

Ontology Summit 2013  
Ontology Evaluation Across the Ontology Lifecycle  
Track C: Building Ontologies to Meet Evaluation  
Criteria

**Session 9: 14<sup>th</sup> March 2013**

**Ontology Development Methodologies for  
Reasoning Ontologies**

Matthew West and Mike Bennett  
Co-Champions

# Track Background

- There are two approaches that can be taken to assuring the quality of an ontology:
  1. Measure the quality of the result against the requirements that it should meet.
  2. Use a process or methodology which will ensure the quality of the resultant ontology.
- If you wait to the end of ontology development to measure the quality, the costs of correction of any errors are likely to be high. Therefore using a process or methodology that builds quality into an ontology can have significant benefits. At present, however, it is unclear if there is any process or methodology that, if followed, is sufficient to guarantee the quality of a resulting ontology, and most of those that do exist are relatively informal and tend to require expert support.
- A consideration in evaluating ontologies is the different scenarios in which they are used. For example, one might be used as a formal conceptual model to inform development and another might be used in an ontology based application. Both the evaluation criteria and the development methodologies employed may vary widely.

# Mission and Objectives

## **Mission**

To investigate the state of the art in ontology development methodologies, including key achievements and key gaps that currently exist.

## **Objectives**

1. Examine the explicit and implicit methodologies that are known to exist.
2. Understand the role that upper ontologies play in ontology development methodologies.
3. Understand the role of ontological patterns in ontology development methodologies.
4. Identify how to apply the intrinsic and extrinsic aspects of ontology evaluation identified by the other tracks, within the applicable development methodologies.
5. Identifying how to frame the applicable ontology development methodologies within the frameworks of established quality assurance regimes (such as ISO 9000 and CMMI) for industrial applications.

# Sessions Plan

- Ontologies come in two main varieties, ontologies for integration and ontologies as applications.
- We will have one session around methodologies for developing each of these types with the aim to establish the differences and similarities in the methodologies found amongst those types and between them.
- Session 4 – 7<sup>th</sup> February 2013
  - **Ontology Development Methodologies for Integrating Ontologies**
- Session 9 – 14<sup>th</sup> March 2013
  - **Ontology Development Methodologies for Reasoning Ontologies**

# Ontology Development Methodologies for Reasoning Ontologies

- **Dr. Joanne Luciano** (RPI-TWC, US) - "A Generalized Framework for Ontology Evaluation (GOEF)"
- **Dr. Leo Obrst** (MITRE, US) - "Developing Quality Ontologies Used for Reasoning"
- **Dr. Aldo Gangemi** (STLab, CNR-ISTC, IT) - "Ontology design and evaluation during the data storm"
- Discussion – differences in priorities for integrating and reasoning ontologies