

AgroPortal: a vocabulary and ontology repository for agronomy and related domains



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Séminaire résidentiel

INRAE Semantic Linked Data

October 10th 2023



Ontology repositories help to make ontologies FAIR

F indable A ccessible I nteroperable R e-usuable

This screenshot shows the BioPortal interface. At the top, there's a navigation bar with links like 'Home', 'Search', 'Mappings', 'BioWarehouse', 'Annotator', 'Projects', 'Security Model', 'Help', 'About', and 'Feedback'. Below the navigation is a search bar with placeholder text: 'Search...'. The main content area displays a list of ontology results, each with a thumbnail, name, and a 'View Details' button. One result for 'AGROVOC (AGROVOC)' is highlighted.

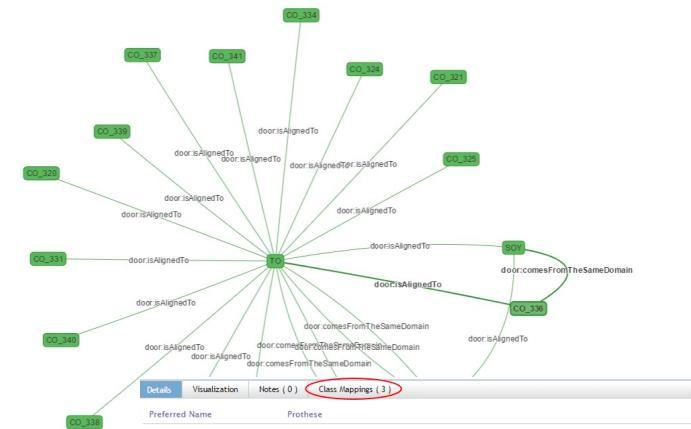
SPARQL httpd server v1.1.5-122-{

KB ontologies_api

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>

SELECT * WHERE {
  ?s ?p ?o
} LIMIT 10
```

I nteroperable



Details		Visualization	Notes (0)	Class Mappings (3)
ID	http://purl.lirmm.fr/ontology/MTHMSTFRE/MT140126			
cui	C0525024			
notation	MT140126			
prefLabel	Prothese			
tui	T061			

Internal mappings

MAPPING TO	ONTOLOGY	SOURCE	RELATIONSHIP
Implantation de prothèse	Medical Subject Headings, version française	CUI	
Mise en place de prothèse	Dictionnaire médical pour les activités réglementaires en matière de médicaments	CUI	

External mappings

MAPPING TO	ONTOLOGY	SOURCE	RELATIONS
Prosthesis	http://bioportal.bioontology.org/ontologies/MSTDE	REST	skos:exact-match gold:freetranslation

OntoBiotope

Metrics

NUMBER OF CLASSES	2300
NUMBER OF INDIVIDUALS	0
NUMBER OF PROPERTIES	0
NUMBER OF CONTACTS	42
NUMBER OF DOCUMENTATION PAGES	3
NUMBER OF PUBLICATIONS	11851471 (205) x 5151 (1)
NUMBER OF GROUPS	3
NUMBER OF INDIVIDUAL CHILDREN	241
CLASSES WITH A SINGLE CHILD	3
CLASSES WITH ONE CHILDREN	2300
CLASSES WITH NO CHILDREN	0

Visits

Download as CSV

The chart shows a fluctuating line graph representing the number of visits per day. The x-axis represents dates from January to December, and the y-axis represents the number of visits, ranging from 0 to 30. The data shows a general upward trend from January to December, with significant peaks in March, June, and October.

KB

INRA SCIENCE & INNOVATION

I2. (Meta)data use vocabularies that follow FAIR principles.

SCIENTIFIC DATA

OPEN

SUBJECT CATEGORIES
» Research data
» Publication characteristics

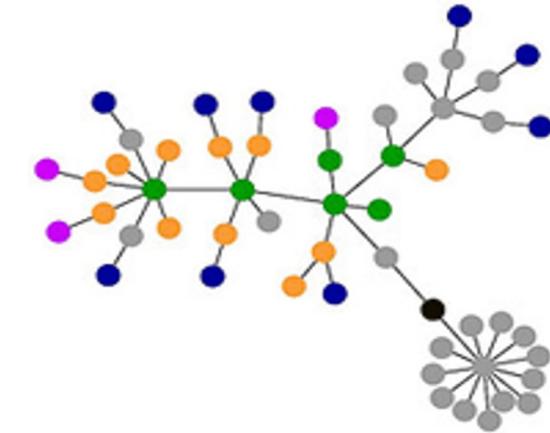
Comment: The FAIR Guiding Principles for scientific data management and stewardship

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.

How to go from "principles" to specialized criteria to measure to which level ontologies respect the FAIR Principles?



From I1, I2 and I3, ontologies/vocabularies are a key element to achieve the FAIR Principles

Introduction to AgroPortal

Welcome to AgroPortal, a vocabulary and ontology repository for agronomy and related domains

Search for a class

Find an ontology

Ontology Visits (December 2020)

Ontology	Visits
ANAEETHES	~80
ONTOBIOPOE	~60
DEMETER-AIM	~40
AGROVOC	~30
GACS	~20

AgroPortal Statistics

Category	Count
Ontologies	131
Classes	2,648,090
Individuals	2,194,309
Projects	47
Users	246

Supported by

With the collaboration of

PRODUCTS

- OntoPortal
- NCBO Web Widgets
- NCBO API

SUPPORT

- Contact Us
- Documentation
- NCBO Wiki
- OntoPortal admin

ABOUT

- About Us
- D2KAB project

CONNECT

- [Twitter](#)
- [GitHub](#)
- [LinkedIn](#)

AgroPortal is currently being developed within French ANR D2KAB project (ANR-18-CE23-0017). It also receives or received support from ANR SIFR project (ANR-12-JS02-0010), European Union H2020-MSCA SIFRm project (No 701771), the NUMEV Labex (ANR-10-LABX-0020), the IBC of Montpellier project (ANR-11-BINFO002), the Agro Labex (ANR-10-LABX-0001) as well as from University of Montpellier, CNRS and INRAE.

[CITE US](#)

AgroPortal

an ontology repository
for agronomy, food, plant sciences & biodiversity

<http://agroportal.lirmm.fr>

- ▶ Publish, search, download
- ▶ Browse, visualize
- ▶ Peer review
- ▶ Versioning
- ▶ Annotation
- ▶ Recommendation
- ▶ Mapping
- ▶ Notes
- ▶ Projects

Browse

Browse the library of ontologies

Search... Showing 131 of 137 Sort: Popular

Submit New Ontology

Entry Type
 Ontology (131) Ontology View (6)

Uploaded in the Last

Category
 Agricultural Resear... (24) Animal Science an... (11) Biodiversity and E... (17) Breeding and Gen... (1) Farms and Farmin... (7) Fisheries and Aqu... (2) Food Security (2) Food and Human ... (6) Forest Sciences an... (1)

Group
 AGBIDIATA (18) AGROLD (5) CROP (37) INRAE (30) OBO-FOUNDRY (23) RICE (24) SEMANDIV (11) WHEAT (19)

Format
 OBO (12) OWL (105) SKOS (11) UMLS (2)

Ontology Content

AnaEE Thesaurus (ANAEETHES)
The AnaEE thesaurus aims to provide a controlled vocabulary for the semantic description of the study of continental ecosystems and their biodiversity
Uploaded: 12/12/20 4 3,247

OntoBiotope (ONTOBIOTOPE)
OntoBiotope is an ontology of microorganism habitats
Uploaded: 9/25/19 6 3,602

DEMERTER Agriculture Information Model (DEMERTER-AIM)
The DEMETER Agri Profile is a master profile importing focused specific profiles/modules of DEMETER AIM.
Uploaded: 10/30/20 1 173

AGROVOC (AGROVOC)
AGROVOC is a controlled vocabulary covering all areas of interest of the Food and Agriculture Organization (FAO) of the United Nations, including food, nutrition, agriculture, fisheries, forestry, environment etc
Uploaded: 12/30/20 4 837,185

Global Agricultural Concept Scheme (GACS)
The Global Agricultural Concept Scheme (GACS) is a hub for concepts related to agriculture, in multiple languages, for use in Linked Data
Uploaded: 6/4/18 2 584,881

Animal Disease Ontology (ANDO)
L'ontologie des maladies animales est un référentiel de maladies touchant des animaux de rente et d'agents pathogènes ainsi que des relations qu'ils entretiennent
Uploaded: 11/14/18 2 1,666

Agri-Food Experiment Ontology (AFEO)
The Agri-Food Experiment Ontology (AFEO), a new ontology network was developed based on two existing ontology resources, i.e.
