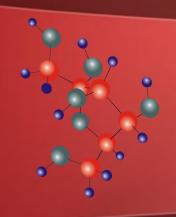
# ONTOLOGY BUILDING METHODOLOGY

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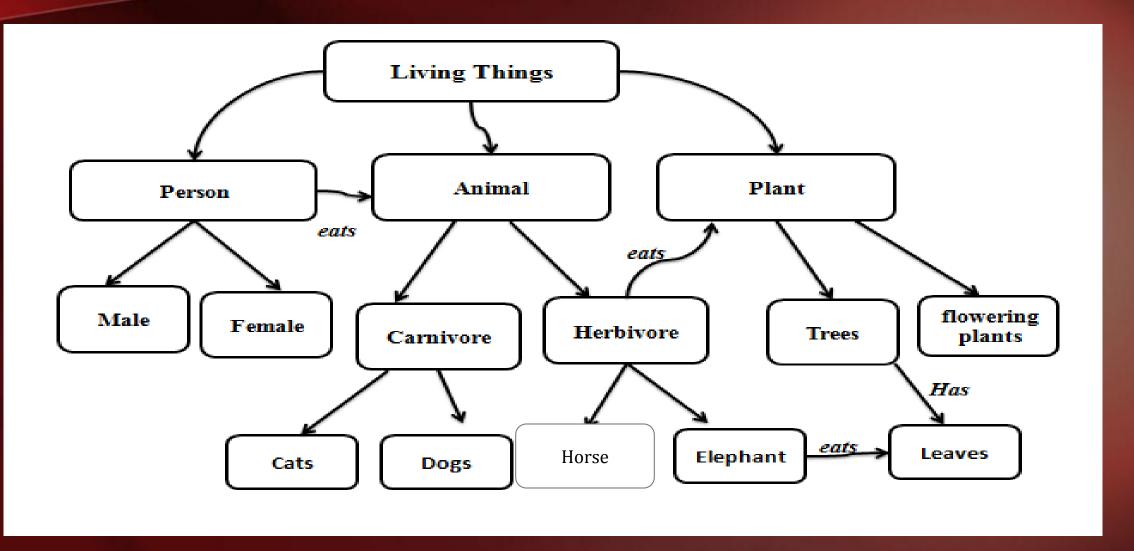
### **PLAN**

- Ontology Definition
- Ontology Motivation
- Ontology Classification
- Ontology Building Challenges
- Enterprise Ontology REA
- Proposed Methodology for Ontology Building
- Comparison between REA and proposed methodology
- Conclusion

### ONTOLOGY DEFINITION

"Formal explicit of specification of shared conceptualization. Where "formal" means that the ontology should be understandable by the machines and "shared" implies that it is validated by a group or a community"-Tom Gruber

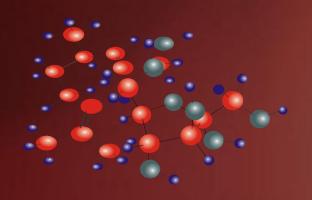
# ONTOLOGY



### MOTIVATION

**Semantic Web** 

Content mining by adding additional information to the webpage



**KBS** 

Explicit knowledge presentation for a domain



SW program
perform specific
tasks for the user
& pocesses
intelligence to
autonomously
perform its tasks



