NFDI4Ing Conference 2022

(What is) Metadata4Ing(?)

An ontology for describing the generation and provenance of research data within a scientific activity

Susanne Arndt (TIB) (0000-0002-1019-9151) &
Dorothea Iglezakis (0000-0002-8524-0569), Džulia Terzijska (0000-0002-1698-6826), Giacomo Lanza (0000-0002-2239-3955), Johanna Hickmann (0000-0002-7535-8344), Stephan Hachinger (0000-0001-8341-1478), Vasiliki Sdralia (0000-0002-7213-5110)

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- What’s an ontology?
- Can I download m4i?
- What can I do with it?

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What's an ontology?

Ontologies are…

All icons credited on slides 26f.

- formal,
- explicit,
- standardized,
- machine-understandable,
- consensus-based

representations of knowledge.

They are

- collections of concepts and relations,
- sets of explicit logical axioms,
- specifications for the representation of knowledge

in an „area of concern".

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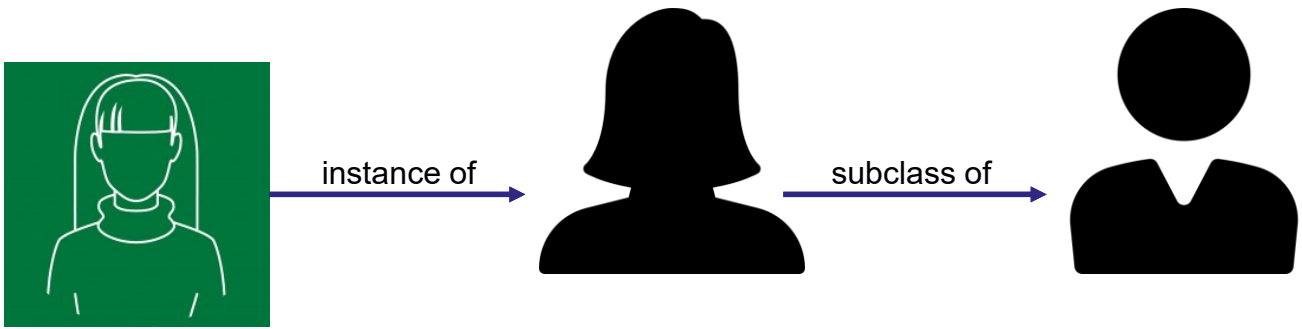
What are the main elements of an ontology?

aka: Classes, Properties, and Individuals – And Basic Modeling With Them



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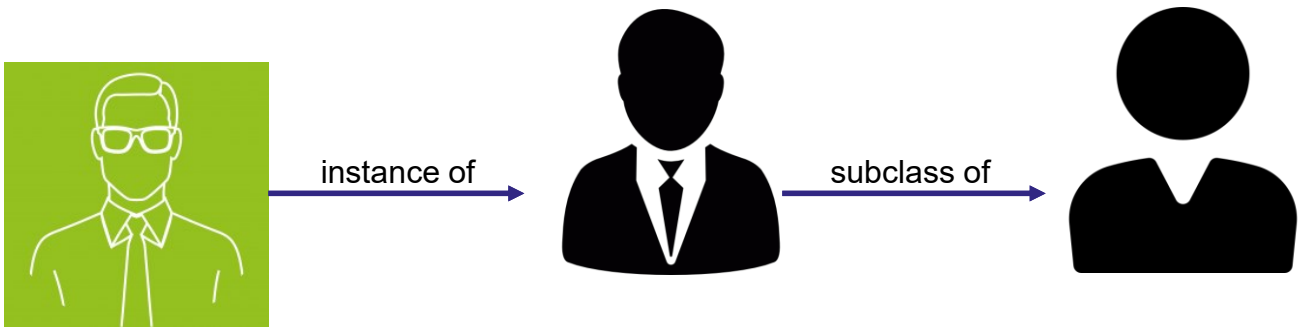