Uploaded: 8/5/20 1 2 68

Welcome to AgroPortal, a vocabulary and ontology repository for agronomy and related domains

Search for a class
Enter a class, e.g. Melanoma

Advanced Search

Ontology Visits (December 2020)

More

Find an ontology
Start typing ontology name, then choose from list

Browse Ontologies

AgroPortal Statistics

Category	Value
Ontologies	131
Classes	2,648,090
Individuals	2,194,309
Projects	47
Users	246

Supported by

- ▶ 159 ontologies, 140 candidates
- ▶ ~390 registered users

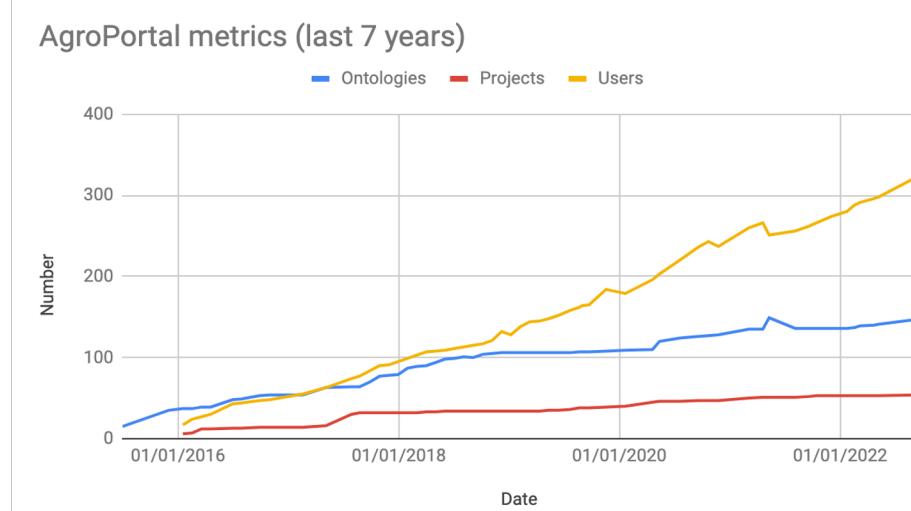


AgroPortal: a vocabulary and ontology repository for agronomy

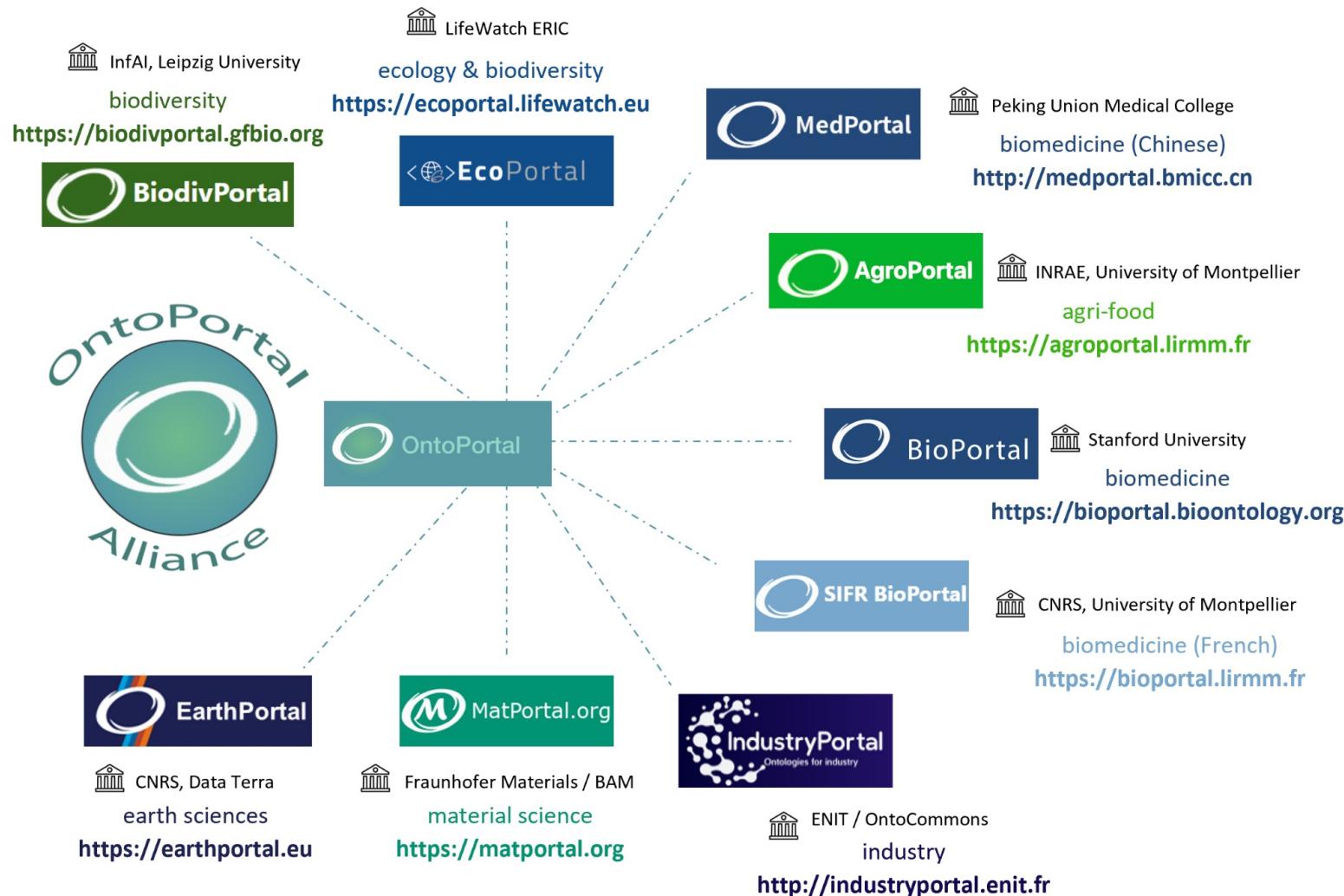
<http://agroportal.lirmm.fr>



- Develop and support a reference ontology repository
 - *Primary focus on the agronomy & close related domains (plant sciences, food and biodiversity)*
- Reusing the NCBO BioPortal technology
 - *Avoid to re-implement what has been done, facilitate interoperability*
 - *Reusing the scientific outcomes, experience & methods of the biomedical domain*
- Enable straightforward use of agronomic related ontologies
 - *Respect the requirements & specificities of the agronomic community*
 - *Fully semantic web compliant infrastructure*
 - *Enable new science*



OntoPortal Alliance: Synchronizing and mutualizing research and development efforts

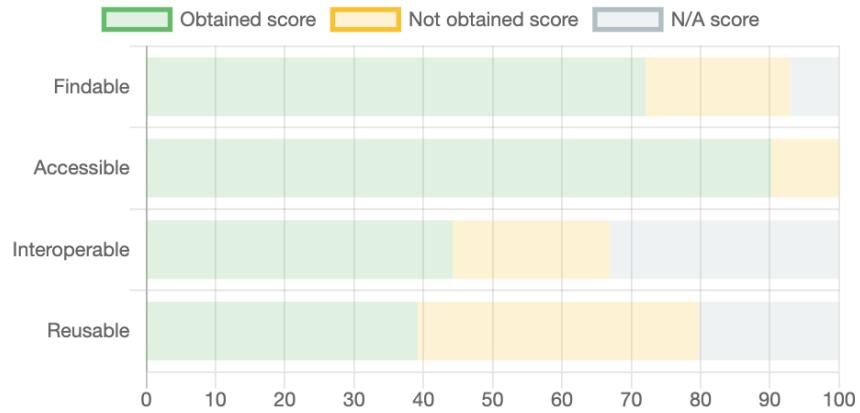


Representing OntoPortal adopters and end users

- to maximize OntoPortal value (state-of-the-art service portfolio)
- to improve OntoPortal software while managing several parallel and different installations
- to increase semantic uptake in science communities and facilitate adoption of the FAIR principles
- to increase the ecosystem's long term operational and financial health

Always in-line with the OntoPortal technology but with many added features...

- Customization of group, categories, look-and-feel
- Change default language
- Slices fix, sync of group and slices
- New metadata model
- New metadata user interfaces (browse, summary, landscape)
- Annotator enhancements (French ConText, formats, scoring, etc.)
- NCBO Annotator+
- Internal/external mappings + multiple mapping properties
- User admin page
- Support instances
- FAIRness assessment O'FAIRe
- Repair notifications and subscriptions
- Better multilingual support
- Large file processing
- Enhanced SKOS support
- SSSOM mappings import
- Metadata edition in batch



O'FAIRe: Ontology FAIRness Evaluator in the AgroPortal semantic resource repository

Work with Emna Amdouni, Syphax Bouazzouni



FooSIN



 **eosc** | **FAIR-IMPACT**
Expanding FAIR solutions across EOSC

The key feature in FAIRness assessment

SCIENTIFIC DATA

OPEN

Comment: A design framework and exemplar metrics for FAIRness

Mark D. Wilkinson¹, Susanna-Assunta Sansone², Erik Schultes³, Peter Doorn⁴, Luiz Olavo Bonino da Silva Santos^{5,6} & Michel Dumontier⁷

Received: 28 November 2017

Accepted: 9 May 2018

Published: 26 June 2018

The FAIR Principles¹ (<https://doi.org/10.25504/FAIRsharing.WWH10U>) provide guidelines for the publication of digital resources such as datasets, code, workflows, and research objects, in a manner that makes them Findable, Accessible, Interoperable, and Reusable (FAIR). The Principles have rapidly been adopted by publishers, funders, and pan-disciplinary infrastructure programmes and societies. The Principles are aspirational, in that they do not strictly define how to achieve a state of "FAIRness", but rather they describe a continuum of features, attributes, and behaviors that will move a digital resource closer to that goal. This ambiguity has led to a wide range of interpretations of FAIRness, with some resources even claiming to already "be FAIR"! The increasing number of such statements, the emergence of subjective and self-assessments of FAIRness,^{2,3}, and the need of data and service providers, journals, funding agencies, and regulatory bodies to qualitatively or quantitatively evaluate such claims, led us to self-assemble and establish a FAIR Metrics group (<http://fairmetrics.org>) to pursue the goal of defining ways to measure FAIRness.

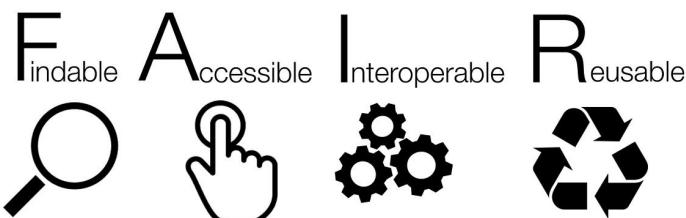
As co-authors of the FAIR Principles and its associated manuscript, founding this small focus group



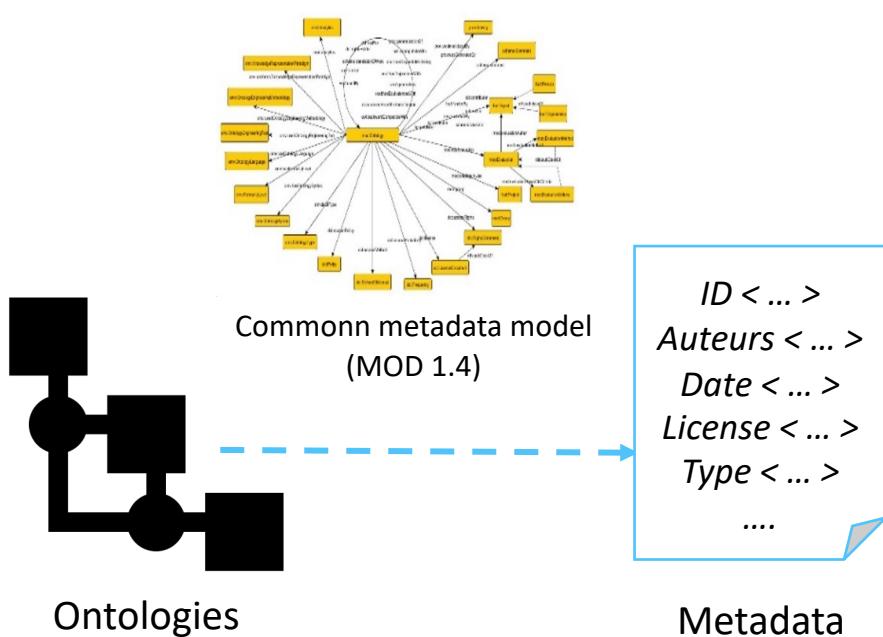
Designing FAIRness assessment methods for the community

FAIR metric: objective, measurable, and reproducible

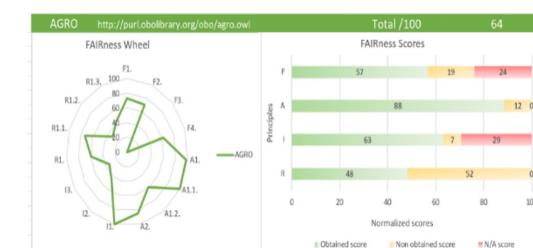
«If you can't measure it, you can't improve it.» - Lord Kelvin



Our objective: a **methodology** and a **tool** to automatically assess the level of FAIRness of a semantic resource



Metadata curation



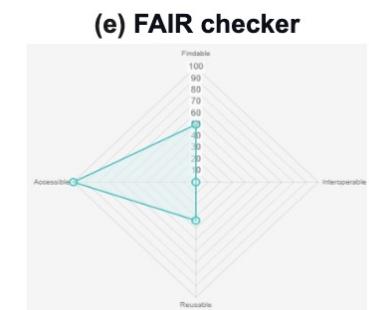
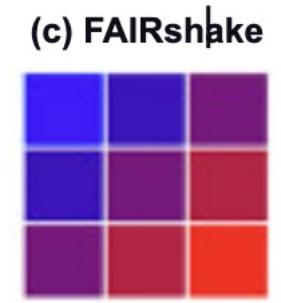
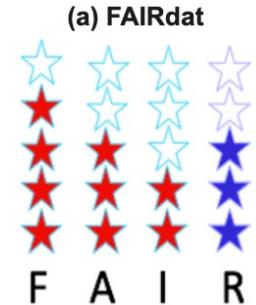
The screenshot shows the OntoBiotope tool interface at the URL <http://agroportal.lirmm.fr/>. The interface includes a navigation bar with links like "Home", "Search", "Mappings", "Recommender", "Annotations", "Projects", and "Language". The main content area is divided into several sections:

- Details:** Provides general information about the ontology, including its version (1.2), release date (2010-05-29T00:00:00), and license (CC-BY-SA).
