



Specialist Meeting on Ontology for *the National Map*

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Work/Interest in Ontology

- Ontology Development for Geospatial Semantic Web
 - Ontology construction method

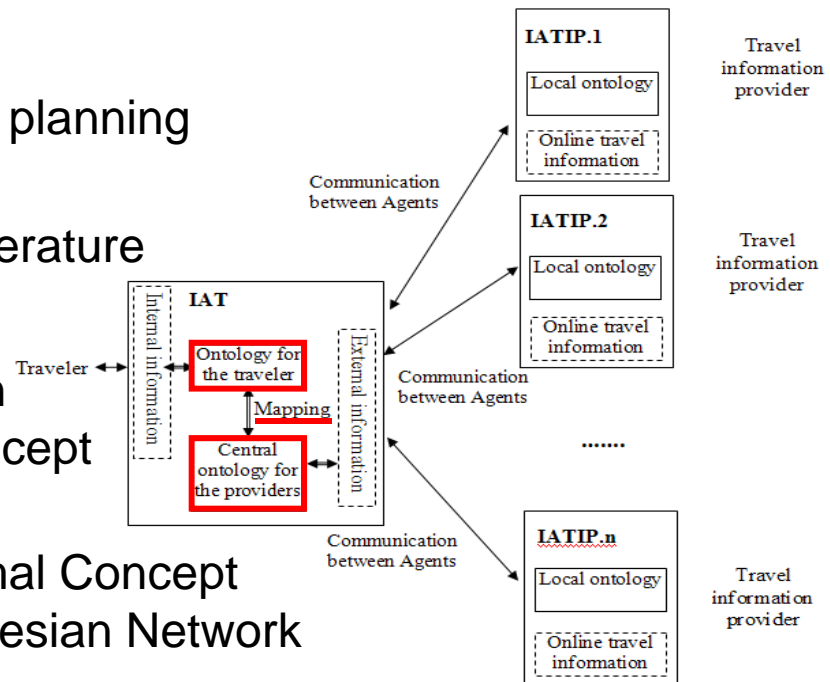
- My dissertation:

Developed an ontology model for tour planning in a Semantic Web environment

The ontology for the traveler: derived from literature in choice models

The center ontology for the travel information provider: derived from text using Formal Concept Analysis

Mapping between these two ontologies: Formal Concept Analysis and probabilistic model such as Bayesian Network





Intersect/Impact Developing an Ontology for *the National Map*

- *The National Map* has two major groups of users: USGS scientists in the various disciplines and the general public. Public users may not either be able to explicitly represent the information they need or be clear about the data available in *the National Map*.
- My suggestion: in addition to developing an ontology for geographic features in *the National Map*, it is also important to consider the **development of an ontology from user's perspective** and **mapping between these two types of ontologies**.



Major Benefits to Developing an Ontology for *the National Map*

- Access to information content by users, particularly general public users
- Method development for ontology construction



An Ontology from a User' Perspective for *the National Map*

- Goal: recommend relevant datasets to users, particularly to public users
- Main steps:
 - Start with one application, for example, users' needs for spatial data in recreation
 - Derive concepts and relationships between the concepts for the ontology from common knowledge and literature
 - Refine the derived ontology based on the data source of users' query and download information



Major Obstacles to Developing an Ontology from User's perspective

- Collaborate with communities such as National Geospatial Program Office and obtain the data source -- users' query and download information
- Select a suitable ontology construction method
 - Automatic, dynamic, less human subjective



Opportunities for Contribution to Developing an Ontology for the *National Map*

- Methods that have been developed for ontology learning from text for Semantic Web applications
 - Association rules-based method
 - Conceptual clustering-based method
 - Formal concept analysis (FCA)-based method
- Ontology mapping methods using heuristics and machine learning approach
 - Linguistic analysis-based method
 - FCA-based method
 - Similarity measure-based method