Essential
A1	RDA-A1-05D	Data can be accessed automatically (i.e. by a computer program)	●● Important
A1.1	RDA-A1.1-01M	Metadata is accessible through a free access protocol	●●● Essential
A1.1	RDA-A1.1-01D	Data is accessible through a free access protocol	●● Important
A1.2	RDA-A1.2-01D	Data is accessible through an access protocol that supports authentication and authorisation	● Useful
A2	RDA-A2-01M	Metadata is guaranteed to remain available after data is no longer available	●●● Essential
I1	RDA-I1-01M	Metadata uses knowledge representation expressed in standardised format	●● Important
I1	RDA-I1-01D	Data uses knowledge representation expressed in standardised format	●● Important
I1	RDA-I1-02M	Metadata uses machine-understandable knowledge representation	●● Important
I1	RDA-I1-02D	Data uses machine-understandable knowledge representation	●● Important
I2	RDA-I2-01M	Metadata uses FAIR-compliant vocabularies	●● Important
I2	RDA-I2-01D	Data uses FAIR-compliant vocabularies	● Useful
I3	RDA-I3-01M	Metadata includes references to other metadata	●● Important
I3	RDA-I3-01D	Data includes references to other data	● Useful
I3	RDA-I3-02M	Metadata includes references to other data	● Useful

- Mostly technical requirements: can't be solved without IT.
- IT alone is not enough!
- Start by experimenting...

FAIR	ID	Indicator	Priority
I3	RDA-I3-02D	Data includes qualified references to other data	● Useful
I3	RDA-I3-03M	Metadata includes qualified references to other metadata	●● Important
I3	RDA-I3-04M	Metadata include qualified references to other data	● Useful
R1	RDA-R1-01M	Plurality of accurate and relevant attributes are provided to allow reuse	●●● Essential
R1.1	RDA-R1.1-01M	Metadata includes information about the licence under which the data can be reused	●●● Essential
R1.1	RDA-R1.1-02M	Metadata refers to a standard reuse licence	●● Important
R1.1	RDA-R1.1-03M	Metadata refers to a machine-understandable reuse licence	●● Important
R1.2	RDA-R1.2-01M	Metadata includes provenance information according to community-specific standards	●● Important
R1.2	RDA-R1.2-02M	Metadata includes provenance information according to a cross-community language	● Useful
R1.3	RDA-R1.3-01M	Metadata complies with a community standard	●●● Essential
R1.3	RDA-R1.3-01D	Data complies with a community standard	●●● Essential
R1.3	RDA-R1.3-02M	Metadata is expressed in compliance with a machine-understandable community standard	●●● Essential
R1.3	RDA-R1.3-02D	Data is expressed in compliance with a machine-understandable community standard	●● Important



FAIR in GoTriple (step by step...)



About GoTriple.eu

OPERAS' **Multilingual discovery platform** for the SSH

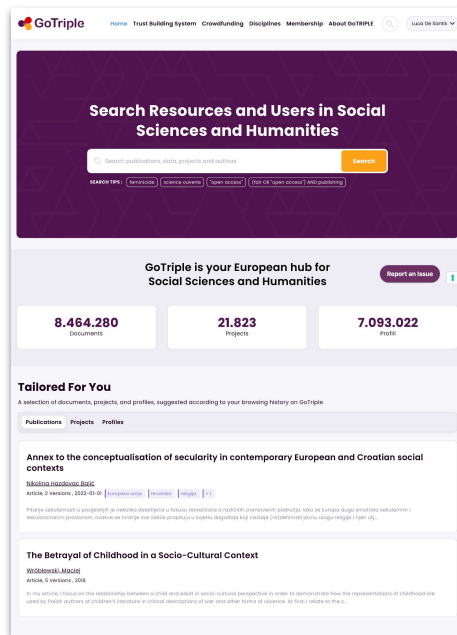
- The main outcome of the TRIPLE EU-funded project (Oct. 19 - March 23)

Search engine to discover Publications, Projects, Authors and Researchers Profiles

A **configurable harvesting and processing pipeline** to import and process publications and projects metadata

- ~12 million documents, 22.800 projects, 12 million authors... and counting
- Documents automatically harvested from small repositories and large aggregators alike
- Over 1,300 OAI-PMH endpoints managed (including Hrčak), dump imports from OpenAIRE, Isidore, CORDIS