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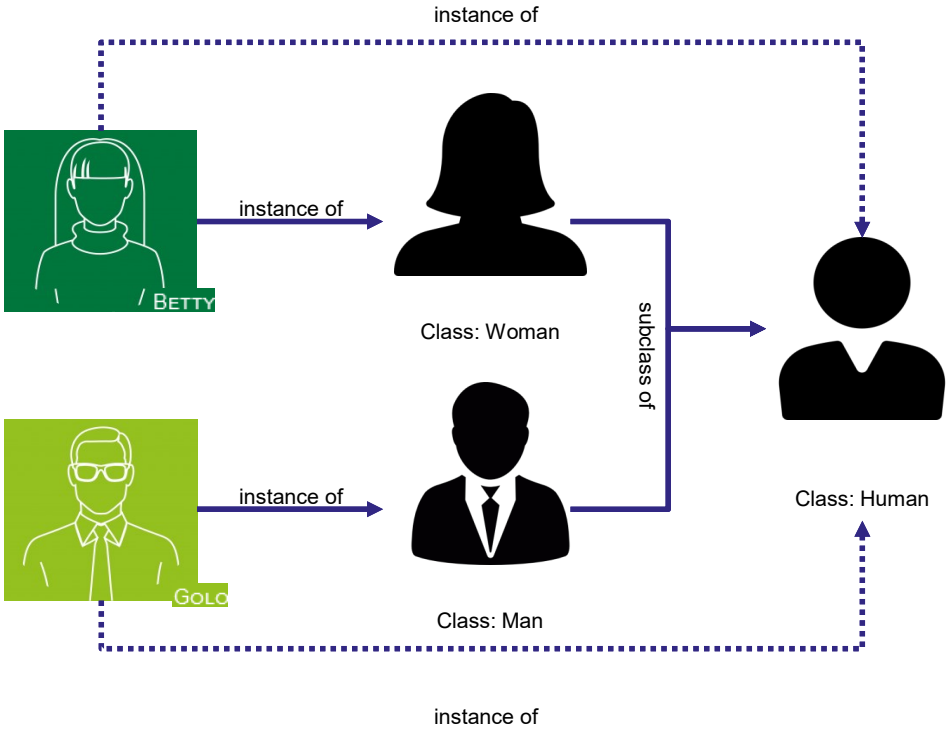

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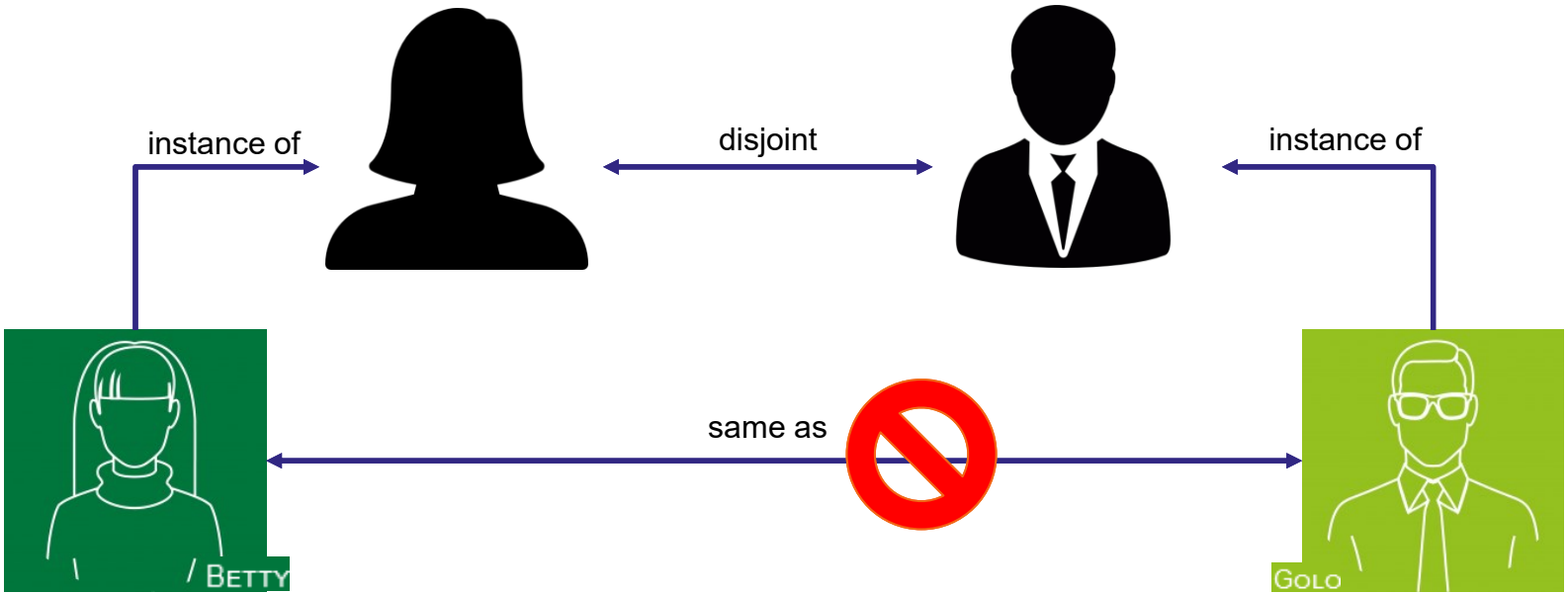

