

# Improving OAGIS with Ontology Technology

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# Introduction

- I am not an expert in Ontology
- I build standards
- We can always improve standards
- So my context is how to use Ontology technology to do this
- We have tried some research in past in partnership with NIST
- I will discuss some plans moving forward



# Open Applications Group

*Who we are*

OAGi is a not-for-profit, independent, open standards development organization.

It was formed to promote interoperability among business software applications and to create or endorse one or more standards for easier business software interoperability.

The primary technical standard produced by OAGi is OAGIS, the OAG Integration Standard.

*[www.openapplications.org](http://www.openapplications.org)*

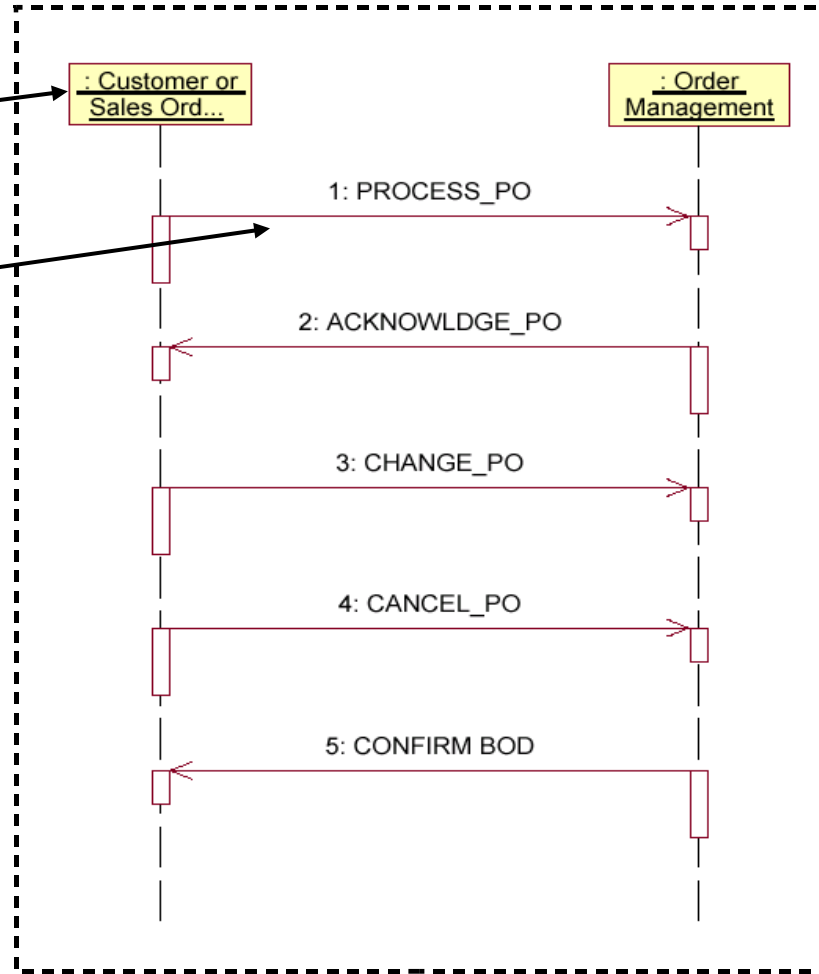
# OAGIS is Process Definitions and Payloads

- Scenario is process definition

- Business Object Documents (BODs) are messages within the Collaboration

- Freely downloadable at:

<http://www.openapplications.org>



# Definitions of Ontology

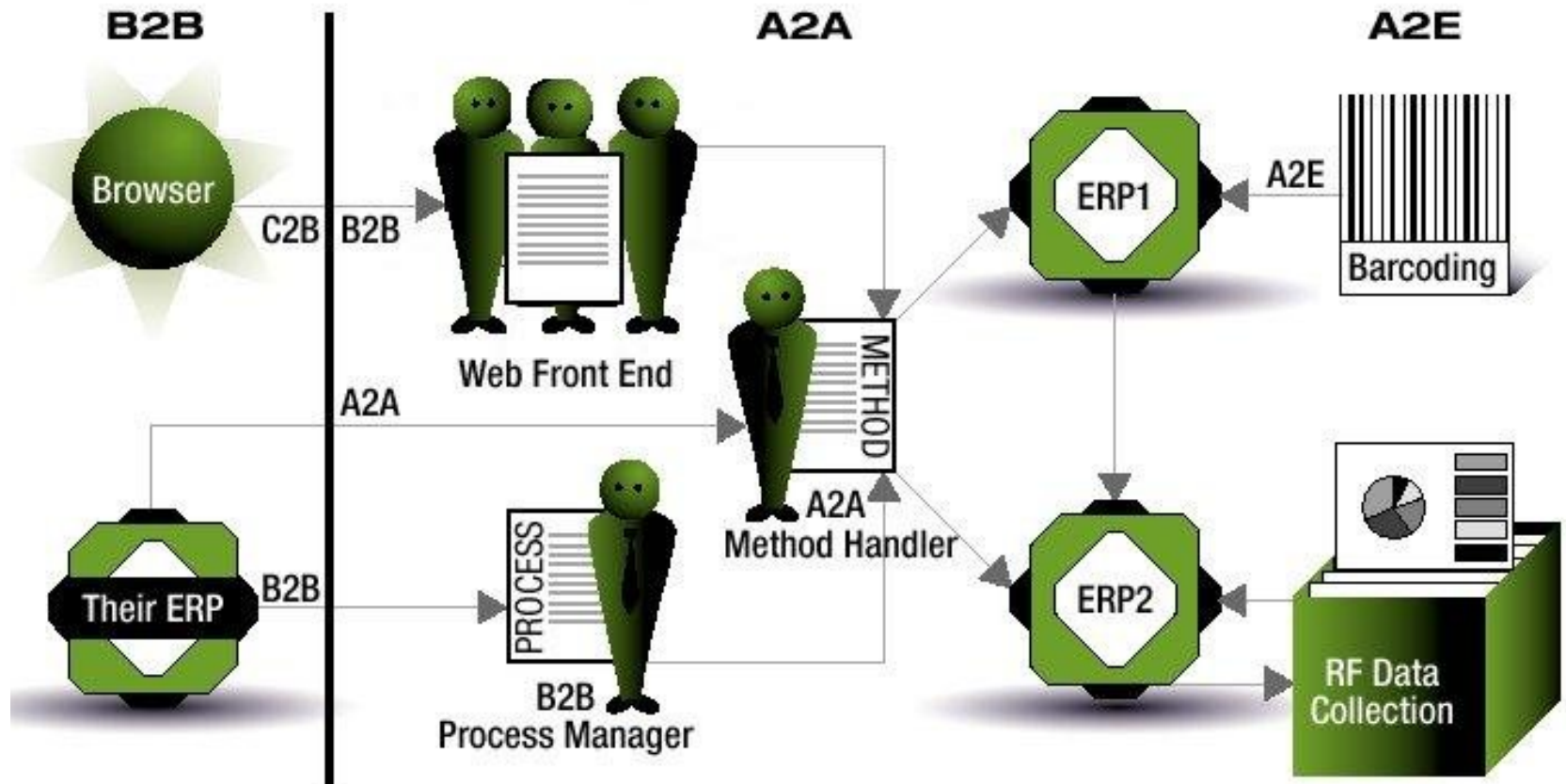
- (computer science) a rigorous and exhaustive organization of some knowledge domain that is usually hierarchical and contains all the relevant ...
- the metaphysical study of the nature of being and existence  
[wordnet.princeton.edu/perl/webwn](http://wordnet.princeton.edu/perl/webwn)

# Thoughts

- Goal of OAGIS
- Focus on end-user
- Focus on Solution Provider
- Save Money
- Improve agility
- Definition of Ontology
- How can this improve OAGIS