Services for registered users! Please visit <https://gotriple.eu>



net7

Findable & Accessible

- Findable
 - **Rich data model** for Documents, Authors, Projects
 - Harvested from multiple sources; their **identifiers maintained**
 - **Indexed** in a central search engine
- Accessible
 - **Standard access protocols**
 - Detailed explanations on the **origin of data**
 - **Interfaces for Humans & Machines**
 - **Metadata only** in the index. **Long term accessibility.**

To be Findable:

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

F2. data are described with rich metadata (defined by R1 below)

F3. metadata clearly and explicitly include the identifier of the data it describes

F4. (meta)data are registered or indexed in a searchable resource

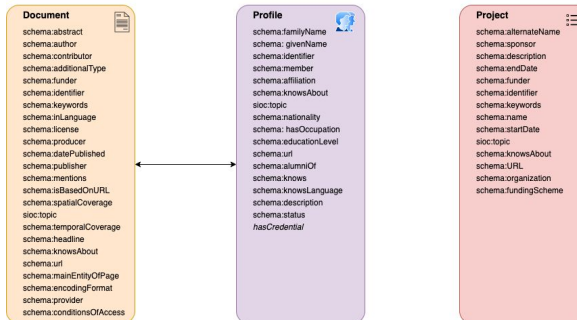
To be Accessible:

A1. (meta)data are retrievable by their identifier using a standardized communications protocol

A1.1. the protocol is free, open and universally implementable

A1.2. the protocol allows for an authentication and authorization procedure, where necessary

A2. metadata are accessible, even when the data are no longer available



(A Wider notion of) Accessibility...

Not an “official” indicator but quite important for a wider accessibility of GoTriple content

- **We provide automatic translations in English when missing!**
 - Managed (for free!) thanks to the eTranslation EU service
- **Not bulletproof... but good “enough”**

Abstract

German ▾

Ein Gastbeitrag von Petra Dünge für <http://www.univie.ac.at/voeb/blog/?p=34417> Noch fun

Abstract

English ▾

A guest contribution from Petra Fertiliser for <http://www.univie.ac.at/voeb/blog/?p=34417> sti

Text Article Croatian ID: <8XvyMfDT8ADYxEZEm-IVj>

Croatian ▾

Društveni položaj i orijentacija seoske omladine

Text Article Croatian ID: <8XvyMfDT8ADYxEZEm-IVj>

English ▾

Social position and orientation of the village of omladine

Free full text available Article Arabic, English, French, Turkish ID: <oai:doaj.org/article:1194c6cd8cd2468... >

موارد ابن خلكان من المؤلفات الأندلسية فى وفيات الأعيان

Author عزيز محمد
Publication Date: 2008-09-01
Last GoTriple update: 2023-08-12
Publisher: University of Mosul, College of Arts
Provider: Doaj
License: Undefined
Conditions of Access: Undefined

Disciplines

History Philosophy

Keywords

ابن خلكان صحيح البخارى وفيات الاعيان

Interoperable & Reusable

- Interoperable
 - Data model formalised via an **Ontology**
 - Expressive **FAIR-savvy vocabularies**
 - Use of **linked data references**
- Reusable
 - **License and conditions of access** preserved (*if present at the source*) and described in a **machine readable form**
 - **Data export** in multiple formats
 - REST **APIs**
 - **Documentation** available

To be Interoperable:

- I1. (meta)data use a formal, accessible, shared, and broadly applicable language for knowledge representation
- I2. (meta)data uses vocabularies that follow FAIR principles
- I3. (meta)data include qualified references to other (meta)data

To be reusable:

- R1. (meta)data are richly described with a plurality of accurate and relevant attributes
 - R1.1. (meta)data are released with a clear and accessible data usage license
 - R1.2. (meta)data are associated with data provenance
 - R1.3. (meta)data meet domain relevant community standards

The GoTriple platform

Your single access point to discover and reuse open scholarly SSH resources and find peers.
The project is funded by the European Commission, under Grant Agreement No. 863420.

