



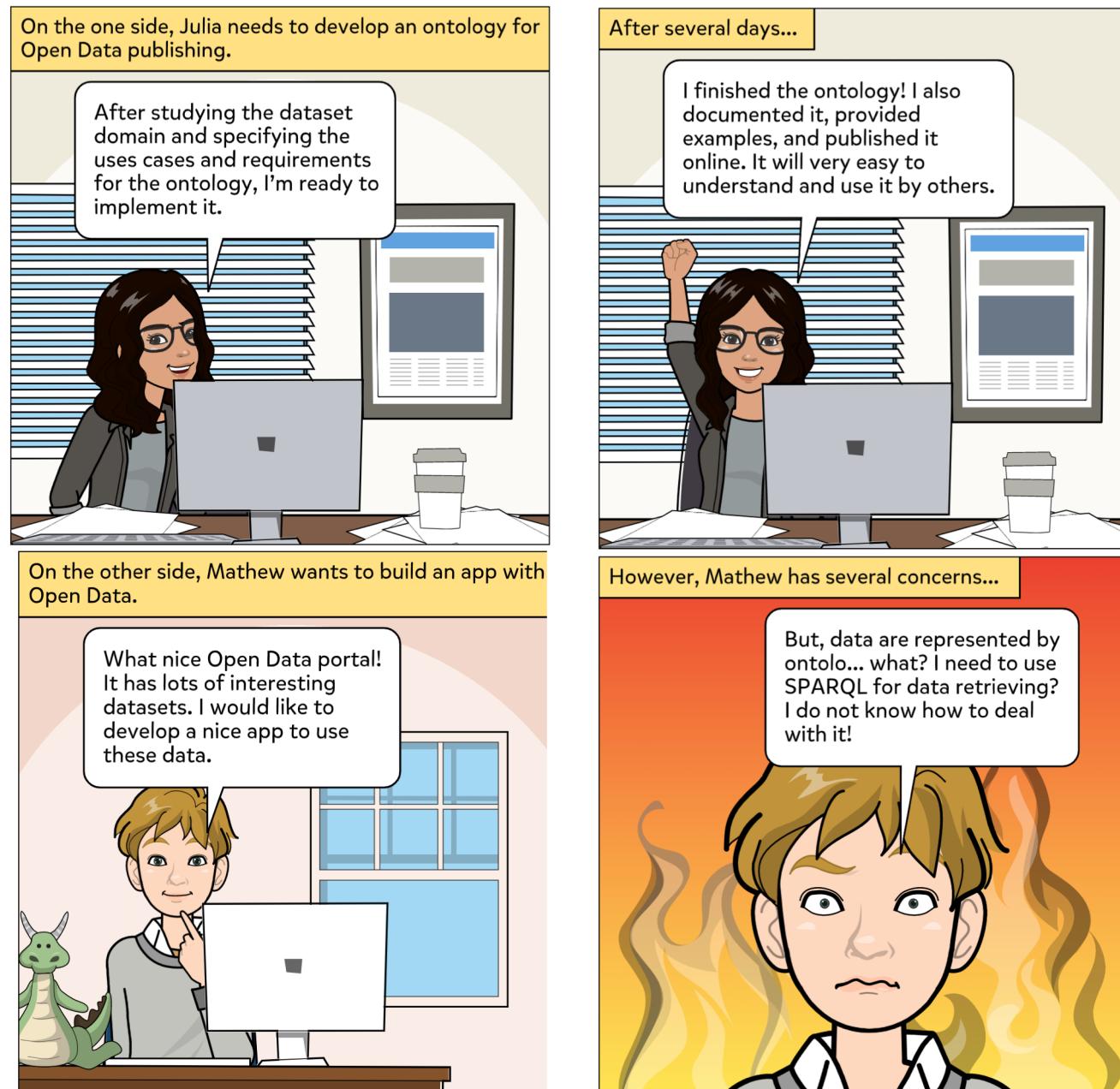
Extending ontology engineering practices to facilitate ontology-based application development

Paola Espinoza-Arias, Oscar Corcho
Ontology Engineering Group
Universidad Politécnica de Madrid

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- Nowadays, public and private organizations have adopted a knowledge-based approach.
- In this approach ontologies are crucial.
- There are several methodologies for ontology development aiming to guide the ontology engineer's work.

Problem Statement



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- Why methods to ease ontology usage are needed?

- Methodologies for ontology development do not pay special attention to how the ontology will be used by Application Developers.



- Application Developers are not familiar with semantic technologies.