# Open Applications Group Goal



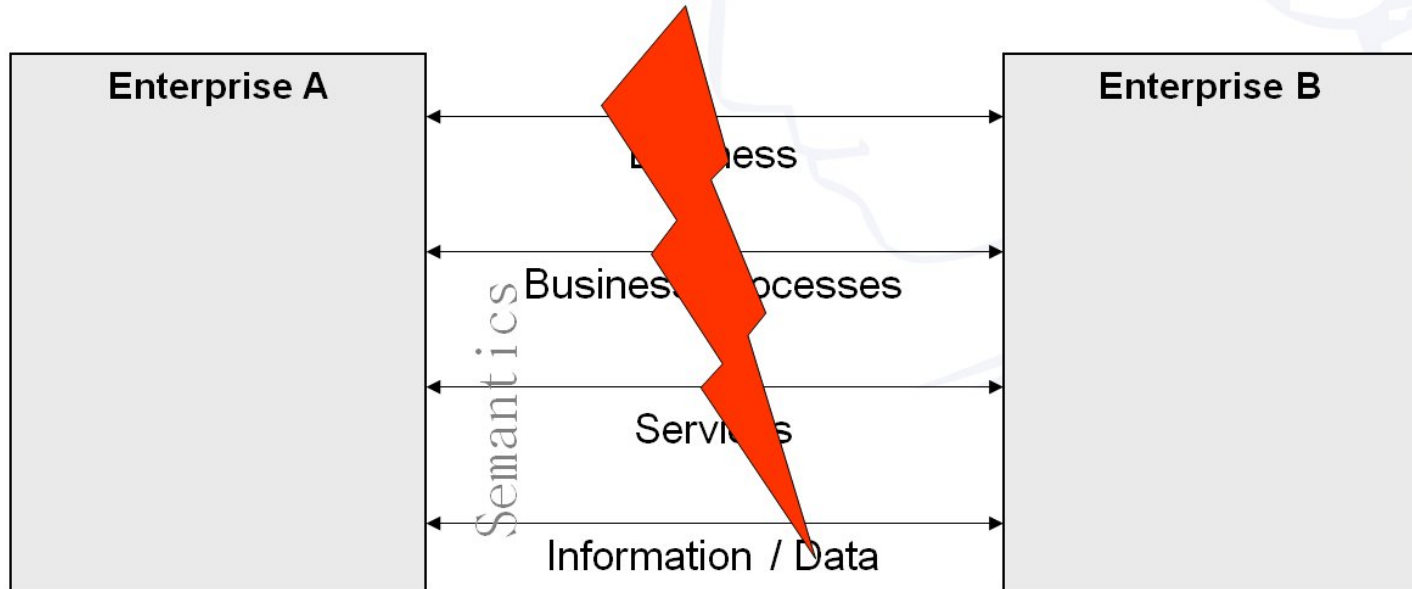
**E2E = B2B + A2A + A2E™**

**Everywhere to Everywhere Integration**

## ATHENA Big Picture – Abstract View

**Vision:** Automated Interoperability of Business Systems and Applications to enable collaboration

**Approach:** Interoperability must address all aspects of Enterprise collaboration



**Mismatches prohibit interoperability**



# Industry Collaborations

- UN/CEFACT – United Nations
- ISO- International Standards Organization
- MoU MG – Memorandum of Understanding Management Group
- IEC TC57 WG14 – Electric Utility Standards
- KIEC – Korean e-Commerce Consortium
- NIST – National Institute of Standards & Technology
- AIAG – Auto Supply Chain North America
- Odette – Auto in Europe
- ITA – Information Technology in Germany
- STAR – Auto Retail North America
- AAIA – Auto Aftermarket North America
- RV Industry – North America
- AIA – Aerospace North America
- AECMA – Aerospace Europe
- OSCRE – Facilities Management
- VISION Industry
- HR-XML – HR Content, world-wide
- SP95 – Enterprise Controls
- ARTS (Retail)
- STEP – Engineering world-wide
- IFX – Interactive Financial Exchange
- SWIFT
- TWIST
- Comptia/EIDX – Electronics and Computer Industry
- WS-I
- OASIS
- Tax-XML
- UBL



# OAGIS Convergence Initiatives

- UN/CEFACT
- MoU MG
- Financial Harmonization
- AIAG, STAR, Odette, JAMA/JAPIA
- ISA SP95
- HR-XML
- ACORD
- CIDX
- ARTs
- STEP