General Information

- About TRIPLE
- TRIPLE Data Enrichment
- TRIPLE Ontologies
- For Content Providers: Your data in GoTriple
- GoTriple Content Providers Handbook
- TRIPLE APIs documentation
- Contact
- Terms and conditions
- Privacy policy

Links

- OPERAS website
- OPERAS blog
- European Open Science Cloud and Marketplace
- Horizon 2020

- ✓ English
- Italian
- French
- German

The TRIPLE Ontologies

Born as an **experiment** at the end of TRIPLE!

- A Master thesis of my colleague @Net7
Alessandro Bertozzi

Initial focus on **Documents**

- Born **to formalise and link the controlled vocabularies** used for documents enrichment
- Split into **multiple independent vocabularies** to **encourage reuse**

Created through an **iterative approach**.

- Currently in its 3rd iteration.
- Coming next: formalisation of **Profiles** and linking with Document entities; formalisation of **Projects**

Ontologies specification

Link tree

Core Concept Ontology:

<https://gotriple.eu/ontology/triple/cco#>

Licenses vocabulary:

<https://gotriple.eu/ontology/triple/licenses#>

Conditions of access vocabulary:

https://gotriple.eu/ontology/triple/conditions_of_access#

Document types vocabulary:

https://gotriple.eu/ontology/triple/document_types#

Disciplines vocabulary:

<https://gotriple.eu/ontology/triple/disciplines#>

Triple ontology:

<https://gotriple.eu/ontology/triple/triple#>

<https://gotriple.eu/ontology/triple>



Something to be reused beyond GoTriple



Classification of SSH disciplines

We proposed in TRIPLE a **classification for SSH** based on 27 disciplines.

The starting point was the taxonomy proposed in the **MORESS research project**

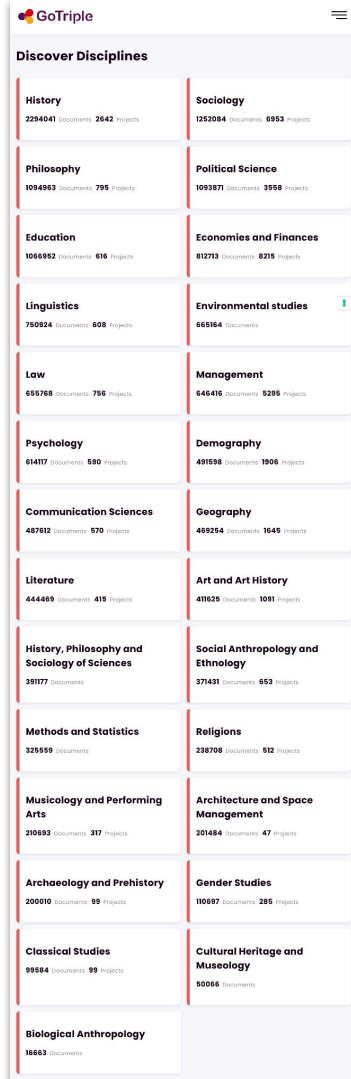
- *Mapping of research in European Social Sciences and Humanities, 2003-2005*

Reusable!

- It is used for classification in other OPERAS services

Not linked at the beginning!

<https://gotriple.eu/disciplines>



Discover Disciplines	
History 2294041 Documents 2642 Projects	Sociology 1252084 Documents 6953 Projects
Philosophy 1054983 Documents 795 Projects	Political Science 1093871 Documents 3558 Projects
Education 1066992 Documents 616 Projects	Economics and Finances 81273 Documents 8219 Projects
Linguistics 750924 Documents 608 Projects	Environmental studies 685164 Documents
Law 650768 Documents 756 Projects	Management 646416 Documents 5295 Projects
Psychology 61417 Documents 590 Projects	Demography 49159 Documents 1806 Projects
Communication Sciences 487812 Documents 570 Projects	Geography 489254 Documents 1645 Projects
Literature 444469 Documents 415 Projects	Art and Art History 41625 Documents 1091 Projects
History, Philosophy and Sociology of Sciences 38177 Documents	Social Anthropology and Ethnology 37431 Documents 653 Projects
Methods and Statistics 325599 Documents	Religions 238708 Documents 912 Projects
Musicology and Performing Arts 210893 Documents 317 Projects	Architecture and Space Management 20184 Documents 47 Projects
Archaeology and Prehistory 200010 Documents 89 Projects	Gender Studies 110697 Documents 285 Projects
Classical Studies 98584 Documents 99 Projects	Cultural Heritage and Museology 90056 Documents
Biological Anthropology 16663 Documents	

Classification of SSH disciplines

We proposed in TRIPLE a **classification for SSH** based on 27 disciplines.