### **MOTIVATION**

wining de

**Semantic Web** 

Aims to make web searching more efficient





information addition

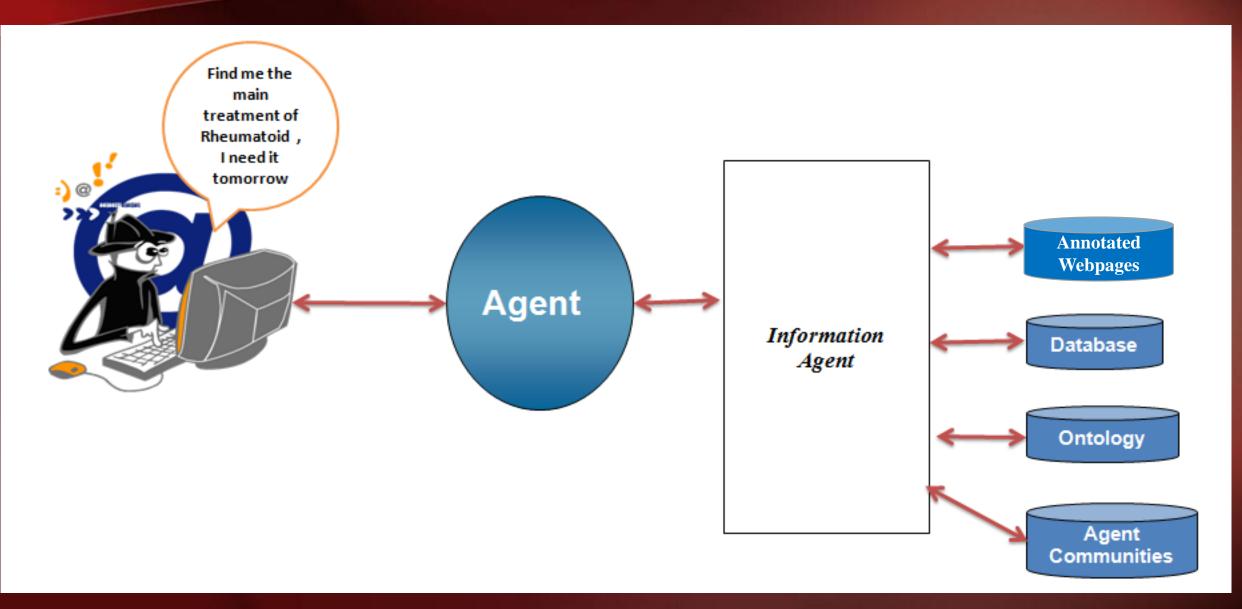
Ontology

Helps agents to find additional information

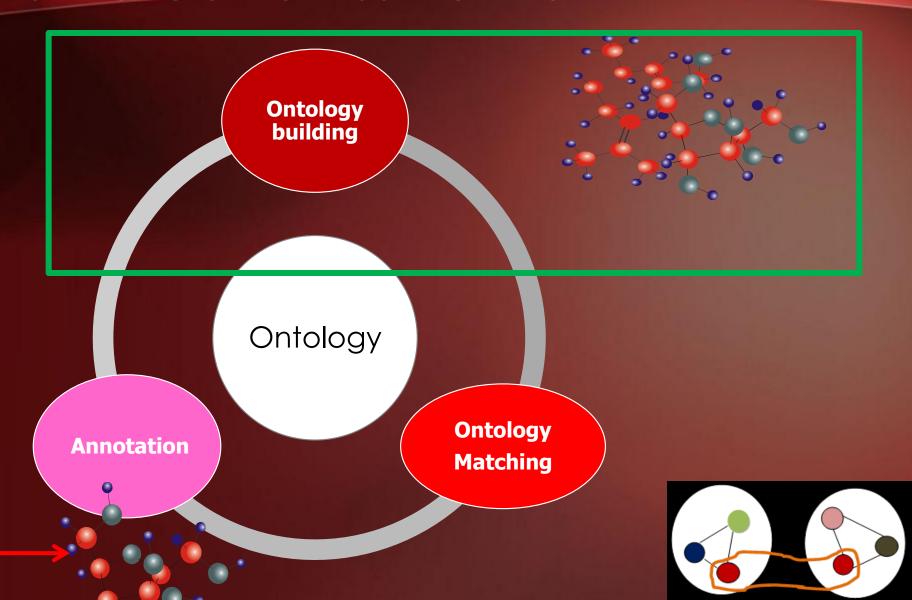


**Agents** 

### MOTIVATION



# ONTOLOGY CLASSIFICATION





### ONTOLOGY BUILDING CHALLENGES



Discovering background knowledge

Annotation Tool

Matching Tool

Agent

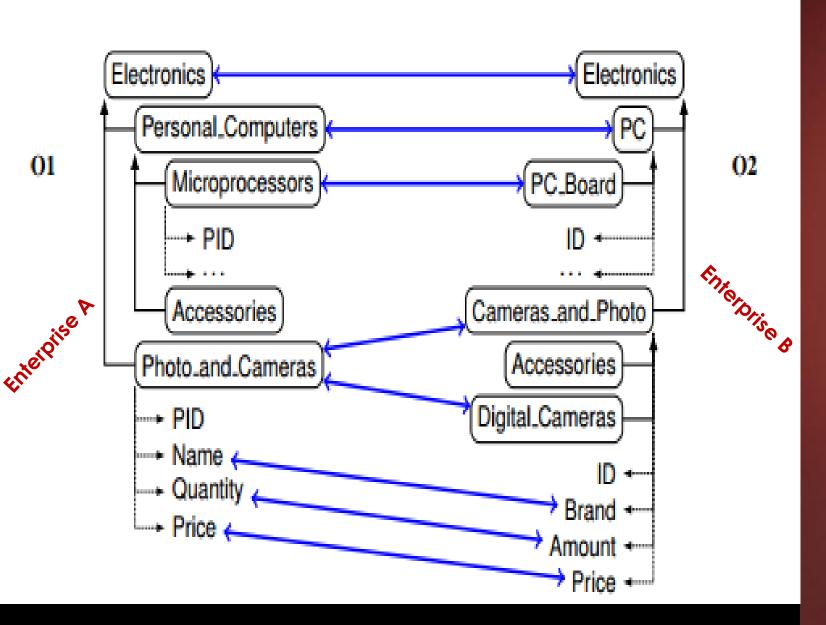
Knowledge base system

Using ontology across applications

# ENTERPRISE ONTOLOGY

RESOURCE EVENT AGENT (REA)

### MOTIVATION TO BUILD THE ENTERPRISE ONTOLOGY



Improve communication, sharing and transactions between an enterprise and an external agent.