- Metrics:** Shows statistics such as the number of classes (2328), individuals (4), and publications (42).
- Additional Metadata:** Lists various metadata fields like natural language, release date, and notes.
- Reviews:** A section for users to add reviews, currently stating "No reviews available".
- Submissions:** A table showing recent submissions.
- Projects Using This Ontology:** A list of projects that use the ontology, including AgroVocab, LOMVocab, and VEST Registry.
- Visits:** A line graph showing the number of visits over time.
- INRA logo:** The INRA logo with the text "SCIENCE & IMPACT".

A red box highlights the "INRA SCIENCE & IMPACT" logo in the bottom right corner.

Background: 50 shades of FAIR!

- Generic (any type of data): SHARC, FDMM, FAIR Metrics, FAIR-Aware, FAIRshake, FAIR dat, FAIR checker
- Specific to semantic resources
 - *H2020 FAIRsFAIR deliverable*,
 - *Poveda et al., (2 papers then FOOPS)*
 - *10 simple rules paper*
 - *DBpedia Archivo*
- Specific to semantic resources but pre-existing FAIR
 - *MIRO guidelines* (*Minimum Information for Reporting an Ontology*)
 - *MOD* (*Metadata for Ontology Description and Publication Ontology*)
 - *5-stars for vocabularies*



Recent work on FAIRness or alike...



- [SHARC] R. David et al., “[Fairness literacy: The achilles' heel of applying fair principles](#),” *Data Science Journal*, vol. 19, no. 1, pp. 1–11, Aug. 2020, [doi: 10.5334/DSJ-2020-032](https://doi.org/10.5334/DSJ-2020-032).
- [FDMM] C. Bahim et al., “[The FAIR data maturity model: An approach to harmonise FAIR assessments](#),” *Data Science Journal*, vol. 19, no. 1, pp. 1–7, Oct. 2020, [doi: 10.5334/DSJ-2020-041](https://doi.org/10.5334/DSJ-2020-041).
- [5-star] A. Hasnain and D. Rebolz-Schuhmann, “[Assessing FAIR data principles against the 5-star open data principles](#),” in *ESWC 2018 Satellite Events*, Jun. 2018, vol. 11155 LNCS, pp. 469–477. [doi: 10.1007/978-3-319-98192-5_60](https://doi.org/10.1007/978-3-319-98192-5_60).
- [MIRO] N. Matentzoglu, J. Malone, C. Mungall, and R. Stevens, “[MIRO: guidelines for minimum information for the reporting of an ontology.](#),” *J Biomed Semantics*, vol. 9, no. 1, p. 6, Jan. 2018, [doi: 10.1186/s13326-017-0172-7](https://doi.org/10.1186/s13326-017-0172-7).
- [Povedal et al.] D. Garijo and M. Poveda-Villalón, “[Best Practices for Implementing FAIR Vocabularies and Ontologies on the Web](#),” in *Applications and Practices in Ontology Design, Extraction, and Reasoning*,. IOS Press, 2020. [doi: 10.3233/SSW200034](https://doi.org/10.3233/SSW200034). + M. Poveda-Villalón, P. Espinoza-Arias, D. Garijo, and O. Corcho, “[Coming to Terms with FAIR Ontologies](#),” in *22nd International Conference on Knowledge Engineering and Knowledge Management, EKAW’20*, Sep. 2020, vol. 12387 LNAI, pp. 255–270. [doi: 10.1007/978-3-030-61244-3_18](https://doi.org/10.1007/978-3-030-61244-3_18).
- [FAIRsFAIR] Y. le Franc, G. Coen, J. P. Essen, L. Bonino, H. Lehväslaiho, and C. Staiger, “[D2.2 FAIR Semantics: First recommendations](#),” Mar. 2020. [doi: 10.5281/zenodo.3707985](https://doi.org/10.5281/zenodo.3707985).
- [10-simple-rule] (not used at the time) S. J. D. Coxid, A. N. Gonzalez-Beltran, B. Magagna, and M.-C. Marinescu, “[Ten simple rules for making a vocabulary FAIR](#),” *PLOS Comp. Biology*, June 2021, [doi: 10.1371/journal.pcbi.1009041](https://doi.org/10.1371/journal.pcbi.1009041).

Generic
methodologies

SHARC

FDMM

MIRO

Poveda et
al.

FAIRsFAIR

5-star

Methodologies
specific to
ontologies

Integrated FAIRness
assessment grid

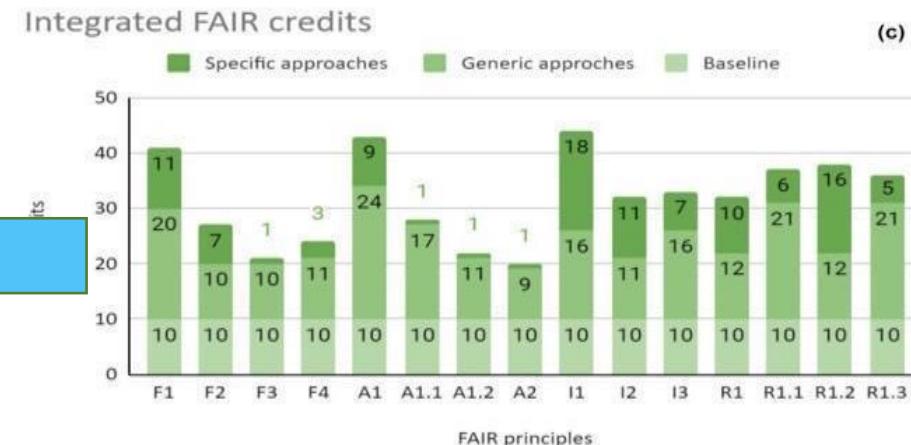
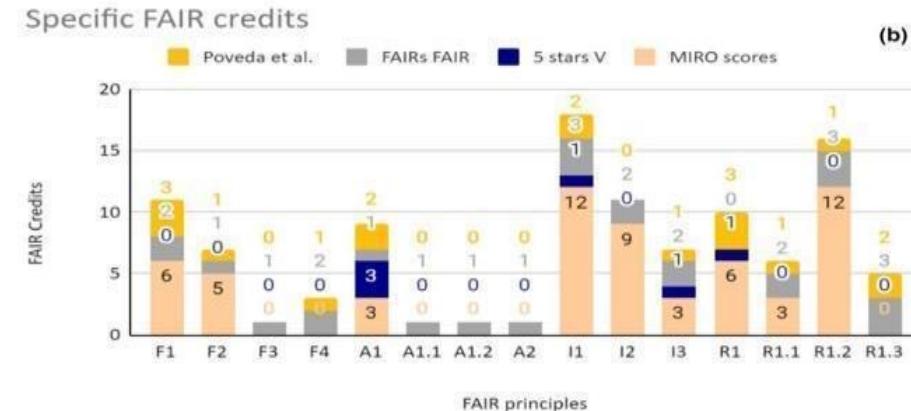
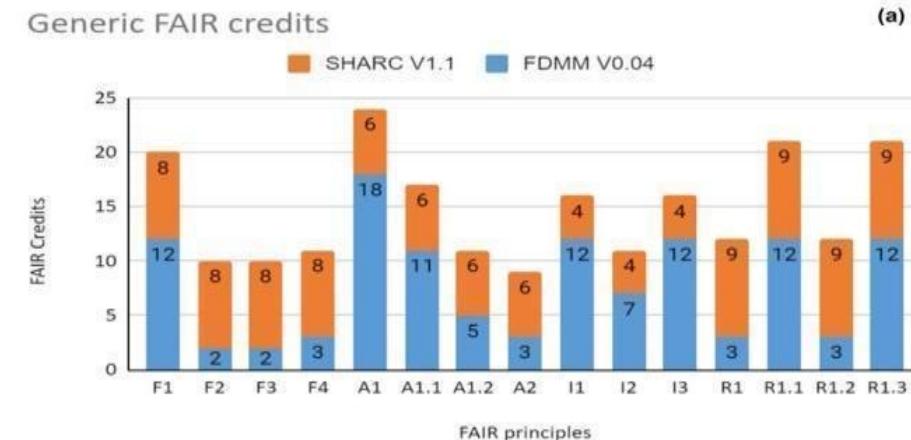
Recent work on FAIRness or alike...



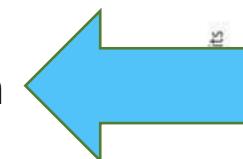
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- [MIRO] N. Matentzoglu, J. Malone, C. Mungall, and R. Stevens, "MIRO: guidelines for minimum information for the reporting of an ontology," *J Biomed Semantics*, vol. 9, no. 1, p. 6, Jan. 2018, doi: [10.1186/s13326-017-0172-7](https://doi.org/10.1186/s13326-017-0172-7).
- [Poveda et al.] D. Garijo and M. Poveda-Villalón, "Best Practices for Implementing FAIR Vocabularies and Ontologies on the Web," in *Applications and Practices in Ontology Design, Extraction, and Reasoning*, IOS Press, 2020, doi: [10.3233/SW200034](https://doi.org/10.3233/SW200034), + M. Poveda-Villalón, P. Espinoza-Arias, D. Garijo, and O. Corcho, "Coming to Terms with FAIR Ontologies," in *22nd International Conference on Knowledge Engineering and Knowledge Management, EKAW'20*, Sep. 2020, vol. 12387 LNAI, pp. 255–270, doi: [10.1007/978-3-030-61244-3_18](https://doi.org/10.1007/978-3-030-61244-3_18).
- [FAIRsFAIR] Y. le Franc, G. Coen, J. P. Essel, L. Bonino, H. Lehväslaiho, and C. Staiger, "D2.2 FAIR Semantics: First recommendations," Mar. 2020, doi: [10.5281/zenodo.3707985](https://doi.org/10.5281/zenodo.3707985).
- [10-simple-rule] (not used at the time) S. J. D. Coxid, A. N. Gonzalez-Beltran, B. Magagna, and M.-C. Marinescu, "Ten simple rules for making a vocabulary FAIR," *PLOS Comp. Biology*, June 2021, doi: [10.1371/journal.pcbi.1009041](https://doi.org/10.1371/journal.pcbi.1009041).

Requirement #1: a FAIRness assessment grid

- FAIR or FAIRer?