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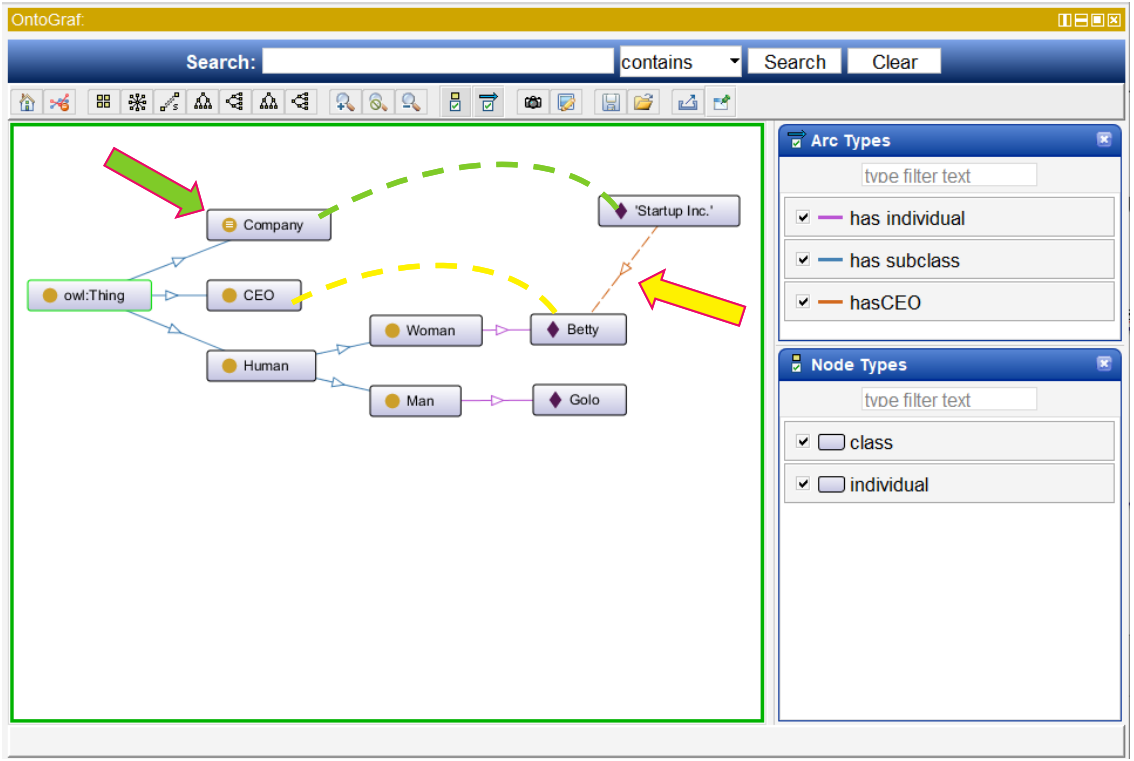

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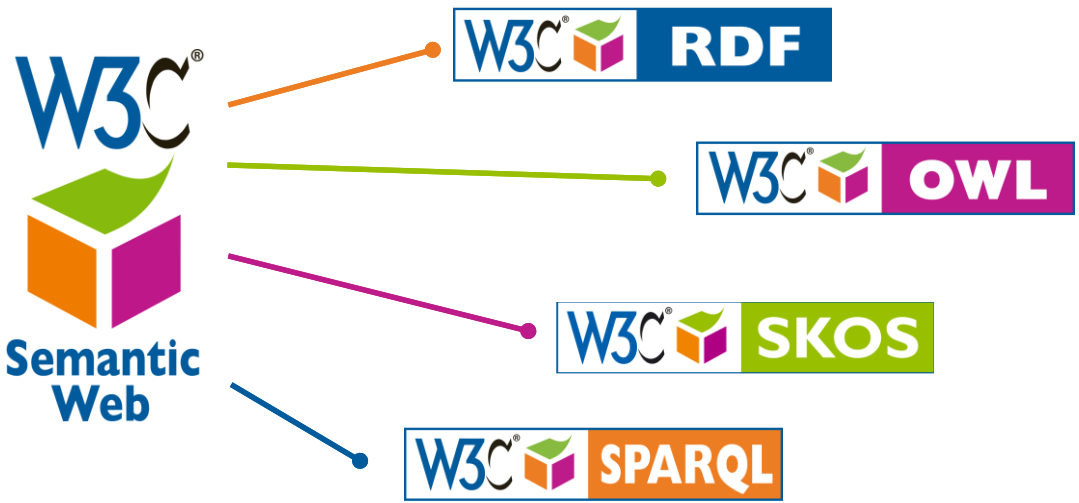
Which standards govern ontology engineering?