### MOTIVATION TO BUILD THE ENTERPRISE ONTOLOGY





Improve communication, sharing and knowledge update inside the organization.

 Achieve Interoperability and communication between separate computer systems inside and outside the organization.

### WILLIAM M. CARTHY METHODOLOGY

REA ontology William M. Carthy

**Identify Economic exchange events** 

Attach resources to the economic events

Attach external and internal agents to economic agents

Assign properties & relationships and cardinality

**Axioms creation** 

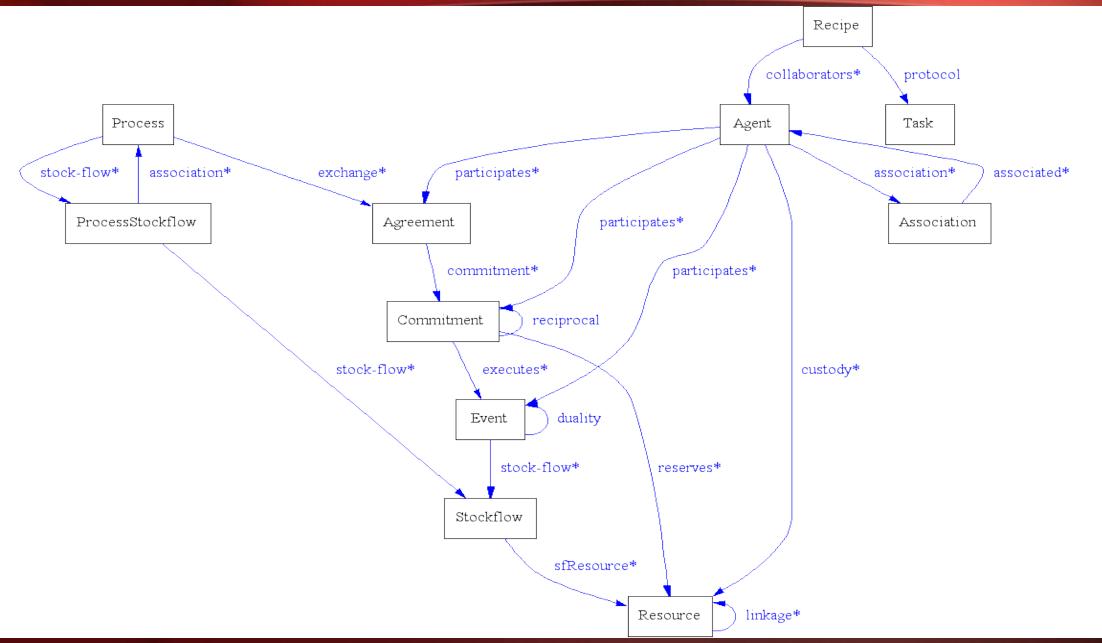
**Validation** 

REA is an enterprise ontology which is based on the Business Model.

