ENTERPRISE DATA MANAGEMENT

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Training the Ontologists of the Future

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Overview

- EDM Council Semantics Repository experience
- What do ontologists need to know?
- What prior knowledge should they bring to this (pre-requisites)?
- What or who should they be (aptitude)

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What are we Training for?

- Practical example: EDM Council Semantics Repository
  - What did I need to know?
  - What did I already know that helped?
  - What could I have done with knowing more about?
- How does this generalize to ontology training?

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What do we Need to Know?

- Ontology as Engineering
- Business facing not technology facing
- Familiar with technology management
- Familiar with ontology theory itself:
  - First order Logic
  - Semantics
  - Model theory etc .
- Familiar with the available tools, standards and notations
- Aptitude for thinking in meanings not words

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Engineering Discipline

- An ontology provides a business view of terms that may be used in applications
- This is true whether the ontology is used in:
  - Ontology-based knowledge base application (OWL, SPARQL etc.)
  - Model driven development for databases and messaging
- Either way, the business view should be
  - independent of technology implementation
  - Understood by Business
- This is an engineering principle
  - Segregation of views gives business stakeholders control of data content
  - Ontology becomes primary point of control of business terms

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Business Knowledge

- Two types of business knowledge needed:
  - The business of technology development
  - The business of the application domain
- Tech Development:
  - Requirements Management theory: rules for “Conceptual” model apply to ontology
    - Technology neutral, owned by business, implementable, understandable and formally controlled
- Application Domain
  - I am still learning things about securities which are “obvious” to business folks but not reflected in existing data standards
    - i.e. undocumented knowledge
  - Retain a level of intelligent ignorance:
    - The owner of business knowledge is the business SME not the ontologist;
    - use the ontology as a draft view of the domain, which is completed in active review with SMEs
- Not be a geek!

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Not being a geek:

- Example:
  - imported the ISO Logical Data Model for securities into OWL to see what we got
  - What we got was a Logical Data Model in OWL
  - Format does not determine content
- Anyone who would mistake the form for the content should not be an ontologist
  - Similarly those who focus on tools rather than principles will put the project at risk of misapplication of ontology
  - Know the tools, but know what's needed first
- Ontologist should think in principles not tools

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Theory of Meaning

- Every ontology has a theory of meaning
- Ontologist must be able to understand and articulate this
  - Again the tool doesn't do it for you
  - Should be able to explain the theory of meaning, in layman's terms, to the business SMEs who are expected to review and validate the ontology
  - Responsible for the consistent application of this through the project lifecycle
- Be able to specify and think in first order logic, set theory etc. ahead of implementing in a given format or toolset
- Then keep up to date with tools and standards

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Standards for Content

- Be able to relate to industry standards in a given application domain
- Recognize and reuse applicable semantics from existing standards
  - Understand which standards apply and what the level of meaning is in those
  - At this early stage, many standards are specified only at a logical level but have content which is valuable to an ontology effort
  - Need to be able to reverse engineer into semantics
- Ontologist should not want to impress clients with their domain knowledge, but humbly use what's already in place in a given industry

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Lessons Learnt

- Business Analysis:
  - In the EDM Council Semantics Repository, it was a challenge to present material to SMEs in a format that they could easily take in
  - One review team's simplicity becomes too complex for the next group to take in
  - Ontologist requirement: Be able to negotiate between business experts, tech architects and modelers
- Tools are still not quite business friendly enough in our business so we had to make up an interface for presentation of material
  - There is still considerable room for improvement in that interface
  - We knew what we needed independently of finding a tool for it
- Final review: Had to identify mechanisms for formal QA
  - Hard to get business SMEs to focus on detailed terms for a second time, as is required for formal sign-off of changes.
  - Ontologist Requirement: Understand the basic precepts of Quality Assurance, i.e. "Demonstrate control" and be able to adapt this to changing project requirements.

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Final Thoughts

The art of Ontology is the art of not designing something

- if you find yourself coming up with an elegant design within your ontology, ask yourself where is the independent business definition of the terms this design is supposed to implement?
- Approach ontology as an engineering discipline not a technical exercise

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