Ontologies as a backbone for the Web of Data



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Where is m4i? Can I download it?

https://w3id.org/nfdi4ing/metadata4ing/

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Where is m4i? Can I download it?

curl –H "Accept: application/json" https://w3id.org/nfdi4ing/metadata4ing/

```
$ curl -H "Accept: application/json" https://w3id.org/nfdi4ing/metadata4ing/
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100   361  100   361    0     0    928      0 --:--:-- --:--:-- --:--:--   932<!DOCTYPE
HTML PUBLIC "-//IETF//DTD HTML 2.0//EN">
<html><head>
<title>303 See Other</title>
</head><body>
<h1>See Other</h1>
<p>The answer to your request is located <a href="https://nfdi4ing.pages.rwth-
aachen.de/metadata4ing/metadata4ing/ontology.jsonld">here</a>.</p>
<hr>
<address>Apache/2.4.29 (Ubuntu) Server at w3id.org Port 443</address>
</body></html>
```


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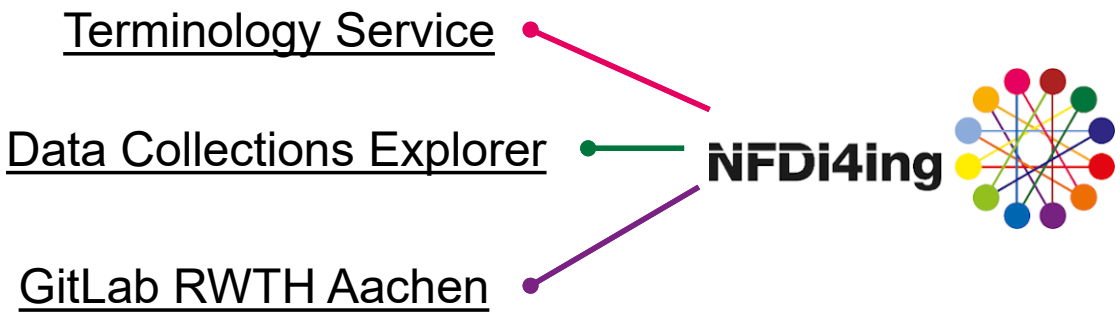
Where is m4i? Can I download it?

Other locations and registrations



Registered at:

- Wikidata (Q111516803)
- FAIRsharing.org (3804)
- Linked Open Vocabularies (m4i)
- Bartoc (20402)

Archived at:

- Zenodo (doi:10.5281/zenodo.5957104)

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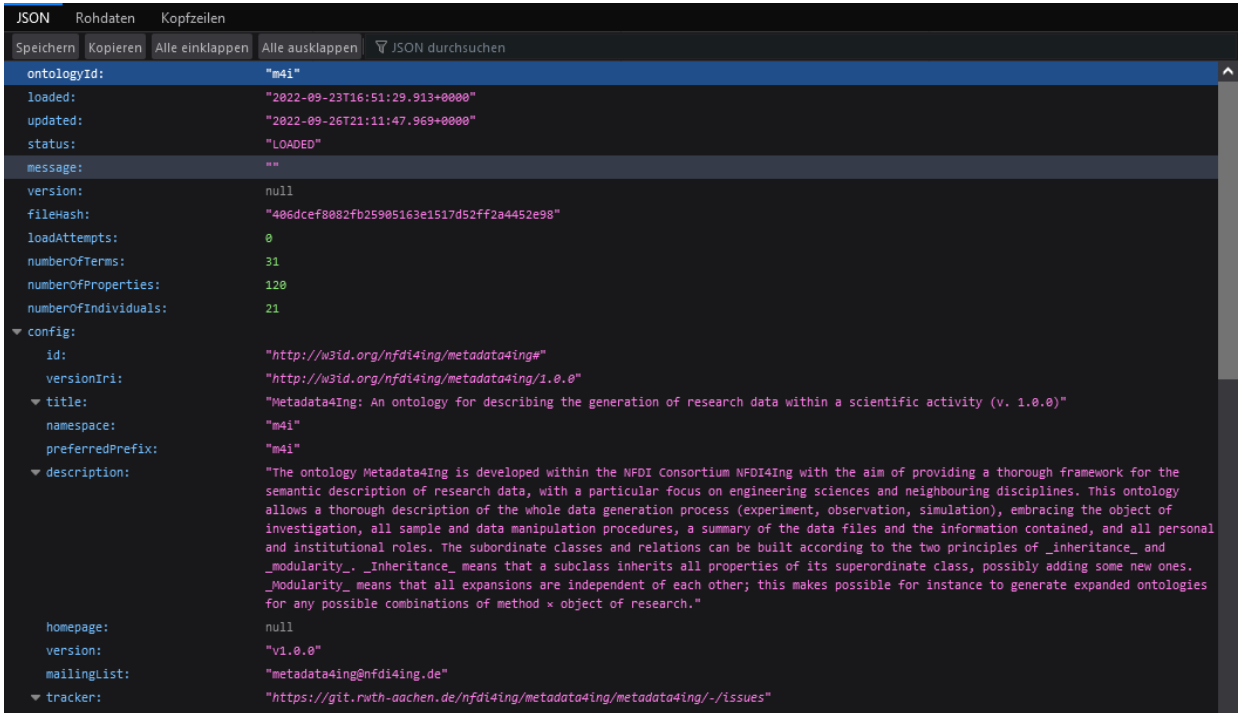
Where is m4i? Can I download it?