# Problem Description

- OAGIS

- BOM
- Item Master
- ECO

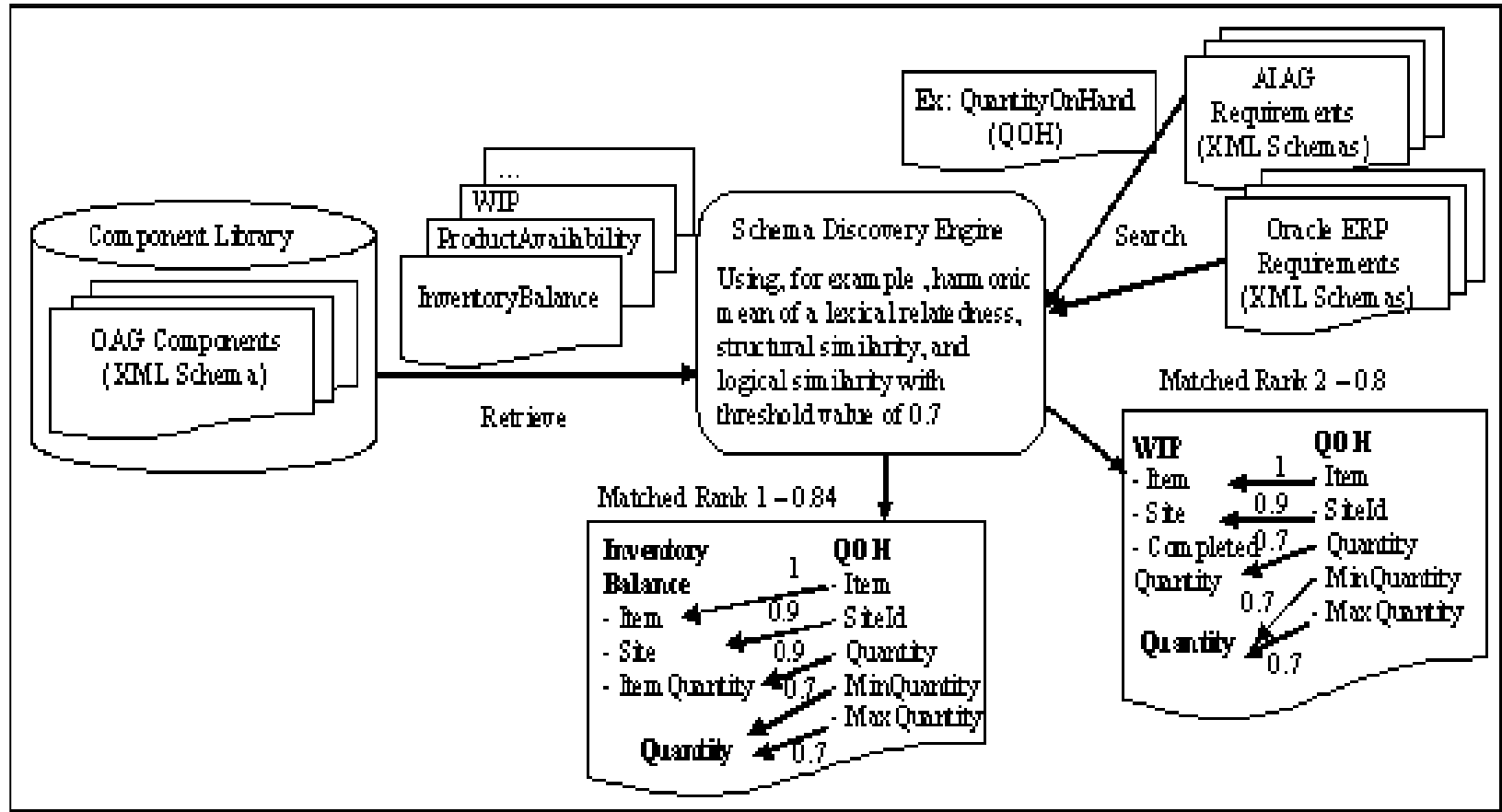
- STEP

- AP214
- OMG PLM Services
- OAGIS PLCS (later for Manufacturing)