The starting point was the taxonomy proposed in the **MORESS research project**

- *Mapping of research in European Social Sciences and Humanities, 2003-2005*

Reusable!

- It is used for classification in other OPERAS services (see vera.operas-eu.org)

Not linked at the beginning...

<https://gotriple.eu/disciplines>

The screenshot shows the GoTriple interface. At the top right, there's a 'Discover Disciplines' section with a grid of discipline cards: History (2294041 documents, 2642 projects), Sociology (1252084 documents, 6953 projects), Philosophy (1054983 documents, 795 projects), Political Science (1093871 documents, 3558 projects), Education, and Economics and Finances. Below this is a 'vera' logo and a navigation bar with 'Log in' and 'Create account' buttons. The main content area features a banner image of women in colorful headscarves, a 'Women Water Watch' logo, and project details: 4 collaborators, 4 academic subjects, 0 funding. It includes creation and update dates, a list of academic subjects (Political Science, Sociology, Gender Studies, Environmental Studies), a language filter (Swahili), and a 'What is this project about?' section describing the citizen science project in Tanzania. Project goals and useful links are also provided.

Classification of SSH disciplines

A formal SSH Disciplines vocabulary

- **SKOS** compliant
- **Multilingual** (English, Italian, French, German)
- **Linked** to multiple **standard ontologies** (Wikidata, LCSH, CESSDA, TRIPLE Vocabulary)

<https://gotriple.eu/ontology/triple/disciplines>

Disciplines vocabulary

Latest version:

<https://gotriple.eu/ontology/triple/disciplines#>

Authors:

Alessandro Bertozzi

Contributors:

Luca De Santis, Silvio Peroni

Cite as:

Alessandro Bertozzi. disciplines.

Table of contents

1. [disciplines: Overview](#)
2. [disciplines: Description](#)
3. [Cross-reference for disciplines classes, object properties and data properties](#)
 - 3.1. [Classes](#)
 - 3.2. [Object Properties](#)
 - 3.3. [Annotation Properties](#)
 - 3.4. [Named Individuals](#)
 - 3.5. [Rules](#)
4. [Acknowledgments](#)

Architecture and Space Managementⁿⁱ

IRI: https://gotriple.eu/ontology/triple/disciplines#architecture_and_space_management

label^{en}: Architecture and Space Management

label^{fr}: Architecture, aménagement de l'espace

label^{it}: Architettura e Organizzazione dello Spazio

label^{de}: Architektur und Raummanagement

belongs to

[Concept](#)^c

has facts

[has identifier](#)^{op} [archi](#)

[has close match](#)^{op} [SSH-LCSH: Architecture](#)

[has close match](#)^{op} [SSH-LCSH: Space and time](#)

[has exact match](#)^{op} [wikidata: organizational space](#)

[is in scheme](#)^{op} [disciplines](#)

```
### https://gotriple.eu/ontology/triple/disciplines#architecture_and_space_management
:architecture_and_space_management rdf:type owl:NamedIndividual ,
                                     <http://www.w3.org/2004/02/skos/core#Concept> ;
                                     <http://purl.org/spar/datacite/hasIdentifier> :archi ;
                                     <http://www.w3.org/2004/02/skos/core#closeMatch>
<http://semantics.gr/authorities/SSH-LCSH/sh85006611> ,
<http://semantics.gr/authorities/SSH-LCSH/sh85125911> ;
                                     <http://www.w3.org/2004/02/skos/core#exactMatch>
<https://www.wikidata.org/entity/Q7102036> ;
                                     <http://www.w3.org/2004/02/skos/core#inScheme> :disciplines ;
                                     rdfs:label "Architecture and Space Management"@en ,
"Architecture, aménagement de l'espace"@fr ,
"Architektur und Raummanagement"@de ,
"Architettura e Organizzazione dello Spazio"@it .
```