Terminology Service API e.g. m4i metadata (https://tinyurl.com/meta4m4i)



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Why apply ontologies in research data management?

Ontologies help to

- avoid the ambiguity of of natural langage terms
- provide persistent identifiers to ontology terms
- define domain concepts and relations with formal logic
- make implicit assumptions explicit
- share domain knowledge with your peers
- standardize terminology and knowledge representation within a domain
- annotate unstructured data (e.g. research papers) with ontology entities
- improve recall and precision of queries
- discover knowledge by logical reasoning and inferencing
- check for consistencies
- provide connections between data
- make data integration easier
- automatically process knowledge, e.g. in visualization, comparison, navigation
- make logical queries over data possible
- make data machine-understandable

to be continued...

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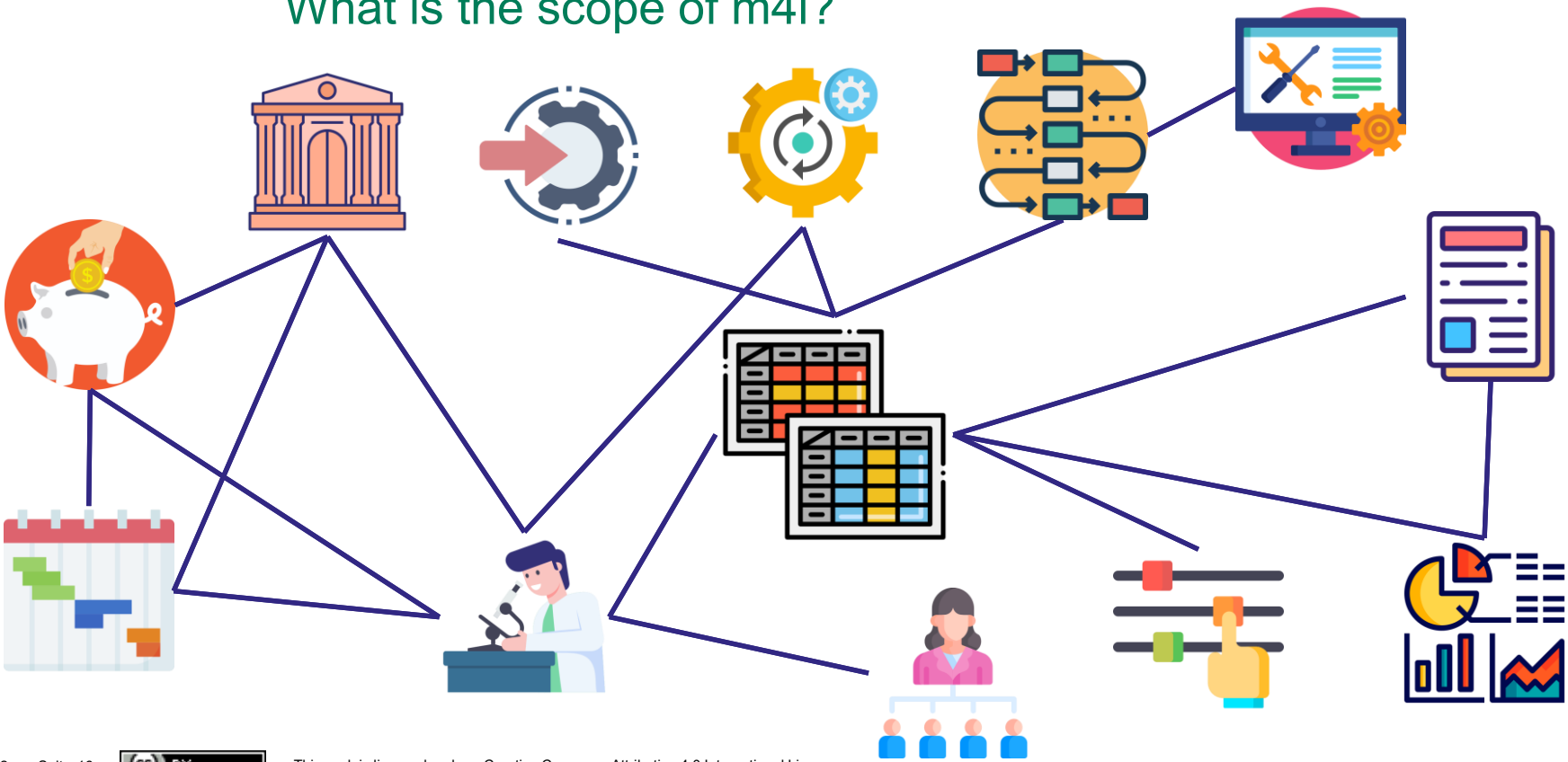
What is the scope of m4i?



