

## **Ontologies Guidelines and Evaluation of Ontologies Mapping Tools and Algorithms**

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### **Abstract**

#### **1. Introduction**

The Pistoia Alliance Ontologies Mapping project<sup>1</sup> was set up to find or create better tools or services for mapping between ontologies in the same domain and to establish best practices for ontology management in the Life Sciences. It was selected by the Pistoia Alliance Operations Team for development of a formal business case following proposal of the idea through the Pistoia Alliance Ideas Portfolio Platform (IP3)<sup>2</sup>.

#### **2. Ontologies Guidelines**

The project has delivered a set of guidelines for best practice which build on existing standards. In the poster we will show how these guidelines can be used as a "checklist" to support the application and mapping of source ontologies in the disease and phenotype domain. These guidelines are accessible on a public wiki<sup>3</sup>.

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<sup>1</sup><http://www.pistoiaalliance.org/projects/ontologies-mapping>

<sup>2</sup><https://www.qmarkets.org/live/pistoia/home>

<sup>3</sup><https://pistoiaalliance.atlassian.net/wiki/display/PUB/Ontologies+Mapping+Resources>

### **3. User Requirements and Evaluation of Ontologies Mapping Tools**

An important output of this project was to specify the requirements for an Ontologies Mapping (OM) Tool. Three major aspects of the user requirements comprised of: -1) User interface; 2) Framework, including ontology matching algorithms and 3) Import and export of mappings.

The detailed requirements were used to establish that OM tools already exist which substantially meet them. Therefore, we developed a formal process to define and submit a request for information (RFI) from existing ontologies mapping tool providers to enable their evaluation. In the poster we will summarise our findings from evaluation of seven ontologies mapping tools from academic and commercial providers. The RFI materials are also accessible on the public wiki<sup>3</sup>.

### **4. Evaluation of Ontology Matching Algorithms for Disease and Phenotype**

A critical component of any Ontologies Mapping tool is the embedded ontology matching algorithm. Therefore, the Pistoia Alliance Ontologies Mapping Project supported the development and evaluation of ontology matching algorithms through sponsorship and organisation of the new Disease and Phenotype track for OM-2016<sup>4</sup> at ISWC 2016<sup>5</sup>.

### **5. Future Plans for an Ontologies Mapping service**

The Ontologies Mapping project has defined the business requirements for an ontologies mapping service, which use an ontologies matching algorithm in the service workflow. We are also conducting a questionnaire to survey Pistoia Alliance members to understand the likely demand for such a service to help us to determine whether it should be implemented in future.

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<sup>4</sup><http://om2016.ontologymatching.org>

<sup>5</sup><http://iswc2016.semanticweb.org>