The TRIPLE Vocabulary

A multilingual **SKOS-based taxonomy** of concepts related to **SSH**

3.375 concepts, manually curated

Labels localised in **11+ languages**

Linked to the Library of Congress Subjects Headings (**LCSH**) vocabulary (*exactMatch*) and others, including Wikidata, CESSDA ELSST (*closeMatch*)

<https://www.semantics.gr/authorities/vocabularies/SSH-LCSH/vocabulary-entries>

The screenshot displays the Semantics.gr website interface. At the top, there is a navigation bar with the Semantics.gr logo and various menu items like 'Search', 'Vocabularies', and 'Data Models and Schemas'. The main content area features a header for 'Triple Vocabulary: an SSH multilingual vocabulary based in LCSH'. Below this, there is a search bar with the text 'Word or phrase' and a 'Direct search' button. The search results section shows a list of semantic resources, including 'Anthropology' and 'Civilization', with various language labels and match types like 'exactMatch' and 'closeMatch'. The page also includes a footer with the net7 logo.



Something that should have been done better...



To PID or not to PID (for GoTriple...)

In GoTriple the **“official” Persistent Identifier** is...

...the **URI** of an entity (e.g. a document)!

In theory a good thing:

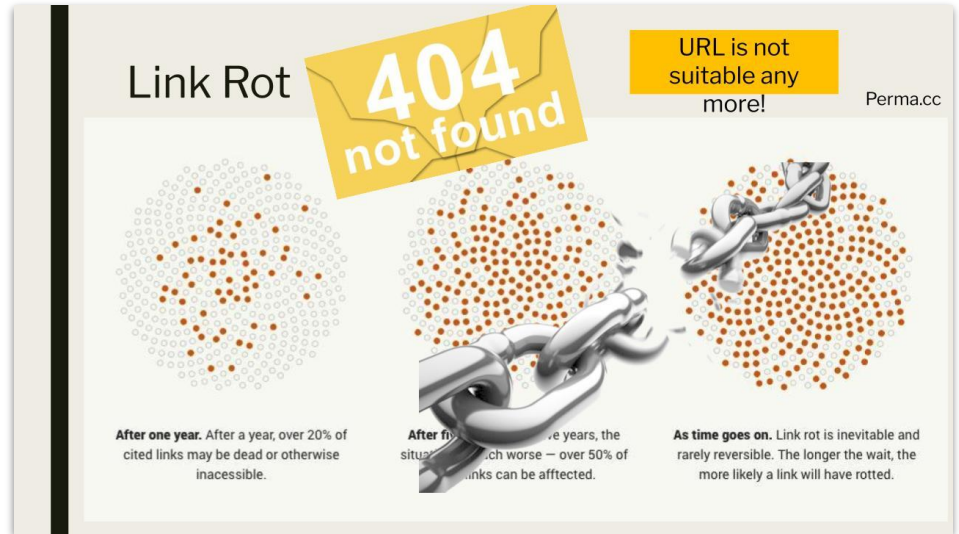
- **Unique**
- **Universal**
- **Persistent** (as long as GoTriple is alive...)
- Very **Semantic web!** :-)

In practice... a **bad idea**...

- **“URL is not suitable any more!”**
- **also a bad implementation:**

https://www.gotriple.eu/documents/<ORIGINAL_ID>

- <https://gotriple.eu/documents/oai%3Aadoaj.org%2Farticle%3A1194c6cd8cd24682b7b164c6df90c009>



To PID or not to PID (for GoTriple...)

Using the original main identifier as the basis for **generating** a **local ID**

...but **with a transformation!**

- See **OpenAIRE approach** (with *gotchas...*)

OpenAIRE assigns internal identifiers for each object it collects. By default, the internal identifier is generated as `sourcePrefix:md5(localId)` where:

- `sourcePrefix` is a namespace prefix of 12 chars assigned to the data source at registration time
- `localId` is the identifier assigned to the object by the data source

Current GoTriple PIDs are **not so easily fixable...**

- **To be definitely addressed** in a continuation of GoTriple

On the other hand, generating “official PIDs” (via Handle.net, Datacite...) for GoTriple's entities...

- ...not a good idea **for an aggregator** (see duplication of PIDs...)