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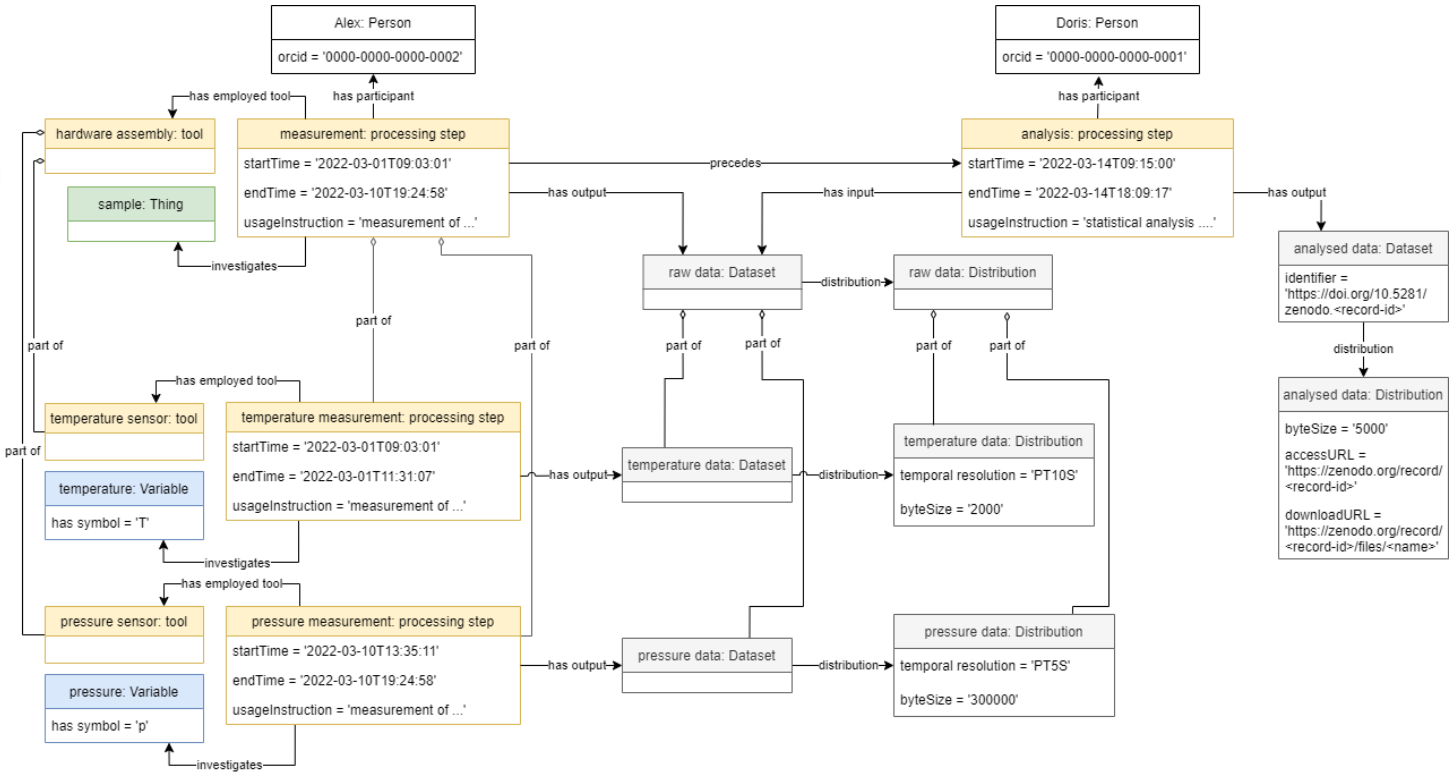
How can I use m4i?