# NIST B2B Testbed Activity Update

Serm Kulvatunyou  
Nenad Ivezic  
Jungyub Woo

# Problem Description



# Research Findings

- Three levels of similarity measures identified
  - Lexical similarity measure – Words and terms similarity based on domain independent or specific knowledge
  - Structural similarity measure – Words and terms similarity based on structural information (what a term contains and how)
  - Logical similarity measure – Words and terms similarity based on associated formal models
- Approach to measure the quality of the similarity measure preliminary defined

# Activities with OAGIS

- Looking at a Next -Gen Effort
- Will Include UN/CEFACT Technologies
- Improve Supply Chain Interoperability
- Improve Cross-Supply Chain Interoperability



# Core Components, The Idea

- Sponsored by the United Nations
- Defines the basis for building business languages.
- Encourages all business languages to be based on same concepts.





# Why Did OAGi Adopt Core Components?

- Enables all business languages to be based on same concepts and building blocks.
- Will increase interoperability within supply chains
- Will increase interoperability across supply chains
- Excellent base for OAGIS convergence initiatives



- Naming and Design Rules
- CCTS
- Data Types
- Unified Context Methodology (UCM)



# SDO Adoption of UN/CEFACT





# Software Vendors Adoption of UN/CEFACT

## SAP – Solving the problem: CCTS

An implementation of ISO 11179

Creates common re-usable building blocks

- Conceptual Data Constructs – Core Components
- Reusable logical/physical Data Constructs – called BIEs
- Core Data Types, i.e. for “Amount, Code, Measure, and Quantity”

Based on Semantic Definitions

- Clear rules on how to define semantics to explain what items mean

Uses a Context Mechanism that controls how data constructs vary depending on the context

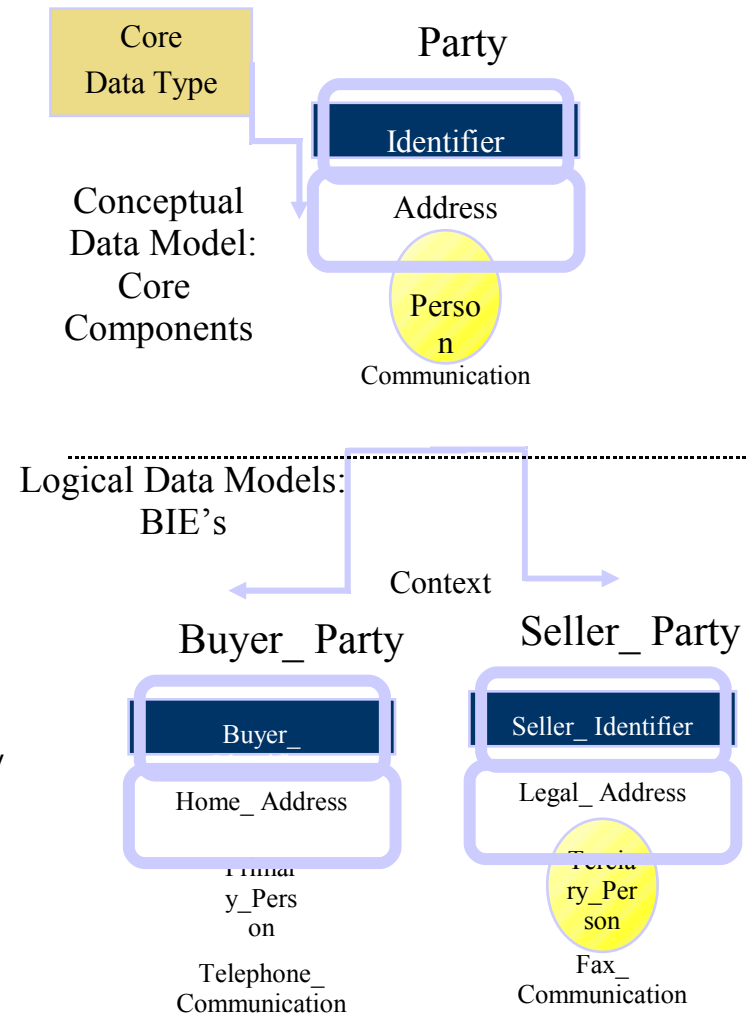
- e.g. By business process, business process role, industry, country/region, etc.

