Semantic Integration in Finance

Ontology Summit 2016
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Semantic Integration Issues

• Data Integration
  – “The lack of a common language in finance is a billion dollar problem for the industry” – OFR
  – Common language cuts across all use cases
  – Data integration, reporting, compliance etc.

• Ontology Integration
  – What ontologies to use, where and how
  – Styles of Ontology
Styles of Ontology

• Conventional OWL:
  – Properties typically with no domain and range
  – Restrictions used to apply semantics
  – Minimal abstractions, focused on data requirements

• Conceptual Ontology
  – Common language across business, industry
  – Grounded in semantic primitives
  – Uses upper ontologies
  – Re-use of common cross-domain ontologies

• Operational Ontology
  – Derived from Conceptual Ontology
  – per use case

• Each has its use in integration, interoperability
Integration and Data Reuse in Finance

• Has a long history
  – Message standards: FIX, FpML, MDDL, SWIFT / ISO
  – Logical Model standards: ISO 20022, MISMO, FIX, MDDB

• Desired end goal: reuse and integration of data

• Semantics
  – Common meaning is what was needed
  – Conceptual models for these standards
    = semantics of the data

• Ontology
  – Financial Industry Business Ontology (FIBO)
  – ISO TC68/WG5 Semantic Layer for ISO 20022
  – Semantic mapping (SKOS); Code lists etc.
Financial Industry Business Ontology (FIBO)

- Many of today’s presentations come out of the FIBO ecosystem
- Multi-year effort to standardize finance industry concepts and definitions
- Various flavors of ontology
- Today we will see how these different flavors are used to address specific integration challenges
FIBO in 2016

• Enhanced Infrastructure

• Products
  – FIBO RDF/OWL + ODM/UML
  – FIBO-Vocabulary
  – FIBO.Schema.Org
  – FIBO in Natural Language

• FIBO Content
  – Soon: Swaps, Derivatives, Debt, Bonds, Structured Finance, Money Markets
  – Later: Funds, Pricing / Analytics, Corporate Actions
Today’s Presentations

• We will see a range of ontology styles and how these are used to address real integration problems
  – Data quality improvement
  – Integration across instrument and entity data at scale
  – Common concepts for loans focused on regulatory requirements
  – Risk Data Aggregation reporting
Today’s Presentations

• Using Business Architecture and Semantics to Drive Data Quality Improvement in Banking
  – Elisa Kendall (Thematix Partners LLC)

• Do you know where your data is? How FIBO Makes Data Smarter and More Governable
  – David Saul (State Street Corporation)

• Referencing the Home Mortgage Disclosure Act in Building a Loans Ontology
  – Michael Uschold (Semantic Arts); Lynn Calahan (Wells Fargo)

• Creating a Virtual Knowledge Base for Financial Risk and Reporting
  – Juan Sequeda (Capsenta); Mike Bennett (Hypercube)
Over to our first speaker...