https://tinyurl.com/docs-m4i



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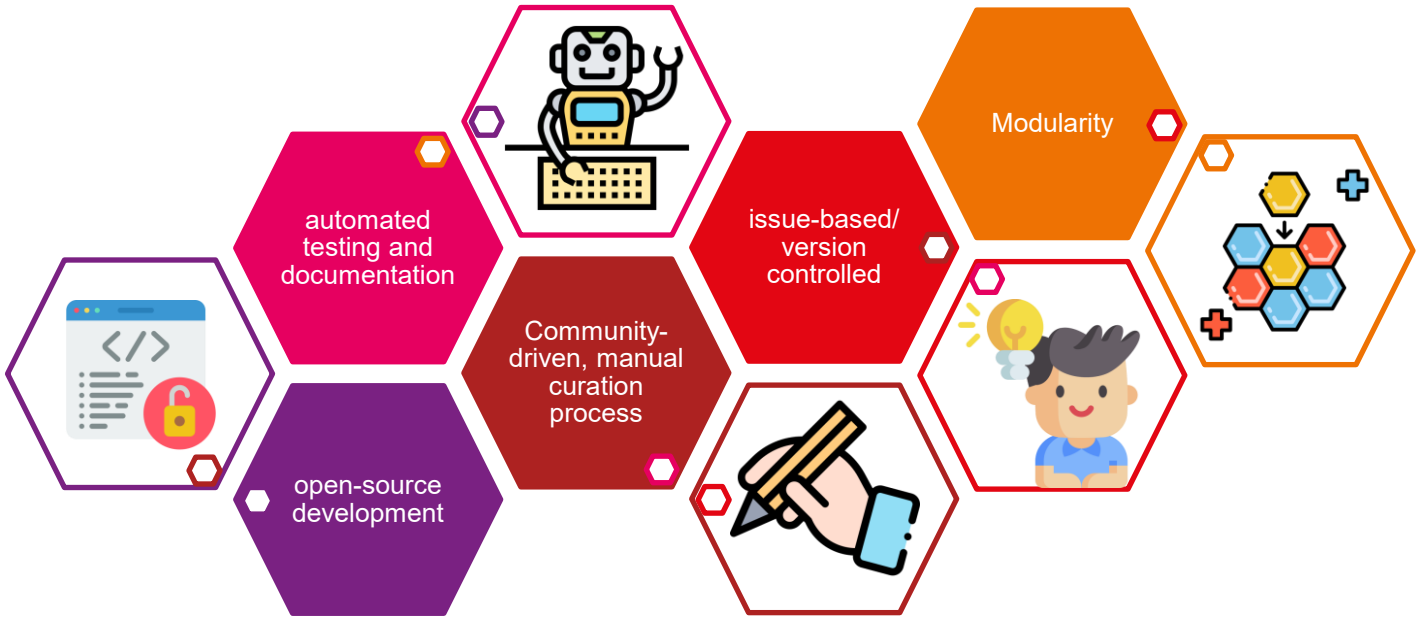
What is the development process of m4i?



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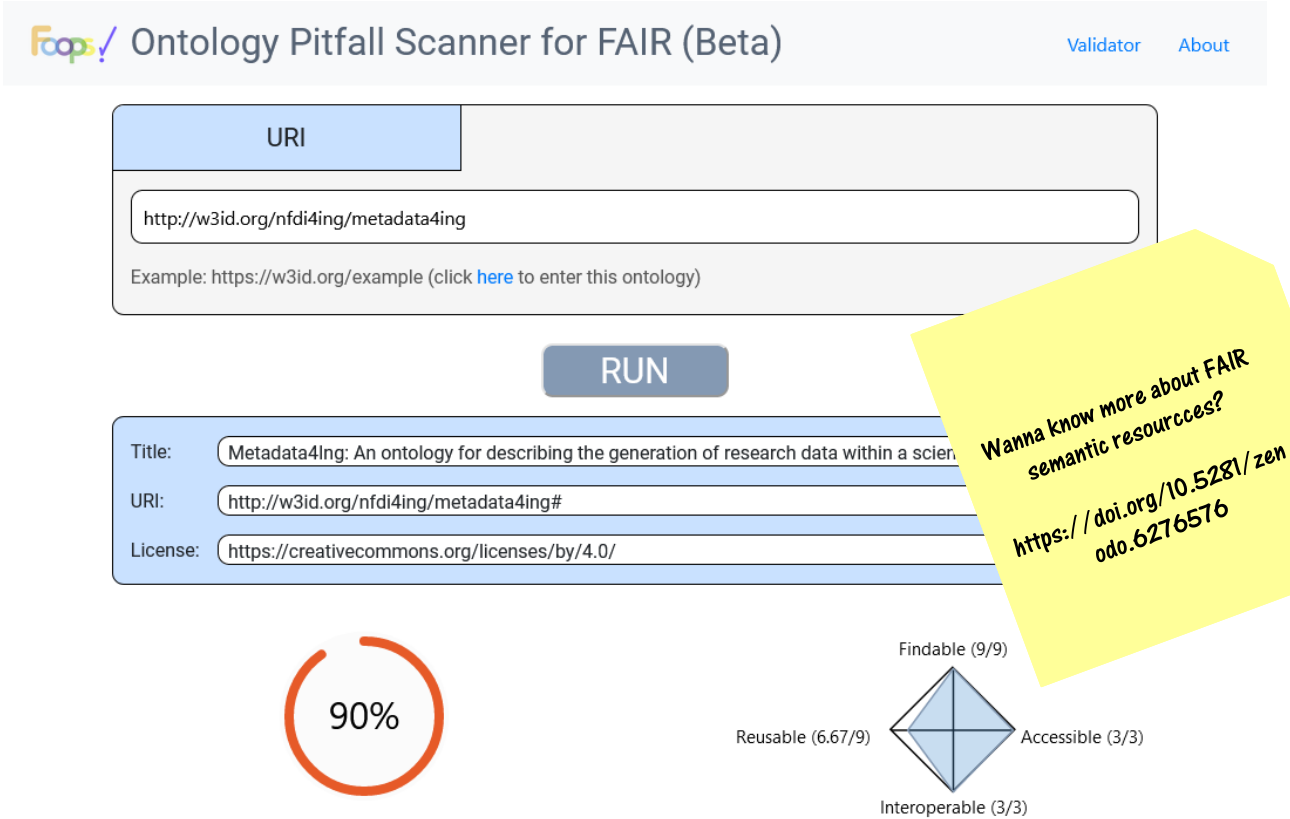
How FAIR is m4i?