- Evaluate the importance of each principles in multiple approaches (generic & specific)
- Integrate them all in an “quantitative” grid



478 credits
dispatched on
15 principles

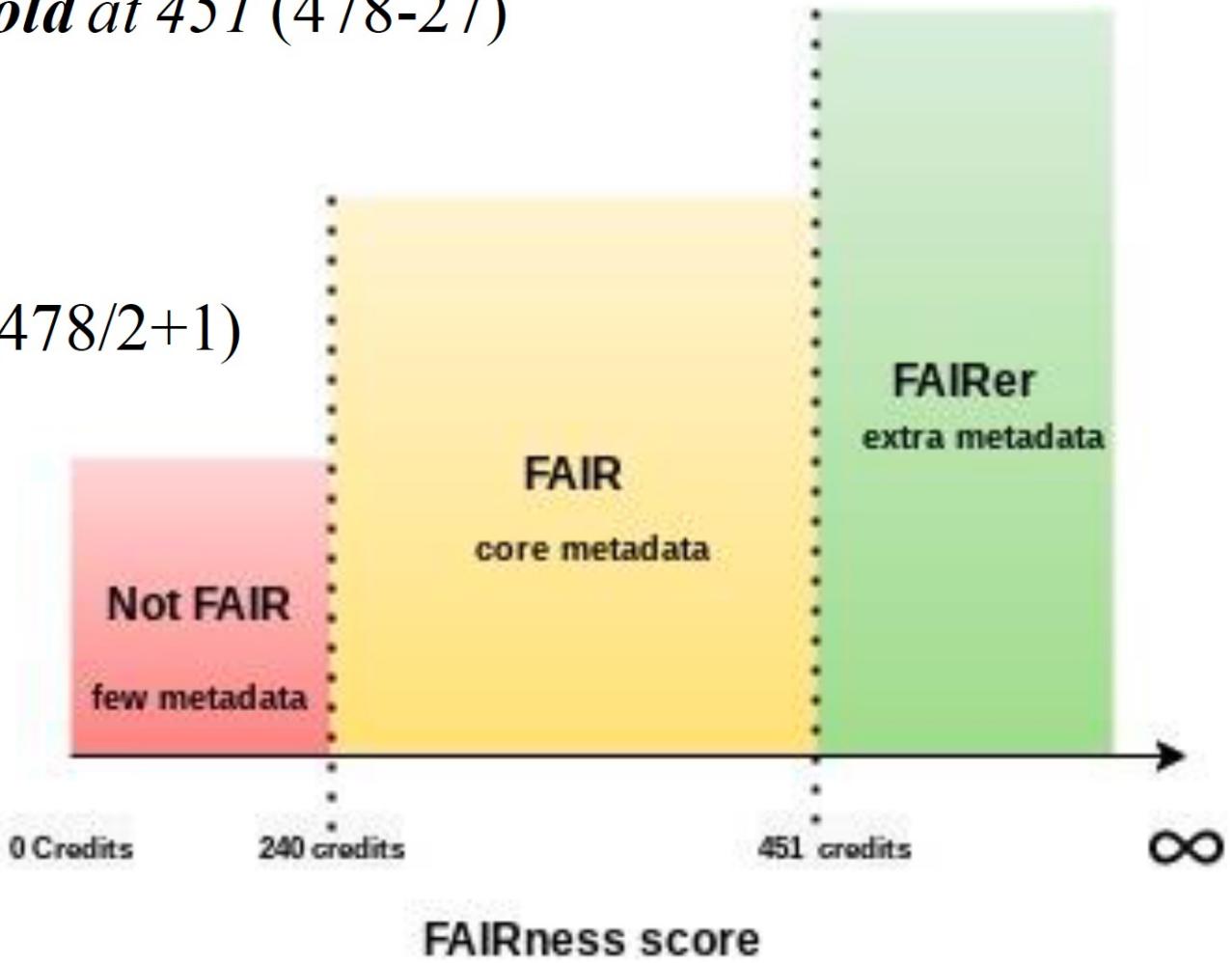


FAIR or FAIRer?



Second threshold at 451 (478-27)
Score=94%

First threshold at 240 (478/2+1)
Score=50%



Requirement #2: a projection of the FAIR Principles for semantic resources

- FAIR Principles are very generic and need to be “projected” for different kind of research objects (cf. FAIR-IMPACT Horizon EU project)
- 61 questions
 - *45 are dependent on the semantic resource*
 - *16 are independent of the ontology*
- 3 examples
 - F4 Q2. Is the ontology registered in multiple open ontology 'repositories'? **10 pts**
 - A2 Q2. Are the ontology metadata of each version available? **5 pts**
 - R1.1 Q1. Is the ontology license clearly specified, with an URI that is resolvable and supports content negotiation? **15 pts**



<https://github.com/agroportal/fairness>

$$FAIRScore(sr) = \sum_{j=1}^n FAIRSubPrincipleScore_{ij}(sr) = \sum_{k=1}^m QScore_{ijk}(sr)$$

Let's see the list of 61 questions

- <https://github.com/agroportal/fairness/blob/master/doc/results/FAIR-questions.md>
- E. Amdouni, S. Bouazzouni, C. Jonquet, O'FAIRe makes you an offer: Metadata-based Automatic FAIRness Assessment for Ontologies and Semantic Resources, Int. J. of Metadata, Semantics and Ontologies, Inderscience, 2022, TO BE PUBLISHED. <https://hal.archives-ouvertes.fr/lirmm-03630233>

Requirement #3: a unified way to describe semantic resources (metadata)

- MOD1.4 = a set of identified properties (127) one can use to describe a semantic resource
- In O'FAIRe
 - 57 MOD properties are “core” metadata properties allowing 276/478 credits
 - 70 MOD properties are “extra” metadata properties for a FAIRer level



Dutta, B., Toulet, A., Emonet, V. and Jonquet, C. (2017). New Generation Metadata vocabulary Description and Publication. In E. Garoufaliou, S. Virkus, R. Siatri and D. Koutso Communications in Computer and Information Science (CCIS) 755, proceedings of 11th M Semantics Research Conference (MTSR 2017), November 28 - December 1, 2017, Talli Springer Nature, pp. 173-185.

Stable

MOD: Metadata for Ontology Description and publication

Release August 2, 2018

This version: <http://www.isibang.ac.in/ns/mod/1.4>

Latest version: <http://www.isibang.ac.in/ns/mod/1.4>

Previous version: <http://www.isibang.ac.in/ns/mod/1.2>
<https://www.isibang.ac.in/ns/mod/1.1>
<https://www.isibang.ac.in/ns/mod/1.0>

Revision: 1.4

Authors: Biswanath Dutta, ([Indian Statistical Institute](#)) Clement Jonquet, ([University of Montpellier](#))

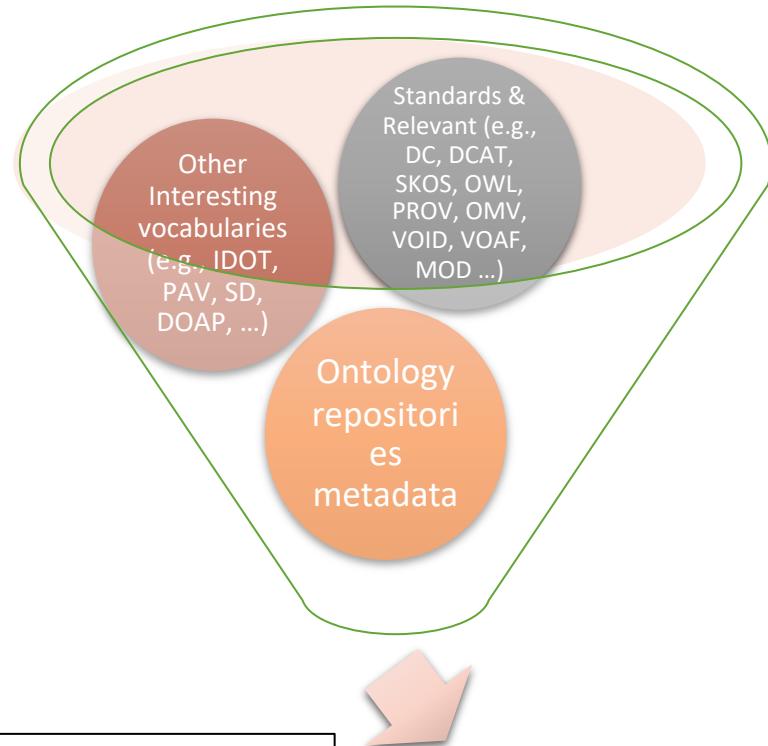
Contributors: Anne Toulet, ([University of Montpellier](#)) Udaya Varadarajan, ([Indian Statistical Institute](#))

Publisher: <http://www.isibang.ac.in/>

Download serialization:

Format: [JSON LD](#) Format: [RDF/XML](#) Format: [N Triples](#) Format: [TTL](#)

License: License Creative Commons Attribution 4.0



346 relevant properties that could be used to describe ontologies

127 used to build a new metadata model inside AgroPortal and available in MOD1.4

MOD 1.4 (August, 2018)

(<https://www.isibang.ac.in/ns/mod/index.html>)

Stable

MOD: Metadata for Ontology Description and publication

Release August 2, 2018

This version:

<http://www.isibang.ac.in/ns/mod/1.4>

Latest version:

<http://www.isibang.ac.in/ns/mod/1.4>

Previous version:

<http://www.isibang.ac.in/ns/mod/1.2>

<https://www.isibang.ac.in/ns/mod/1.1>

<https://www.isibang.ac.in/ns/mod/1.0>

Revision:

1.4

Authors:

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Contributors:

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Udaya Varadarajan, ([Indian Statistical Institute](#))

Publisher:

<http://www.isibang.ac.in/>

Download serialization:

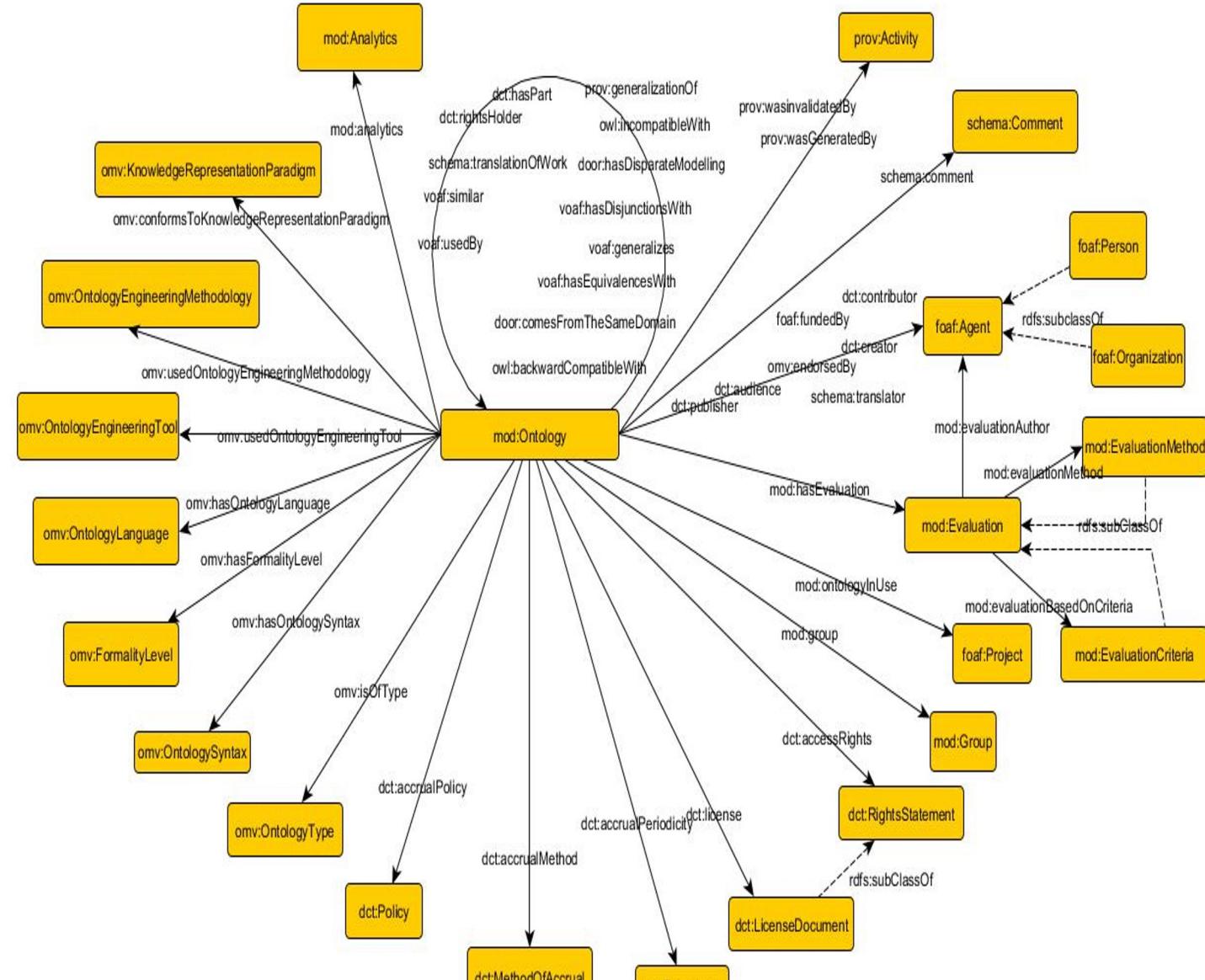
Format [JSON LD](#) Format [RDF/XML](#) Format [N Triples](#) Format [TTL](#)

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Cite as:

Dutta, B., Toulet, A., Emonet, V. and Jonquet, C. (2017). New Generation Metadata vocabulary Description and Publication. In E. Garoufallou, S. Virkus, R. Siatri and D. Koutso Communications in Computer and Information Science (CCIS) 755, proceedings of 11th M Semantics Research Conference (MTSR 2017), November 28 - December 1, 2017, Talli Springer Nature, pp. 173-185.



