Overview

• The Financial Industry Business Ontology
  – Introduction
  – FIBO Business Entities
  – FIBO Foundations

• OMG Standardization

• Metadata
  – Ontology level
  – Element level

• Open questions and considerations
Introducing FIBO

• The Financial Industry Business Ontology is a conceptual model of industry terms, definitions and relationships
  – Framed in Semantic Web syntax (OWL)
  – Model elements represent things in the world

• FIBO Business Entities captures the nature and meaning of legal entities, formal organizations etc. (legally grounded)

• FIBO Foundations provides a small set of foundational terms semantics for reference by FIBI-BE
Intersecting Ontologies: Conceptual and Operational

- **Conceptual Ontology**
  - Use Case neutral
  - Meaning expressed in the “Language of the business”
  - Formally grounded in legal, accounting etc. abstractions
  - Classes and properties
  - Definitions
  - Namespaces
  - Annotations

- **Operational Ontologies**
  - Use case specific classes, properties
  - Optimized for operational functions (reasoning; queries)
  - Addition of rules
  - Mapping to other OWL ontologies

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• Inevitable by-product of the semantics questions:
  – What sort of Thing is This =>
    taxonomy of things outside of financial realm
  – What distinguishes it from other things? =>
    • Subject-predicate-Object where objects largely non financial
    • Countries, jurisdictions, time, accounting etc.
    • Transactions
    • Social Constructs Ontology – John R Searle
FIBO Foundations provides the basic conceptual “Glue”

Common abstractions grounded in law and business
## FIBO Business Entities

**FIBO Business Entities Ontology**

<table>
<thead>
<tr>
<th>Entity Types</th>
<th>Legal Persons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formal Organization</td>
<td>Corporations</td>
</tr>
<tr>
<td>Partnerships</td>
<td>Trusts</td>
</tr>
<tr>
<td>Ownership</td>
<td>Control</td>
</tr>
<tr>
<td>By Function</td>
<td>Legal Entity ID</td>
</tr>
</tbody>
</table>

- Types of corporate structure
- Organizational hierarchies / relationships

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OMG Standardization

• FIBO Being submitted as a set of formal standards through the Object Management Group (OMG)
  – Formal written document (specification)
  – Tool-neutral, machine readable files for Business Conceptual Ontology

• Submitting in stages as several proposed standards
  – First: Foundations + Business Entities
  – Second: Securities, Derivatives, Loans
  – Later: Corporate Actions, Market data etc.
OMG Metadata – Ontology Level

• Sets of ontology level metadata defined in FIBO Specification
  – Specification Metadata
  – Specification Version Metadata
  – Curation and Rights Metadata

• These are all defined in

  www.omg.org/techprocess/ab/20130301/
  SpecificationMetadata.owl
## Specification Metadata

1: Specification Metadata

- Uses terms in OMG SpecificationMetadata.owl

<table>
<thead>
<tr>
<th>Metadata Term</th>
<th>Value</th>
</tr>
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<tbody>
<tr>
<td>sm:specificationTitle</td>
<td>Financial Industry Business Ontology (FIBO) Foundations Specification</td>
</tr>
<tr>
<td>sm:specificationAbbreviation</td>
<td>FIBO-F</td>
</tr>
<tr>
<td>sm:specificationAbstract</td>
<td>This vocabulary is a component of the foundations ontology, and provides high-level concept definitions for use in other FIBO specifications.</td>
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2. Specification Version Metadata
– Also defined in SpecificationMetadata.owl

<table>
<thead>
<tr>
<th>Metadata Term</th>
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<td>sm:thisVersion</td>
<td>1.0</td>
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<tr>
<td>sm:specificationVersionURL</td>
<td><a href="http://www.omg.org/spec/FIBO/Foundations/1.0/">http://www.omg.org/spec/FIBO/Foundations/1.0/</a></td>
</tr>
<tr>
<td>sm:specificationVersionStatus</td>
<td>Revisions will be managed per the process outlined in the Policies and Procedures for OMG standards, with the intent to maintain backwards compatibility to the degree possible. The RDF/XML serialized OWL corresponding to the ODM/OWL model has been checked for syntactic errors and logical consistency with Protege 4 (<a href="http://protege.stanford.edu/">http://protege.stanford.edu/</a>), HermiT 1.3.6 (<a href="http://www.hermit-reasoner.com/">http://www.hermit-reasoner.com/</a>) and Pellet 2.2 (<a href="http://clarkparsia.com/pellet/">http://clarkparsia.com/pellet/</a>).</td>
</tr>
<tr>
<td>sm:addressForComments</td>
<td><a href="http://www.omg.org/issues/">http://www.omg.org/issues/</a></td>
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</table>
Curation and Rights Metadata

• Also in SpecificationMetadata.owl

<table>
<thead>
<tr>
<th>Metadata Term</th>
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<tbody>
<tr>
<td>sm:copyright</td>
<td>Copyright (c) 2013 EDM Council, Inc.</td>
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<tr>
<td></td>
<td>Copyright (c) 2013 Object Management Group, Inc.</td>
</tr>
<tr>
<td>dct:license</td>
<td>The MIT License: Permission is hereby granted, free of charge, to any person obtaining a copy of this software and assoc…</td>
</tr>
<tr>
<td></td>
<td>&lt;snip&gt;.</td>
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<tr>
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<td><a href="http://opensource.org/licenses/mit-license.php">http://opensource.org/licenses/mit-license.php</a></td>
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<tr>
<td>sm:responsibleTaskForce</td>
<td><a href="http://fdtf.omg.org/">http://fdtf.omg.org/</a></td>
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</table>
Element Level Metadata

• Definitions
  – Skos:definition

• Additional narrative notes
  – skos:editorialNote
  – skos:scopeNote
  – etc.

• Term and Definitions Provenance
  – Uses sub-properties of dct:source

• Synonyms

• FIBO-specific metadata
  – Classification facets
  – Archetypes
Open Questions and Considerations

• Alignment of FIBO Foundations abstractions to terms defined in the relevant communities of practice
  – As ontologies
  – As industry standards
• Evolution of those ontologies and emergence of ontological representations in industry standards
• Reuse of FIBO concepts by others
• Versioning, URIs etc.
• Mapping v Provenance