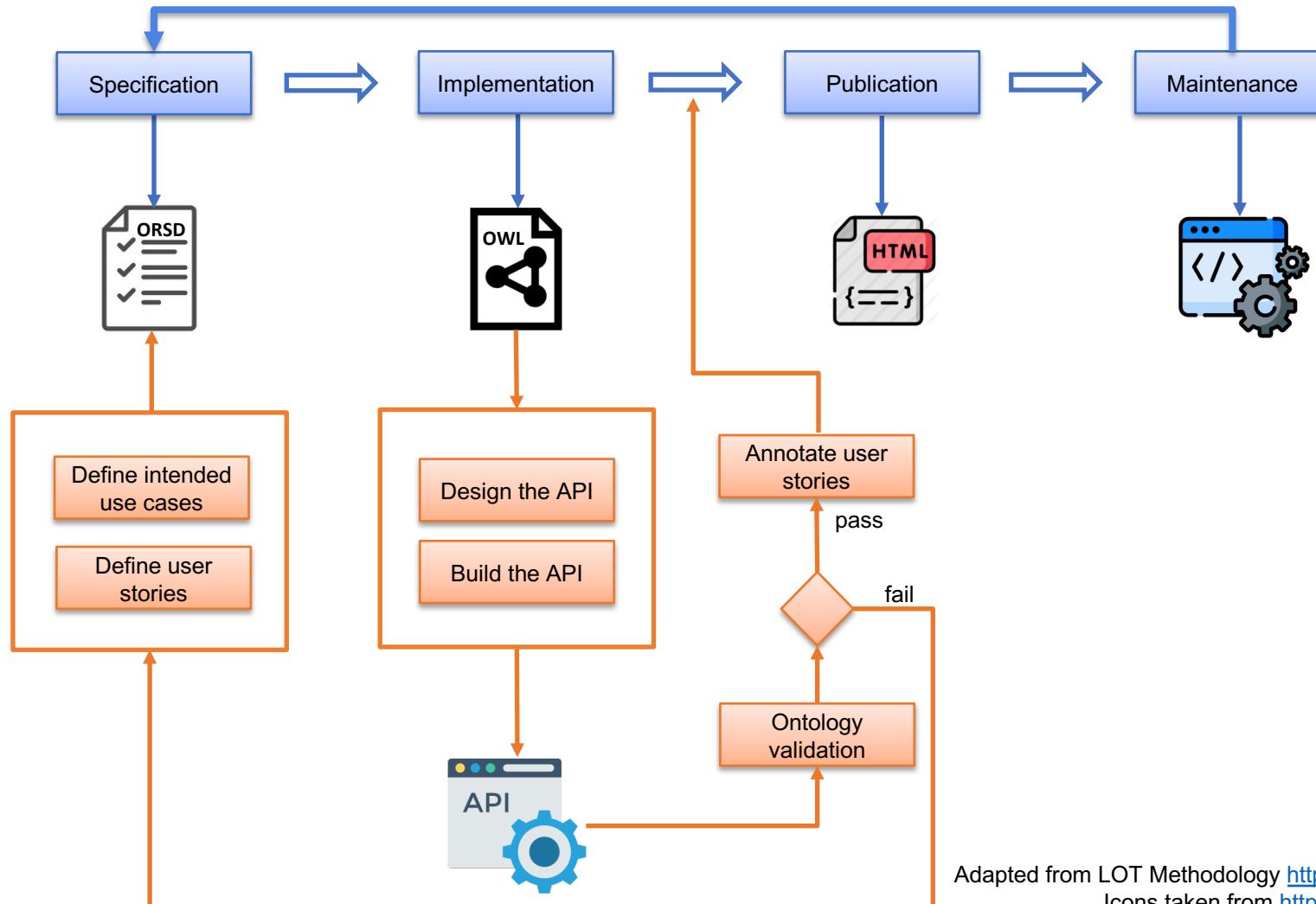


- Specifications for Linked Data publication, e.g. Linked Data Platform, Linked Data API.
- Tools for Web API generation on top of SPARQL endpoints, such as BASIL, grlc, R4R, among others.
- Tool for Ontology Based APIs (OBA).

- RQ: Does the intended use cases of ontologies facilitate ontology-based application development?
- *Hypothesis 1:* The intended use cases of the ontology, defined during the specification activity, eases the understanding of Open Data usage.
- *Hypothesis 2:* Ontology-based APIs facilitate Application Developers the ontology usage compared to other approaches.
- *Hypothesis 3:* Ontology-based APIs improve ontology validation regarding its intended use cases.

- *Assumption 1:* Ontologies for Open Data publication are **lightweight**.
- *Assumption 2:* There are a set of **common intended use cases** for Open Data annotated by these ontologies.
- *Assumption 3:* Application Developers are mostly familiar with **APIs**. APIs are like User Interfaces for developers.

- A method for ontology-based API generation based on the intended use cases.



Adapted from LOT Methodology <https://lot.linkeddata.es>
Icons taken from <https://www.flaticon.com>

- **Experiment:**
 - Given a set of ontologies for Open Data publication and their intended use cases.
 - Generate APIs from these ontologies. These APIs will be generated with our approach and one/two from the SoA.
 - Give a set of task to Application Developers and see how they use these APIs to execute them.
- **Expected results:**
 - Application developers spends less time understanding our ontology-based API approach and as a result less time doing those given tasks compared to other tools.
 - Data retrieved from the ontology-based API is enough to solve the intended use cases of the ontology.

- Ontology Engineering still needs to bridge several gaps.
- Open Data requires a data-driven ontology development thus the intended use cases are important to gather the main concepts and its relations and test the ontology.
- The presented approach tackles an unexplored problem in the literature: *ontology-based API generation to facilitate ontology usage.*

- Papers in the pipeline:
 - Crossing the Chasm between OWL Ontology Engineering and Application Development.
 - Extending Ontology Engineering practices to facilitate ontology-based Application Development.



GIF taken from <https://giphy.com>



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