Classes: 24

Object property: 44

Data property: 96

There are many
many metadata
vocabularies to
describe your
ontology...

Name Space	Name
rdfs	RDF Schema
owl	OWL 2 Web Ontology Language
skos	Simple Knowledge Organization System
dc	Dublin Core Metadata Element Set
dct	Dublin Core Terms
omv	Ontology Metadata Vocabulary
mod	Metadata for Ontology Description and Publication
door	Descriptive Ontology of Ontology Relations
voaf	Vocabulary of a Friend
void	Vocabulary of Interlinked Datasets
idot	Identifiers.org
vann	Vocabulary for annotating vocabulary descriptions
dcat	Data Catalog Vocabulary
adms	Asset Description Metadata Schema
schema	Schema.org
foaf	Friend of a Friend Vocabulary
doap	Description of a Project
cc	Creative Commons Rights Expression Language
prov	Provenance Ontology
pav	Provenance, Authoring and Versioning
oboInOwl	ObolInOwl Mappings

One exemple: Semanticscience Integrated Ontology (SIO)

```
<rdf:Description rdf:about="http://semanticscience.org/ontology/sio.owl">
  <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#Ontology"/>
  <vann:preferredNamespacePrefix xml:lang="en">sio</vann:preferredNamespacePrefi
  <dct:license rdf:resource="http://creativecommons.org/licenses/by/4.0/" />
  <cito:citesAsAuthority
    rdf:datatype="http://www.w3.org/2001/XMLSchema#anyURI">http://www.jbiomedsem.com/content/5/1/14</cito:citesAsAuthority>
    <owl:versionInfo rdf:datatype="http://www.w3.org/2001/XMLSchema#string">1.29.0</owl:versionInfo>
    <dct:description xml:lang="en">The semanticscience integrated ontology (SIO) provides a simple (...). website: http://semanticscience.org email: sio-ontology@googlegroups.com mailing list: http://groups.google.com/group/sio-ontology</dct:description>
  <dct:issued rdf:datatype="http://www.w3.org/2001/XMLSchema#date">2010-03-29</dct:issued>
  <dc:creator xml:lang="en">Michel Dumontier</dc:creator>
  <vann:preferredNamespaceUri
    rdf:datatype="http://www.w3.org/2001/XMLSchema#string">http://semanticscience.org/resource/</vann:preferredNamespaceUri>
  <schema:comment rdf:datatype="http://www.w3.org/2001/XMLSchema#string">general class inclusion axioms:'is part of' some 'physical entity' subClassOf 'is located in' some 'physical entity' role chains:'has capability' o 'is realized in' -&gt; 'is participant in'</schema:comment>
  <dc:contributor rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Contributors are those that engage in discussions in the context of SIO (in alphabetical order):christopher baker, joachim baran, (...)</dc:contributor>
  <rdfs:seeAlso rdf:datatype="http://www.w3.org/2001/XMLSchema#anyURI">http://sio.semanticscience.org</rdfs:seeAlso>
  <dct:rights rdf:datatype="http://www.w3.org/2001/XMLSchema#string">free to use,share,modify. modify with attribution [http://creativecommons.org/licenses/by/4.0/], see rights</dct:rights>
  <protege:defaultLanguage> en</protege:defaultLanguage>
  <dct:creator rdf:datatype="http://www.w3.org/2001/XMLSchema#anyURI">http://orcid.org/0000-0003-4727-945</dct:creator>
  <dct:title xml:lang="en">Semanticscience Integrated Ontology (SIO)</dct:title>
  <dc:identifier> sio.owl</dc:identifier>
  <rdfs:isDefinedBy rdf:resource="http://semanticscience.org/ontology/sio.owl"/>
  <owl:versionIRI rdf:resource="http://semanticscience.org/ontology/sio/v1.29.0/sio-release.owl"/>
  <dct:modified rdf:datatype="http://www.w3.org/2001/XMLSchema#date">2016-05-18</dct:modified>
</rdf:Description>
```

O'FAIRe is 80% resource metadata-based

« Findable »



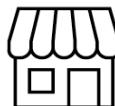
- PID
owl:ontologyIRI, dct:identifier, owl:versionIRI



- Rich metadata
omv:acronym, dct:title, dct:alternative,
skos:hiddenLabel, dct:description, foaf:page,
omv:resourceLocator, omv:keywords ...



- Metadata with PID



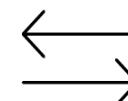
N/A

- Searchable resource
schema:includedInDataCatalog

« Accessible »



- Standardised protocol
owl:ontologyIRI, dct: identifier, sd:endpoint



- Free and open protocol
N/A



- Authentication
Schema:includedInDataCatalog



- Long term metadata access
omv:status, owl:deprecated

O'FAIRe is 80% resource metadata-based

« Interoperable »

- **Vocabularies**

Omv:hasOntologyLanguage, omv:hasFormalityLevel,
omv:hasOntologySyntax, dct:hasFormat, dct:isFormatOf



F-A-I-R

- **FAIR vocabularies**

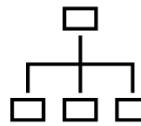
owl:imports, voaf:hasEquivalenceWith,
owl:priorVersion, voaf:similar, voaf:metadataVoc, dct:relation,
dct:isPartOf, voaf:specializes, schema:translation
OfWork, voaf:generalizes



« Reusable »

- **Métadonnées avec attributs**

mod:prefLabelProperty, mod:synonymProperty, mod:definitionProperty,
mod:authorProperty, bpm:obsoleteProperty, mod:hierarchyProperty,
mod:obsoleteParent, mod:maxDepth, mod:maxChildCount,
mod:averageChildCount, mod:classesWithOneChild,
mod:classesWithNoDefinition



- **License**

dct:license, dct:rightsHolder, dct:accessRights, cc:morePermissions,
cc:useGuidelines



- **Provenance**

dct:source, prov:wasGeneratedBy, prov:wasInvalidatedBy,
dct:accrualMethod, dct:accrualPeriodicity, dct:accrualPolicy,
omv:versionInfo, vann:changes, dct:hasVersion,
omv:usedOntologyEngineeringTool,
omv:usedOntologyEngineeringMethodology,
omv:conformsToKnowledgeRepresentationParadigm,
omv:designedForOntologyTask, mod:competencyQuestion, dct:fundedBy



- **Standards de la communauté**

mod:ontologyInUse, omv:endorsedBy, mod:group, dct:accessRights



Requirement #4: a harmonized and curated environment for ontology descriptions

- AgroPortal offers a unified metadata model for every hosted semantic resources
- Metadata is curated



 Springer Link

Original Article | [Open Access](#) | Published: 29 August 2018

Harnessing the Power of Unified Metadata in an Ontology Repository: The Case of AgroPortal

[Clement Jonquet](#) , [Anne Toulet](#), [Biswanath Dutta](#) & [Vincent Emonet](#)

Journal on Data Semantics 7, 191–221 (2018) | [Cite this article](#)

3635 Accesses | 6 Citations | 4 Altmetric | [Metrics](#)

Abstract

As any resources, ontologies, thesaurus, vocabularies and terminologies need to be described with relevant metadata to facilitate their identification, selection and reuse. For ontologies to be FAIR, there is a need for metadata authoring guidelines and for harmonization of existing metadata vocabularies—taken independently none of them can completely describe an ontology. Ontology libraries and repositories also have to play an important role. Indeed, some metadata properties are intrinsic to the ontology (name, license, description); other information, such as community feedbacks or relations to other ontologies are typically information that an ontology library shall capture, populate and consolidate to facilitate the processes of identifying and selecting the right ontology(ies) to use. We have studied ontology metadata practices by: (1) analyzing metadata annotations of 805 ontologies; (2) reviewing the most standard and relevant vocabularies (23 totals) currently available to describe metadata for ontologies (such as Dublin Core, Ontology Metadata Vocabulary, VoID, etc.); (3) comparing different metadata implementation in multiple ontology libraries or repositories. We have then built a new metadata model for our AgroPortal vocabulary and

Describe ontologies with semantic metadata

- Display “per ontology”
 - Ontology specific properties => viewable and editable within the ontology specific page
- Everything you need to know about an ontology
- URIs used in the backend to store the information
 - e.g., CC-BY =>
<https://creativecommons.org/licenses/by-nd/4.0/>
- “Get my metadata back” buttons

AgroPortal [Landscape](#) [Browse](#) [Search](#) [Mappings](#) [Recommender](#) [Annotator](#) [Projects](#) [Landscape](#) [Recently Viewed](#) [Sign In](#) [Help](#) [About](#) [Feedback](#)

OntoBiotope

Summary Classes Properties Notes Mappings Widgets

Details

ACRONYM	ONTOBIOTOP
VISIBILITY	Public
DESCRIPTION	OntoBiotope is an ontology of microorganism habitats. Its modeling principle and its lexicon reflect the biotope classification used by biologists to describe microorganism isolation sites (e.g. GenBank, GOLD, ATCC). OntoBiotope is developed and maintained by the Meta-omics of Microbial Ecosystems (MEM) network in which 30 microbiologists from INRA (French National Institute for Agricultural Research) from all fields of applied microbiology participate. The relevance of OntoBiotope terms is evaluated through the PubMedBiotope semantic search engine. It identifies and categorizes microbial biotopes in all PubMed abstracts by applying the ToMap method (Text to Ontology Mapping) to the OntoBiotope ontology. It also indexes 3.35 millions relations between taxa and their habitats.