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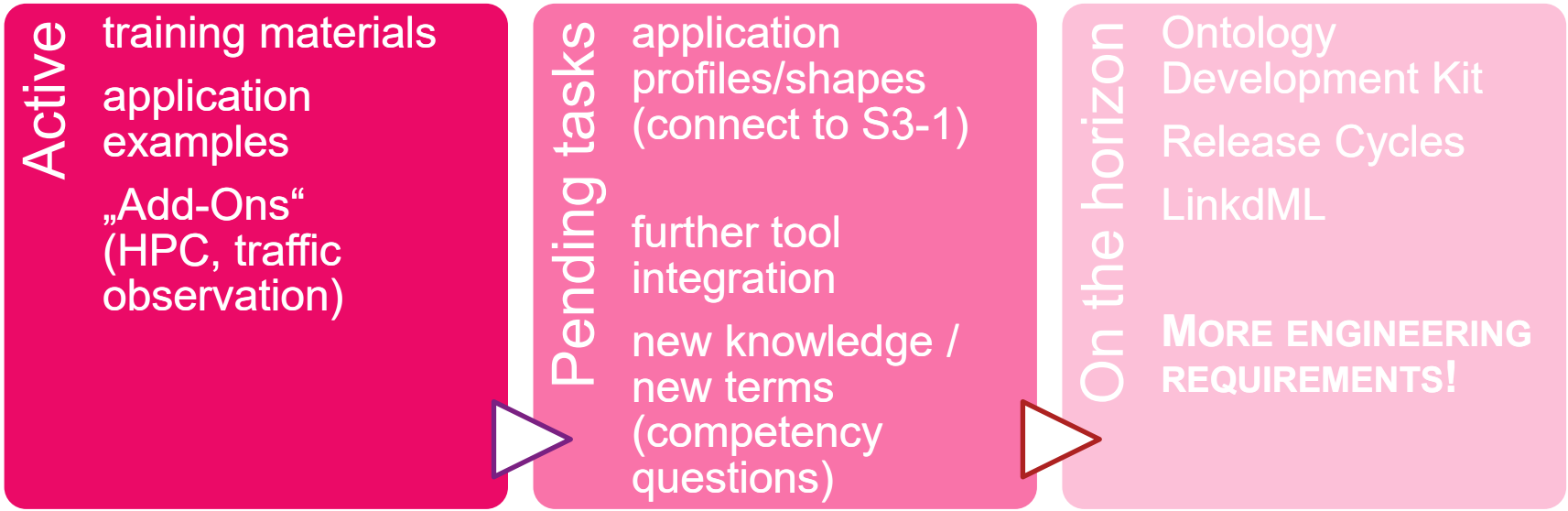
Are further developments planned? What could be optimized?

YES! YES! YES!



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How can the engineering community become involved in m4i?

Send feedback to the crew or join us:

- Mailinglist: Mail to metadata4ing[at]nfdi4ing.de to subscribe
- Web call every two weeks
  next meeting: Wednesday, 09:15 a.m. CET at
  https://conf.dfn.de/webapp/conference/97972246
- Join us on GitLab to make your issues known or contribute suggestions:
  https://git.rwth-aachen.de/nfdi4ing/metadata4ing/metadata4ing
  (GitHub or DFN-AAI account required)

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What's the Metadata4Ing work group?

Ashish Karmacharya	Benjamin Farnbacher	Cord Wiljes	**Dorothea Iglezakis**	**Džulia Terzijska**	**Giacomo Lanza**
Johanna Hickmann	Johannes Theissen-Lipp	Johannes Munke	Jürgen Windeck	Marc Fuhrmans	Martin Thomas Horsch
Nils Hoppe	Sophia Leimer	**Stephan Hachinger**	**Susanne Arndt**	**Vasiliki Sdralia**	**Open to the community !**

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Why do we invite you to participate in ontology engineering?

- You know engineering data best!
- We want to meet your requirements!
- You can ensure the scientific adequacy of domain ontologies!

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Thank you!

More questions?

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