Ontology Summit: Making the Case for Ontology

Track2: Case Studies

Summit Agenda

- Address the need to provide concrete evidence of successful deployment of ontologies by examining several application domains for such examples,
- Better articulating where different "strengths" of ontological representation are best applied.
- To support that, the summit aims to:
  - Classify the categories of applications where ontology has been, and could be, successfully applied;
  - Identify distinct types of metrics that might be used in evaluating the return on investment in an ontology application
    - Cost
    - Capability
    - Performance
    - etc.);
  - Lay out some strategies for articulating a case for ontological applications;
  - Identify remaining challenges and roadblocks to a wider deployment of such applications that represent promising application areas and research challenges for the future.

Goals of this Track

- Demonstrate what can be achieved with a knowledge centric (ontology) approach that cannot be done (or as well) by other means
- Demonstrate business benefits (cost, risk)
- Scope (guided by Track 1)
  - Cover a spectrum of applications (of Ontology)
  - Cover a range of “what an ontology is”
  - Cover relevant ontology modeling notations
- Use Cases feed into Track 1: Ontology Application Framework

Approach

- Canvassed a range of case studies
- Asked contributors to summarize:
  - Challenge
    - What business problem the Ontology set out to address
  - Solution
    - What we mean by ontology in this case e.g. application, conceptual model
  - Screen shot or key features
    - Give a flavor of the ontology
  - Benefits
    - What metrics if any were used to demonstrate the benefits of this ontology.

Case Studies

Integration of Multiple Systems from Multiple Companies	YefimZhuk	*Sallie Mae*
Standardization of Terms and Definitions for Financial Services	MikeBennett	*EDM Council*
Semantic Tech in Rental Product Marketing	JimRhyne	*Sandpiper*
Ontology and Rules provide rapid Natural Language Understanding	ChuckRehberg	*Trigent Software*
Ontology and Rules provide Mass Customization of Vehicles	ChuckRehberg	*Trigent Software*
Content Intelligence and Smart Applications	GregBardwell	*Innovative Query Inc.*
Semantic BI for Blogging	GregBardwell	*Innovative Query Inc.*
Valuing the Harvest from using Ontologies	RalphHodgson	*TopQuadrant*
Architectures and Ontologies for Business Value	CoryCasanave	*Model Driven Solutions*
Model-driven Framework for Process Deployment, eXtreme Traceability	SanjivaNath	*ZAgile*
Applying Semantics to Enterprise Systems - Proctor and Gamble Case Study	DaveMcComb	*Semantic Arts*
Ontologies and CRM for Telecoms	BillGuinn, MikeLurye, SusanMacCall	*Amdocs*

Framework

- Dimensions:
  - Functionality
  - Architecture
  - When Used
  - Who Using
  - What Ontologies
  - Problem Addressed
  - Benefit
- Applications Classification
  - Integration
  - Decision Support
  - Semantic Augmentation
  - Knowledge Management

Industry Sectors

- Financial Services
- Vehicle Rental
- Pharmaceuticals
- Telecoms
- Manufacture
- Legal
- Intelligence / Security
- Government Agency
- Technology Development

Use Cases

- Knowledge Management
- Knowledge extraction and search
  - Business intelligence
  - Threat detection
  - Research and Development
- Industrial and Business Applications
  - Manufacturing
  - Customer product selection
  - Customer Relationship Management (CRM)
- Technology Development
  - Use of ontologies within development process
  - Data integration
  - Integration with process, Service Oriented Architecture (SOA)

Ontology Notations and Applications

- OWL
- UML
- UML extensions in ODM (Ontology Definition Metamodel)
- Semantic Media Wiki
- SPARQL
- Natural Language Processing
- Proprietary triple stores
- Rules based systems
- Vocabularies

Presentation Methods

- OWL tools
- UML tools
- Wiki
- Visio and other graphical notations
- Custom interfaces
- Forms
- Natural language

Model theory: What's Modeled

- Business Conceptual Models
- Domain knowledge and research
- Logical data structures
- Technical development constructs
- Terminology (words)
- Business rules

Benefits / Metrics

- Stated benefits
  - Customer retention
  - Competitive advantage
  - Time to market
  - Threat detection
  - Corporate knowledge
- Some numeric metrics
  - Calls processing: 15% improvement
  - Development cost savings (before and after)

Value Models

- Identifying which of the Track 3 value models may apply in case studies:
  - Customer Satisfaction - YES
  - Actionable Business Intelligence - YES
  - Service Orientation – YES (as in SOA)
  - Complex Business Events & Workflows - YES
  - Collaborative Operations - YES
  - Interoperable Business Services
    - Indirectly via common ontologies across business units

Some Common Themes

- Extraction of information using common ontologies
  - From structured and unstructured data
- Managing combinational complexity
- Reuse of common ontology terms
- Ontology in the development process
- Corporate knowledge
- Terminology versus ontology

Case Studies: per Applications Classification

- Integration
  - Common ontologies across business units; industry standards
  - Ontology within development process
  - Integration with rules, process, SOA
- Decision Support
  - Availability of knowledge in knowledge bases
  - Call center case study
- Semantic Augmentation
  - Augmented search, customization, manufacture
- Knowledge Management
  - Research and Development
  - Knowledge extraction (structured and unstructured sources)

Conclusions

- How we have captured information from the Case Studies in support of the Summit theme “Making the Case for Ontology”
- What we make the case for (as per Framework)
  - Integration
  - Decision Support
  - Semantic Augmentation
  - Knowledge Management
- What audience – depends on the case above:
  - Technical management
  - Customer relationships / sales and marketing
  - Manufacturing
  - Research and development
  - Business owners
  - Government
  - Security services