STATUS	Production
FORMAT	OB
CONTACT	Claire Nédellec, claire.nedellec@jouy.inra.fr
HOMEPAGE	http://lov.inra.inra.fr/
PUBLICATIONS PAGE	https://doi.org/10.1186/1471-2105-16-S10-S1
DOCUMENTATION PAGE	http://lov.inra.inra.fr/
CATEGORIES	Natural Resources, Earth and Environment
GROUPS	INRA Linked Open Vocabularies

[Go to the REST API/JSON entry](#)

[Get my metadata back](#)

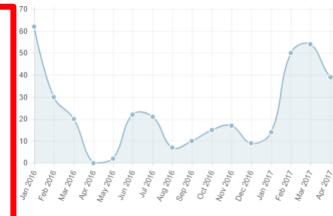
[N-Triple](#) [Json-LD](#) [RDF/XML](#)

Metrics

NUMBER OF CLASSES:	2320
NUMBER OF INDIVIDUALS:	0
NUMBER OF PROPERTIES:	0
MAXIMUM DEPTH:	13
MAXIMUM NUMBER OF CHILDREN:	42
AVERAGE NUMBER OF CHILDREN:	3
CLASSES WITH A SINGLE CHILD:	248
CLASSES WITH MORE THAN 25 CHILDREN:	3
CLASSES WITH NO DEFINITION:	2320

Visits

Download as CSV



Additional Metadata

NATURAL LANGUAGE	EN
VERSION	1.2
RELEASE DATE	2015-06-29T00:00:00+00:00
KEYWORDS	information extraction, corpus annotation, natural language processing, ontology building, biology, genetics
KNOWN USAGE	Used by the BioNLP Shared task (Bacteria Biotope task) in 2011, 2013 and 2016
NOTES	OntoBiotope is developed and maintained by the Meta-omics of Microbial Ecosystems (MEM) network in which 30 microbiologists from INRA (French National Institute for Agricultural Research) from all fields of applied microbiology participate.
CREATORS	Claire Nédellec
DESIGNED FOR ONTOLOGY TASK	http://omv.ontoware.org/2005/05/ontology#AnnotationTask
ENDORSED BY	INRA (http://www.inra.fr)
FUNDED BY	INRA (http://www.inra.fr)
HAS FORMALITY LEVEL	http://w3id.org/nkos/nkost#ontology
HAS LICENSE	 CC-BY
ONTOLOGY SYNTAX	http://purl.oclc.org/obo/oboformat/spec.html
IS OF TYPE	http://omv.ontoware.org/2005/05/ontology#DomainOntology
PUBLISHER	INRA (http://www.inra.fr)
IDENTIFIER	doi.org/10.15454/14382640528105164E12
COPYRIGHT HOLDER	INRA (http://www.inra.fr)

Reviews

Add your review

No reviews available.

Submissions

SUBMISSION	RELEASE DATE	UPLOAD DATE	DOWLOADS
1.2 (Parsed, Indexed, Metrics, Annotator)	06/29/2015	06/12/2016	OB CSV RDF/XML
BioNLP-ST 2013 version (Archived)	06/29/2015	06/29/2015	OB

Views

Create new view

No views available.

Projects Using This Ontology

Create new project

PROJECT	DESCRIPTION	PEOPLE	INSTITUTION
LOVInra - Linked Open Vocabularies	LOVInra est un service proposé par la Délegation à...	Sophie Aubin (sophie.aubin@versailles.inra.fr)	INRA
OntoBiotope	L'ambition pour OntoBiotope est de normaliser la description...	Claire Nédellec (claire.nedellec@jouy.inra.fr)	INRA
VEST-AgroPortal Map of Standards	This VEST-AgroPortal provides a global map of existing...	Valeria Pesce (valeria.pesce@fao.org)	Food & Agriculture Organization

[includedInDataCatalog](#)

<http://lov.inra.inra.fr/2015/07/30/ontobiotope/> [VEST Registry](#)





Agronomy Ontology

Last uploaded: November 5, 2021

[Summary](#) [Classes](#) [Properties](#) [Instances](#) [Notes](#) [Mappings](#) [Widgets](#)

Details

Acronym	AGRO
Visibility	Public
Description	AgrO is an ontology for representing agronomic practices, techniques, variables and related entities
Status	Alpha
Format	OWL
Contact	Céline Aubert, c.aubert@cgiar.org Marié-Angélique Laporte, m.a.laporte@cgiar.org
Categories	Agricultural Research, Technology and Engineering, Natural Resources, Earth and Environment
Groups	OBO Foundry, Rice Data Interoperability working group

Additional Metadata

URI	http://purl.obolibrary.org/obo/agro.owl
Abstract	An ontology is a formal representation of a disciplinary domain, representing a semantic standard that can be employed to annotate data where key concepts are defined, as well as the relationships that exist between those concepts (Gruber, 2009). Ontologies provide a common language for different knowledge domains to be easily interpretable and interoperable allowing easier aggregation and analysis. The Agronomy Ontology (AgrO) provides terms from the agronomy domain that are semantically organized and can facilitate the collection, storage and use of agronomic data, enabling easy interpretation and reuse by humans and machines alike. To fully understand the implications of varying practices within cropping systems and derive insights, it is often necessary to pull together information from data in different disciplinary domains. For example, data on field management, soil, weather and crop growth may need to be aggregated to assess performance of particular crop under different management interventions. However, agronomic data are often collected, described, and stored in inconsistent ways, impeding data comparison, mining, interpretation reuse. The use of standards for metadata annotation play a key role in addressing these challenges. While the CG Core Metadata Schema provides a metadata standard to describe agricultural datasets, the Agronomy Ontology enables the description of agronomic data variables using standard terms.
Accrual Method	Summit new terms submissions on GitHub issue tracker.
Bug Database	https://github.com/AgriculturalSemantics/agro/issues
Conforms To Knowledge Representation Paradigm	Used BFO as a foundational ontology.
Copyright Holder	CGIAR (http://www.cgiar.org/)
Curated By	Céline Aubert (CGIAR)
Deprecated	false
Endorsed By	CGIAR (http://www.cgiar.org/)
Endpoint	SPARQL
Example Of Use	local:AgrO
Example Identifier	http://purl.obolibrary.org/obo/AGRO_00000002
Funded By	CGIAR (http://www.cgiar.org/)
Contributors	Marié-Angélique Laporte, Céline Aubert, Pier Luigi Buttigieg

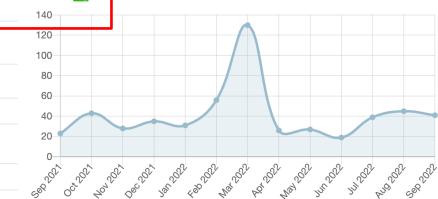
Creators	Marié-Angélique Laporte, Céline Aubert, Elizabeth Arnaud, Medha Devare
Has Domain	http://data.agroportal.iirmm.fr/categories/NATRES , http://data.bioontology.org/categories/TECH
Has Formality Level	http://w3id.org/nkos/nkostype#ontology
Has License	
Ontology Syntax	http://www.w3.org/ns/formats/RDF_XML
Has Prior Version	AGRO/submissions/7
Identifier	http://purl.obolibrary.org/obo/agro-edit.owl
Is Backward Compatible With	BFO
Is Of Type	http://omv.ontoware.org/2005/05/ontology#DomainOntology
Key Classes	http://purl.obolibrary.org/obo/AGRO_01000000 , http://purl.obolibrary.org/obo/AGRO_01000000
Keywords	agricultural experiment, agricultural processes, agricultural implement, fertilizers
Known Usage	AgrO is an ontology for representing agronomic practices, techniques, variables and related entities.
Mailing List	local:agronomyOntology@googlegroups.com
Metadata Vocabulary Used	http://xrnlns.com/rdf/0.1/ , http://www.w3.org/2000/01/rdf-schema# , http://www.geneontology.org/formats/obonOwl# , http://purl.org/dc/elements/1.1/ , http://www.w3.org/2002/07/owl# , http://www.w3.org/2003/11/swrl#
Natural Language	
Notes	The Agronomy Ontology by CGIAR is licensed under CC BY 4.0 (https://creativecommons.org/licenses/by/4.0/).
Ontology Related To	GO , ENVO , https://bioportal.bioontology.org/ontologies/CHEBI , NCBITAXON , PATO , https://bioportal.bioontology.org/ontologies/UO , https://bioportal.bioontology.org/ontologies/OGMS , RO , TO , PO , https://bioportal.bioontology.org/ontologies/IAO , https://bioportal.bioontology.org/ontologies/OBI , PECO
Preferred Namespace Prefix	agro
Publisher	CGIAR (http://www.cgiar.org/)
Release Date	2021-11-05T00:00+00:00
Repository	https://github.com/AgriculturalSemantics/agro
URI Lookup Endpoint	http://data.agroportal.iirmm.fr/search?ontologies=AGRO&require_exact_match=true&q=
URI Regex Pattern	http://purl.obolibrary.org/obo/AGRO_
Use Imports	local:local
Used Ontology Engineering Methodology	Follow the OBO Principle, used Protégé and the Ontology Development Kit.