It consists of three core concepts:

- 1. Resources
  - •Goods
  - •Services
- 2. Events
  - Production
  - **■**Exchange
  - **■**Consumption
- 3. Agents
  - Persons
  - •Agencies

# **REA ONTOLOGY**



### NEW PROPOSED METHODOLOGY FOR ONTOLOGY BUILDING

Identify resources & experts



**Ontology extraction** 

Coding

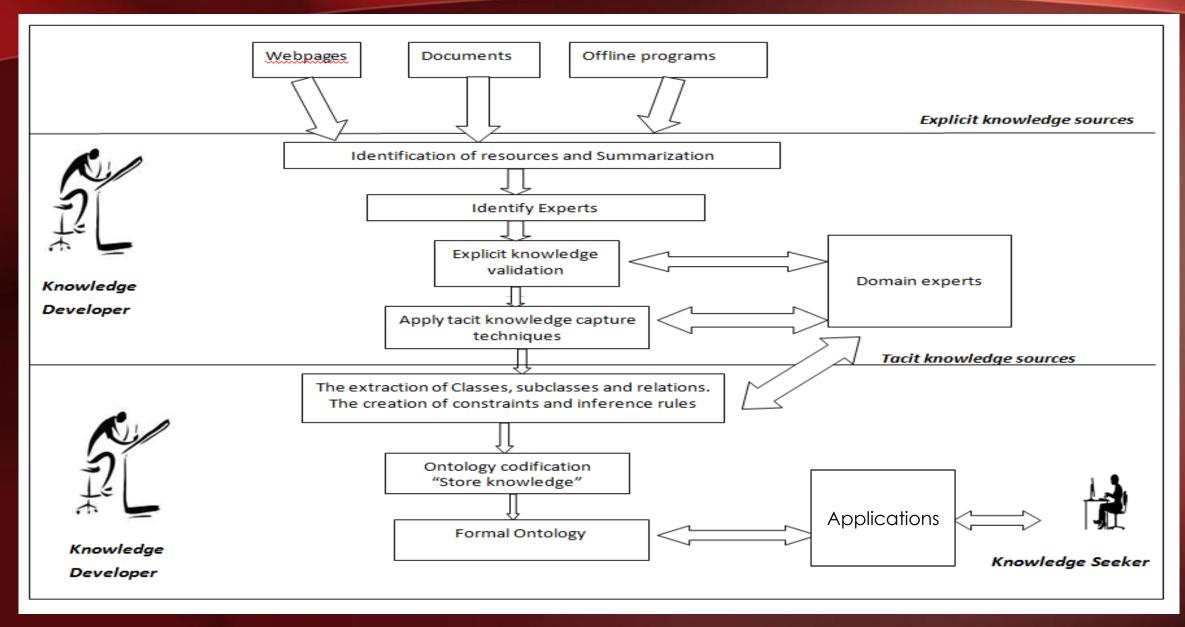
Explicit to Explicit knowledge Tacit to Explicit knowledge

Interview, Protocol analysis, Delphi method, Brainstorming, concept map, etc...

Concepts, Relations, Constraints and Axioms extraction

Create a formal ontology by the use of Protégé Program.

#### NEW PROPOSED METHODOLOGY FOR ONTOLOGY BUILDING



# COMPARISON BETWEEN METHODOLOGIES

	REA methodology	Proposed methodology
Experts consolidation	The creator is the expert	Implies the intervention of more than one expert
Usability	Is related only to the enterprise ontology	Can be applied with any domain ontology
Inference rules	√	

### CONCLUSION

- The intervention of explicit and tacit knowledge increases the reliability of ontology which should be validated by a group.
- The proposed methodology is general and can be applied in any domain ontology, whereas the William M. Carthy methodology is very specific for the enterprise ontology.

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