A closing thought: a call to action to improve
metadata quality



(Meta)Data (quality) is king!

OAI-PMH/DC is widely used for metadata publishing

Can we overcome its “**semantic simplicity**” *without disrupting the standard?*

- Find smart **common practices**



```
<dc:subject>Livestock</dc:subject>  
<dc:subject xml:lang="sl-SI">slovenski jezik</dc:subject>  
<dc:subject xsi:type="dcterms:LCC">Agriculture (General)</dc:subject>
```

```
<dc:creator ">Walk, Paul</dc:creator>  
<dc:creator pid="https://orcid.org/0000-0003-1541-5631" http://paulwalk.net">Walk, Paul</dc:creator>
```

(Meta)Data (quality) is king!

OAI-PMH/DC is widely used for metadata publishing

Can we overcome its “**semantic simplicity**” *without disrupting the standard?*

- Find smart **common practices**
- Identify the right **Semantic Artefacts** for each scientific domain

Software might help!

- E.g. **plug-ins** for Journal and DAM systems: OJS, Lodel, Fedora Commons, Dspace,





Thanks for your attention!

Luca De Santis

desantis@netseven.it

<https://gotriple.eu/profile/l-desantis>

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Image credits

- Slides 2, 3: "FAIR image" taken from <https://www.panosc.eu/data/fair-principles/>
- Slides 4, 5: "FAIR image" taken from <https://www.nlm.nih.gov/oet/ed/cde/tutorial/02-300.html>
- Slide 5: "FAIL image" taken from <https://www.snexplores.org/article/secret-science-mistakes-boost-understanding>
- Slide 6: taken from RDA FAIR Data Maturity Model Specification and Guidelines 2020
- Slides 9, 11: taken from Recommendations on FAIR Metrics for EOSC
- Slide 17: taken from the TRIPLE Vocabulary home page <https://www.semantics.gr/authorities/vocabularies/SSH-LCSH/vocabulary-entries>
- Slide 19: taken from "PIDs in the SSH - Current state and upcoming challenges" by Jadranka Stojanovski, TRIPLE Booksprint, The role of open metadata in the SSH scholarly communication, Konstancin-Jeziorna, 7-9 September 2022
- Slide 20: taken from OpenAIRE Graph documentation "PIDs and identifiers" <https://graph.openaire.eu/docs/5.1.2/data-model/pids-and-identifiers/>
- Slides 22, 23: © Gary Waters/Getty Images/Ikon Images. Taken from <https://www.npr.org/2017/03/23/521195903/how-the-scarcity-mindset-can-make-problems-worse>

All other images taken from the OPERAS services GoTriple & VERA.



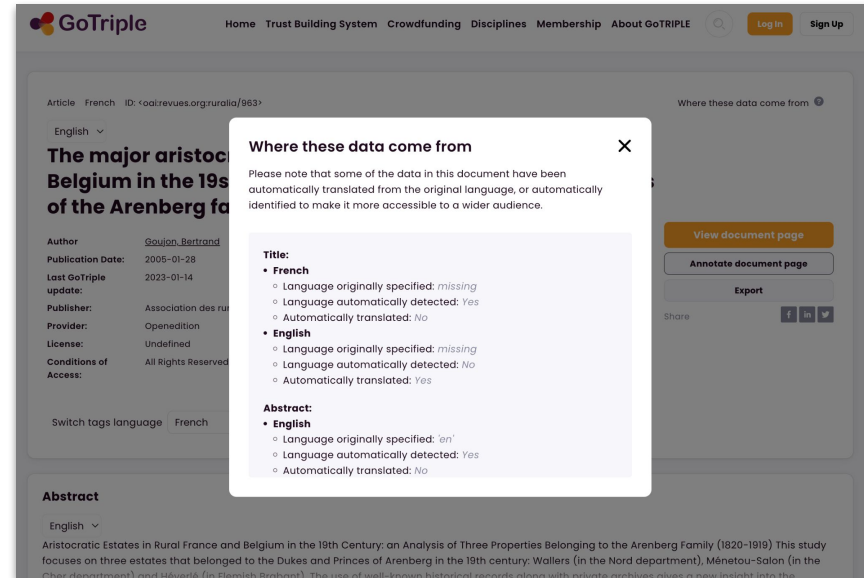
Document data enrichment

Multiple **new metadata** created by:

- **normalisation** rules
 - controlled vocabularies for languages, document types, licences, conditions of access
- ad-hoc **algorithms**
 - clustering to group duplicate documents
 - authors disambiguation
- **machine learning and NLP** techniques
 - classification and automatic annotation of documents and projects

Detailed presentation of the origin of data

Machine-actionable version easily available



The screenshot displays the GoTriple web interface. At the top, there is a navigation bar with links for Home, Trust Building System, Crowdfunding, Disciplines, Membership, and About GoTRIPLE. A search bar and 'Log In'/'Sign Up' buttons are also present. The main content area shows a document page for 'The major aristocratic estates in Belgium in the 19th century: an analysis of three properties belonging to the Arenberg family'. A modal window titled 'Where these data come from' is open, providing a detailed explanation of data enrichment. The modal text states: 'Please note that some of the data in this document have been automatically translated from the original language, or automatically identified to make it more accessible to a wider audience.' Below this, it lists the 'Title' and 'Abstract' for both French and English versions, with status indicators for language specification, automatic detection, and translation. The background document page includes a metadata table with fields like Author (Goujon, Bertrand), Publication Date (2005-01-28), and Last GoTriple update (2023-01-14). It also features buttons for 'View document page', 'Annotate document page', and 'Export', along with social media sharing options.



Document data enrichment

Multiple **new metadata** created by:

- **normalisation** rules
 - controlled vocabularies for languages, document types, licences, conditions of access
- ad-hoc **algorithms**
 - clustering to group duplicate documents
 - authors disambiguation
- **machine learning and NLP** techniques
 - classification and automatic annotation of documents and projects

Detailed presentation of the origin of data

Machine-actionable version easily available

```
{
  "id": "oai:revues.org:ruralia/963",
  "abstract": [
    {
      "lang": "en",
      "original_lang": "en",
      "text": "Aristocratic Estates in Rural France and Belgium in the 19th Century:",
      "detected_lang": "true",
      "translated": "false"
    },
    {
      "lang": "fr",
      "original_lang": "fr",
      "text": "Cet article s'appuie sur l'étude comparée de trois domaines appartenant à des familles aristocratiques dans le monde rural en France et en Belgique.",
      "detected_lang": "true",
      "translated": "false"
    }
  ],
  "additional_type": [
    "typ_article"
  ],
  "cluster_children_count": null,
  "cluster_id": [],
  "conditions_of_access": [
    "acr_all-rights-reserved",
    "acr_open-access"
  ],
  "contributor": [],
  "date_published": "2005-01-28",
  "date_facets": "2005-01-28",
  "datestamp": "2023-01-14T20:47:16Z",
  "doi": [
    ""
  ],
  "full_text": null,
  "headline": [
    {
      "lang": "fr",
      "original_lang": "",
      "text": "Le grand domaine aristocratique dans le monde rural en France et en Belgique.",
      "detected_lang": "true",
      "translated": "false"
    }
  ]
}
```



The TRIPLE Ontologies

What's there:

- **multiple independent vocabularies** to **encourage reuse**
 - focus on the formalisation of **Document** entities
 - definition of the controlled vocabularies for document types, licenses, conditions of access, disciplines
 - document types linked to COAR entities
- new reusable **disciplines** vocabulary, **multilingual**, **linked** to multiple **standard ontologies** (Wikidata, LCSH, CESSDA, TRIPLE Vocabulary)

Coming next

- formalisation of Profile and linking with Document entities
- formalisation of Projects

Disciplines vocabulary

Latest version:

<https://gotriple.eu/ontology/triple/disciplines#>

Authors:

Alessandro Bertozzi

Contributors:

Luca De Santis, Silvio Peroni

Cite as:

Alessandro Bertozzi. disciplines.

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Religionsⁿⁱ

IRI: <https://gotriple.eu/ontology/triple/disciplines#religions>

belongs to

[Concept](#)^c

has facts

[has identifier](#)^{op} [relig](#)

[has close match](#)^{op} [society and culture, religion and values](#)

[has exact match](#)^{op} [sh85112599](#)

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[is in scheme](#)^{op} [disciplines](#)