Used Ontology Engineering Tool	http://protege.stanford.edu
Version	1.0
Version IRI	http://purl.obolibrary.org/obo/agro/releases/2018-05-14/agro.owl

Submissions

Version	Released	Modified	Uploaded	Downloads
1.0 (Parsed, Indexed, Metrics, Annotator)	11/05/2021	11/05/2021	OWL CSV RDF/XML DIFF	
1.0 (Archived)	07/01/2021	07/01/2021	OWL DIFF	
1.0 (Archived)	06/30/2021	06/30/2021	OWL DIFF	
1.0 (Archived)	04/04/2020	04/04/2020	OWL DIFF	
1.0 (Archived)	05/14/2018	12/13/2018	OWL DIFF	

[More](#)

Visits



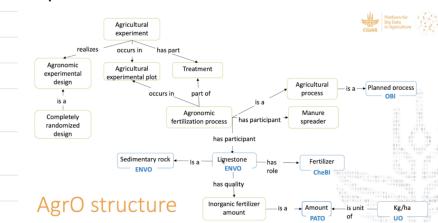
includedInDataCatalog

<https://fairsharing.org/bsg-s000733> The OBO Foundry
[Ontobee](#) [BioPortal](#) [EBI Ontology Lookup](#) [AberOWL](#)

Logo



Depiction



AgrO structure

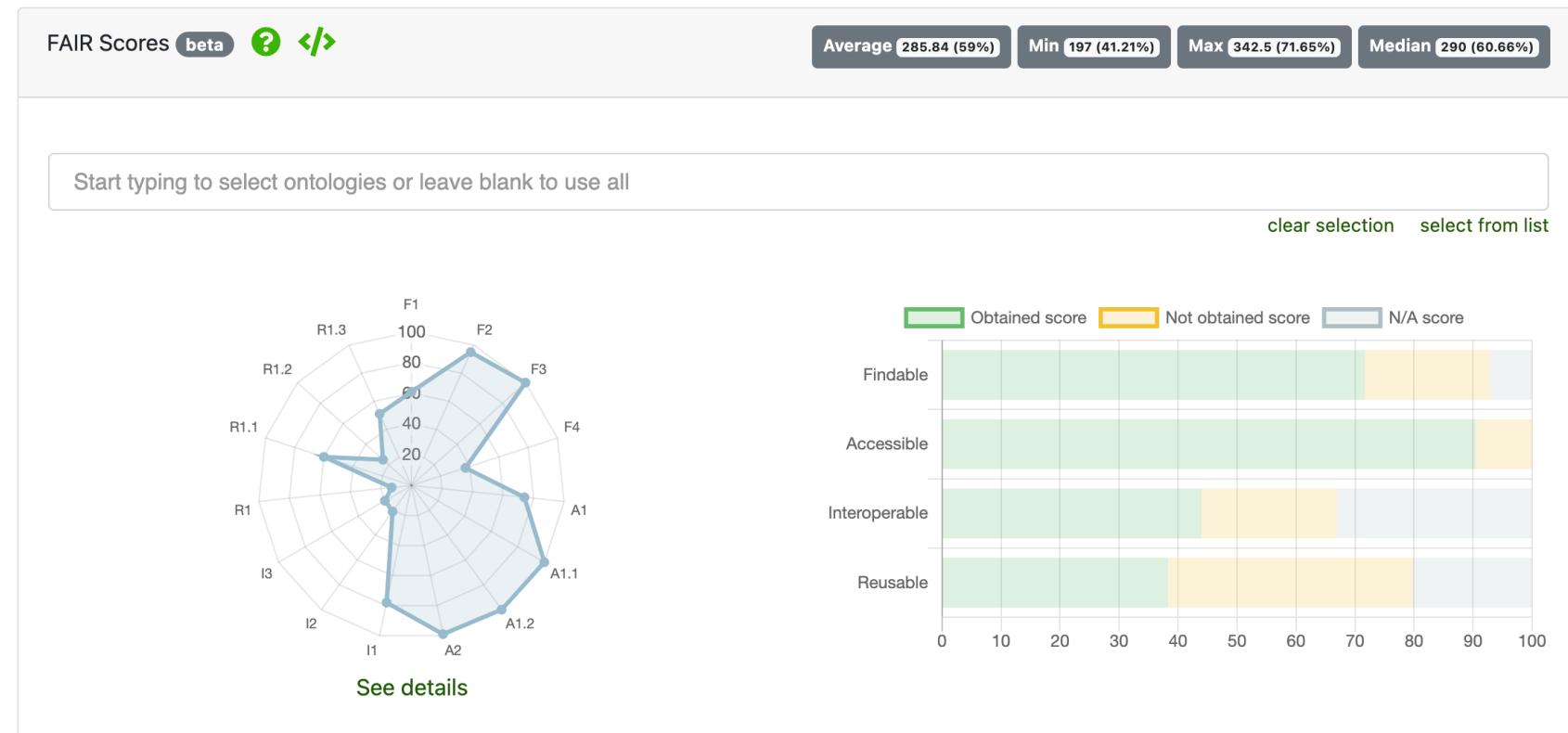
- Agricultural Model Intercomparison and Improvement Project
- Agrisemantics Map of Data Standards
- Agronomy Field Information Management System
- Collaborative Open Plant Omics
- Data to Knowledge in Agronomy and Biodiversity



O'FAIRe: Ontology FAIRness Evaluator

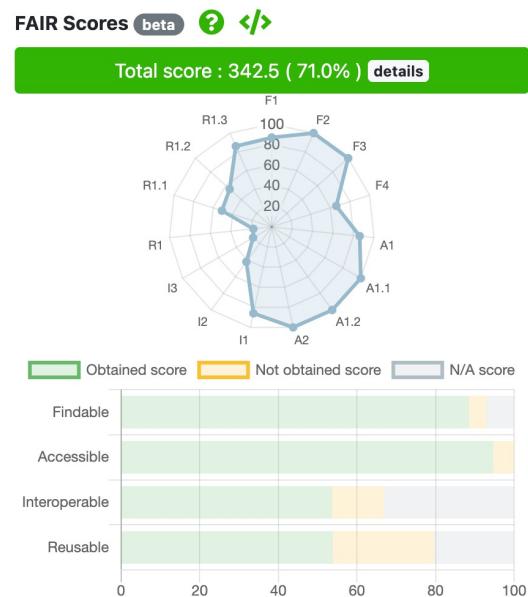
- A methodology
 - Which uses as much as possible assigned metadata values to answer a series of questions, specialized for semantic resources

- A tool
 - A web service working with any OntoPortal installations respecting the MOD1.4 metadata profile to harmonize metadata



O'FAIRe in AgroPortal: Demo

Get the FAIRness score of
a given ontology



Get the explanations

FAIRness assessment questions

F1: Ontologies and ontology metadata are assigned a globally unique and persistent identifier.

36.0 (87%) 5.0 (13.0%)

F1Q1: Does the ontology have a "local" identifier, i.e., a globally unique and potentially permanent identifier assigned by the developer (or developing organization)? 9 / 9

See possible credits See metadata used properties

owl:ontologyIRI <http://purl.oblibrary.org/obo/agro.owl>

F1Q2: Does the ontology provide an additional "external" identifier, i.e., a guarantee globally unique and persistent identifier assigned by an accredited body? If yes, is the external identifier a DOI? 6 / 11

See possible credits See metadata used properties

F1Q3: Are the ontology metadata clearly identified either by the same identifier than the ontology itself or by an external identifier? 1 / 1

See possible credits See metadata used properties

F1Q4: Is the ontology metadata available in a standard format? 1 / 1

See possible credits See metadata used properties

F2: Data is presented in a machine-readable format that can be easily processed by a computer.

F2Q1: Does the ontology use a standard schema or vocabulary? 10 / 10

See possible credits See metadata used properties

F2Q2: Does the ontology use a standard schema or vocabulary? 10 / 10

See possible credits See metadata used properties

F2Q3: Does the ontology use a standard schema or vocabulary? 10 / 10

See possible credits See metadata used properties

F3: Data is openly licensed under a permissive license that permits reuse and redistribution with an explicit permission notice included.

F3Q1: Is the ontology openly licensed under a permissive license that permits reuse and redistribution with an explicit permission notice included? 10 / 10

See possible credits See metadata used properties

F4: Data is clearly described using a shared vocabulary and its meaning can be automated.

F4Q1: Is the ontology clearly described using a shared vocabulary and its meaning can be automated? 10 / 10

See possible credits See metadata used properties

A1: Data is freely available to anyone via an open access provider.

A1Q1: Is the ontology freely available to anyone via an open access provider? 10 / 10

See possible credits See metadata used properties

A1.1: Data is freely available to anyone via an open access provider.

A1.1Q1: Is the ontology freely available to anyone via an open access provider? 10 / 10

See possible credits See metadata used properties

Get the FAIRness score of
a group of ontologies

FAIR Scores beta ? </>

Average 314 (65%) Min 300 (62.76%) Max 323 (67.67%) Median 319 (66.73%)

Animal Health Ontology for Livestock (AHOL) ✕ Environment Ontology for Livestock (EOL) ✕
Animal Trait Ontology for Livestock (ATOL) ✕

clear selection select from list

This interface shows how an ontology or a group responded successfully to O'FAIRe FAIRness assessment questions. See details for each ontologies on the specific ontology summary pages

hover on a principle to see details

Obtained score Not obtained score N/A score

F1: Ontologies and ontology metadata are assigned a globally unique and persistent identifier.

3 (100%) responded successfully to: F1Q1: "Does the ontology have a "local" identifier, i.e., a globally unique and potentially permanent identifier assigned by the developer (or developing organization)?"

Obtained score: 78.04 (32%) Not obtained score: 21.95 (9%) N/A score: 0 (0%)

3 (100%) responded successfully to: F1Q2: "Does the ontology provide an additional "external" identifier, i.e., a guarantee globally unique and persistent identifier assigned by an accredited body? If yes, is the external identifier a DOI?"

3 (100%) responded successfully to: F1Q3: "Are the ontology metadata clearly identified either by the same identifier than the ontology itself or by an external identifier?"

3 (100%) responded successfully to: F1Q4: "Is the ontology metadata available in a standard format?"

3 (100%) responded successfully to: F2Q1: "Does the ontology use a standard schema or vocabulary?"

3 (100%) responded successfully to: F2Q2: "Does the ontology use a standard schema or vocabulary?"

3 (100%) responded successfully to: F2Q3: "Does the ontology use a standard schema or vocabulary?"

3 (100%) responded successfully to: F3Q1: "Is the ontology openly licensed under a permissive license that permits reuse and redistribution with an explicit permission notice included?"

3 (100%) responded successfully to: F4Q1: "Is the ontology clearly described using a shared vocabulary and its meaning can be automated?"

A1: Data is freely available to anyone via an open access provider.

A1Q1: Is the ontology freely available to anyone via an open access provider? 10 / 10

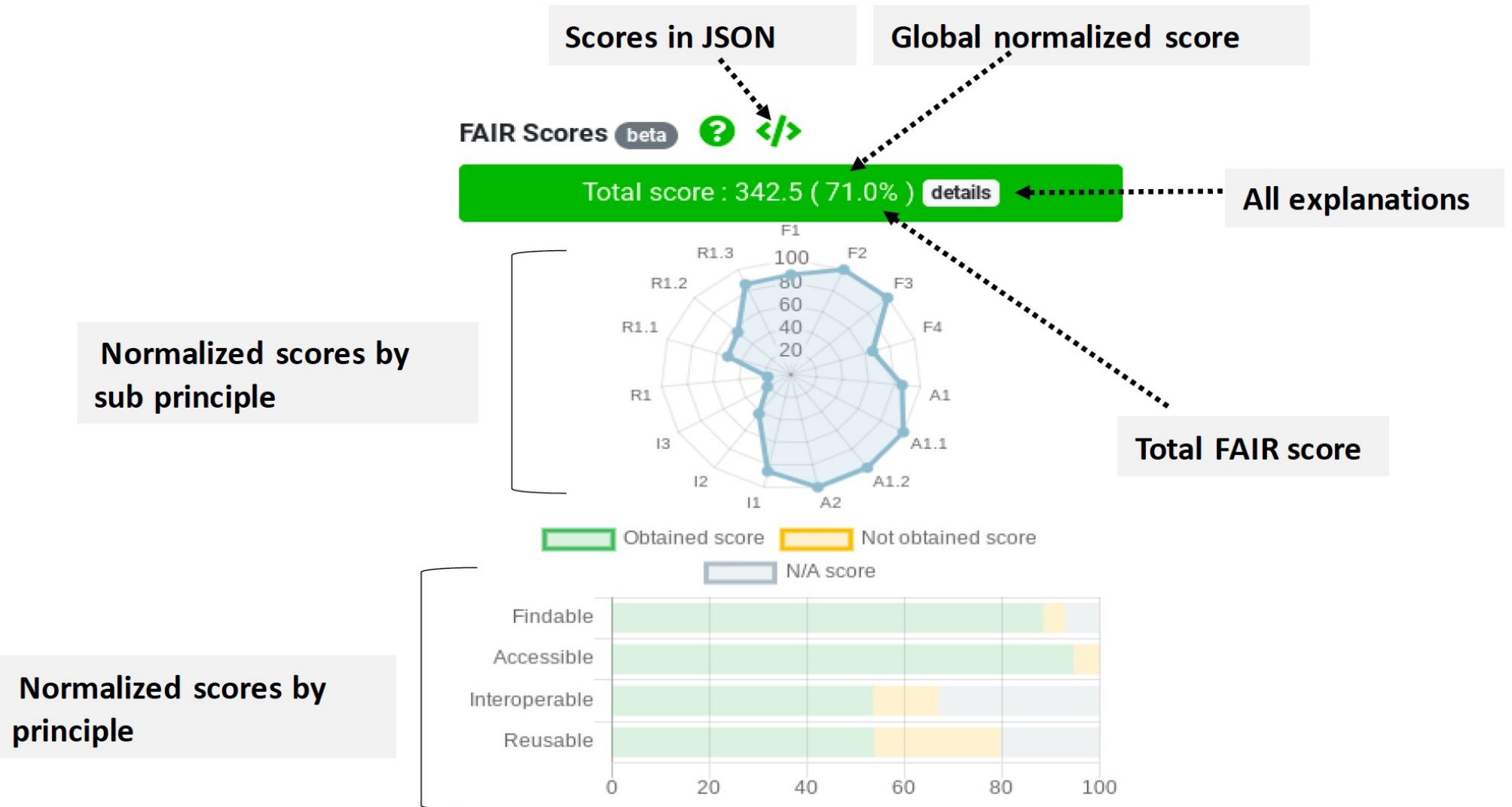
See possible credits See metadata used properties

A1.1: Data is freely available to anyone via an open access provider.

A1.1Q1: Is the ontology freely available to anyone via an open access provider? 10 / 10

See possible credits See metadata used properties

Get a FAIRness score for a given ontology



Get explanations

FAIRness assessment questions

F1

F1Q1

F1Q2

F1Q3

F1Q4

F2



Click & Check

Question

F1Q1 : Does the ontology have a "local" identifier, i.e., a globally unique and potentially permanent identifier assigned by the developer (or developing organization)?

See possible credits

See metadata used properties

Ontology URI is absent.

Ontology URI is present but invalid.

Ontology URI is present and valid.

9 / 9

0.0

3.0

9.0

Possible credits

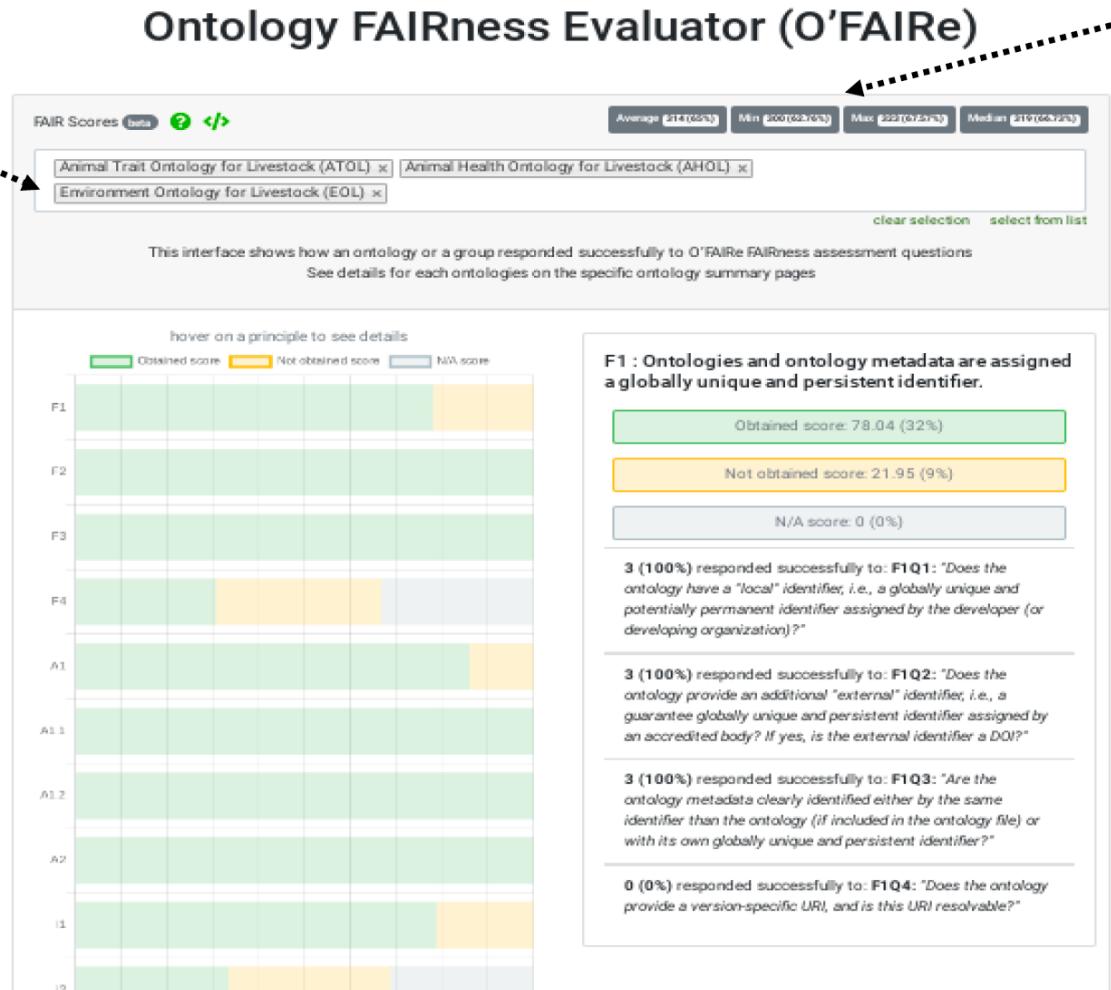
owl:ontologyIRI <http://purl.obolibrary.org/obo/agro.owl>

valid metadata are in green (invalid metadata are in red)



Get the FAIRness score of a group of ontologies

Listing of ontologies



**Normalized FAIR scores statistics:
Average, Min, Max, Median**

[http://agroportal.lirmm.fr/
landscape](http://agroportal.lirmm.fr/landscape)

**Normalized
scores by sub
principle**

Web service (O'FAIRe returns a JSON with the following structure)

```
{  
  "ontologies": {  
    "FCU": { // ontology acronym  
      "Findable": { // FAIR principal  
        "F1": { // Subprincipal  
          "label": "Ontologies and ontology metadata are assigned a globally unique and persistent identifier  
          "results": {  
            "F1Q1": {  
              "question": "Does an ontology have a \"local\" identifier i.e., a globally unique and persistent identifier?",  
              "score": 9,  
              "explanation": "Present and valid ontology URI.", //Score explanation  
              "properties": { //List of properties used in the test with their values  
                "owl:ontologyIRI": "http://ontology.inrae.fr/frenchcropusage"  
              },  
              "maxCredits": 9,  
              "points": [ //Array of possible scores and explanation for this question  
                {  
                  "explanation": "Ontology URI is not present.",  
                  "score": 0  
                },  
                {  
                  "explanation": "Present but invalid ontology URI.",  
                  "score": 3  
                },  
                {  
                  "explanation": "Present and valid ontology URI.",  
                  "score": 9  
                }  
              ]  
            }  
          }  
        }  
      }  
    }  
  }  
}
```

<http://services.agroportal.lirmm.fr/oaire?ontologies=AGRO>

Or

<http://services.agroportal.lirmm.fr/oaire?ontologies=ATOL,EOL,AHOL&combined>

O'FAIRe in summary

- Name: Ontology FAIRness evaluator
- Base URL: <http://services.agroportal.lirmm.fr/ofaire>
- Version: V2.0
- FAIRness assessment methodology: 61 questions
- Output: FAIR score of an ontology/group of ontologies
- Code & doc: <https://github.com/agroportal/fairness>
- Reference: E. Amdouni, S. Bouazzouni, C. Jonquet, O'FAIRe makes you an offer: Metadata-based Automatic FAIRness Assessment for Ontologies and Semantic Resources, Int. J. of Metadata, Semantics and Ontologies, Inderscience, 2022, (<https://hal.archives-ouvertes.fr/lirmm-03630233>)

- Deployments:



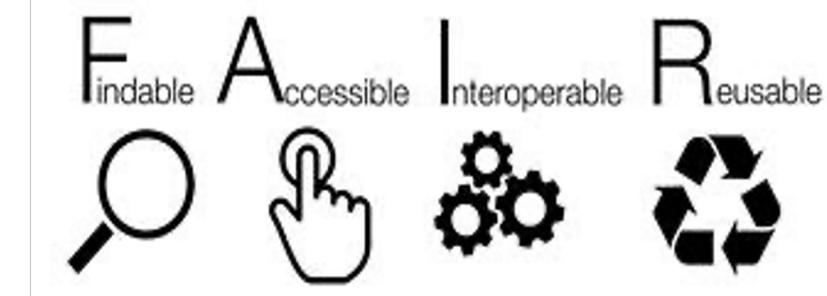
O'FAIRe in publications



- E. Amdouni, S. Bouazzouni, C. Jonquet, **O'FAIRe makes you an offer: Metadata-based Automatic FAIRness Assessment for Ontologies and Semantic Resources**, Int. J. of Metadata, Semantics and Ontologies, Inderscience, 2022. <https://hal.archives-ouvertes.fr/lirmm-03630233>
- E. Amdouni, S. Bouazzouni, C. Jonquet. **O'FAIRe: Ontology FAIRness Evaluator in the AgroPortal semantic resource repository**. *ESWC 2022 - 19th Extended Semantic Web Conference, Poster and demonstration*, May 2022, Hersonissos, Greece. [10.1007/978-3-031-11609-4_17](https://doi.org/10.1007/978-3-031-11609-4_17)
- E. Amdouni, C. Jonquet. **FAIR or FAIRer? An integrated quantitative FAIRness assessment grid for semantic resources and ontologies**. *MTSR 2021 - 15th International Conference on Metadata and Semantics Research*, Nov 2021, Madrid, Spain. pp.67-80. [10.1007/978-3-030-98876-0_6](https://doi.org/10.1007/978-3-030-98876-0_6)

Conclusion on O'FAIRe

- An approach built from other methods and contributions in the FAIR ecosystems but much more complete in terms of aspects covered
- A generic methodology with a reference evaluation grid (assuming the metadata descriptions are provided)
 - ➔ *Questions can changed or be added/removed without changing the method*
 - ➔ *Customizable to enhance/ignore certain aspects of FAIR*
- A web service working with OntoPortal ontology repositories implementing 51/61 of O'FAIRe questions
- Easier identification and selection of ontologies to use.
- FAIRer ontologies!





Questions ?

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