Syntax neutral

- Can be used to define business documents OR business objects/databases

Provides the heavy lifting for syntax specific representations

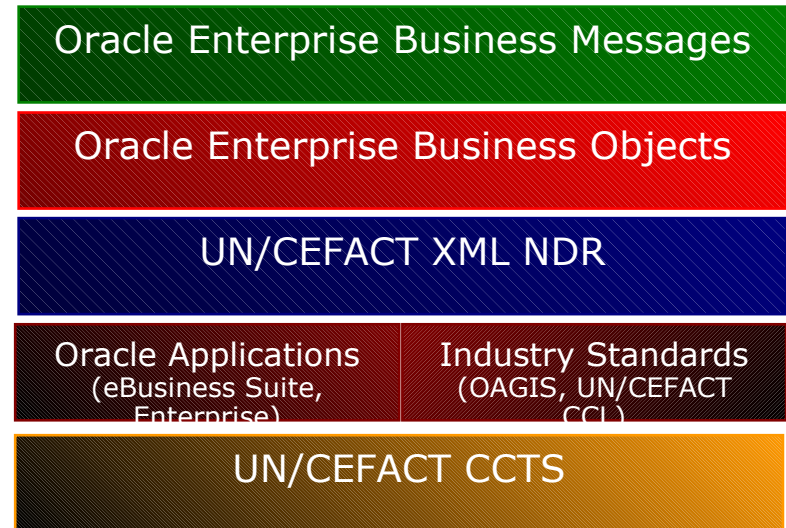
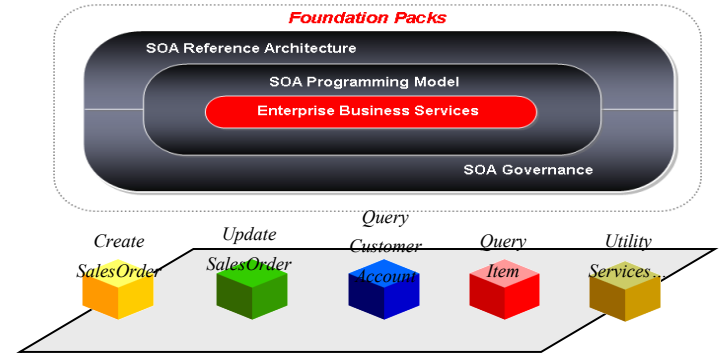
Artifacts identified in a registry to maximize visibility and reuse



## Oracle Enterprise Business Objects

*Standardized Service Payloads  
Based on semantics and open standards*

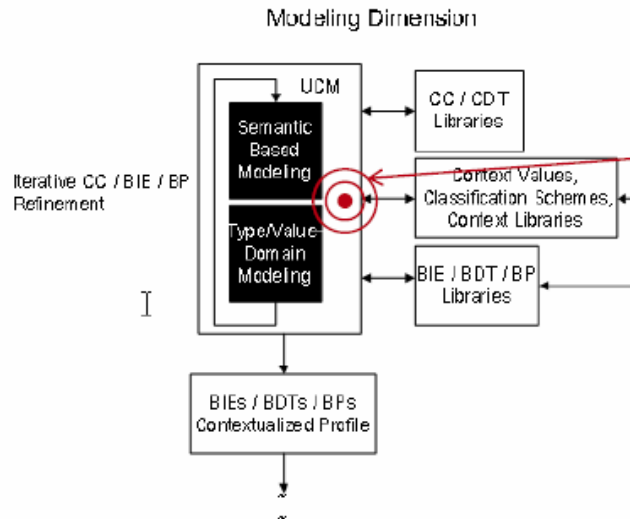
- Based on Open Standards
  - UN/CEFACT CCTS
  - UN/CEFACT XML NDR
  - OAGIS
  - XACML
  - WS-Addressing
- Rationalized against Oracle Applications
- Extensible and Upgradeable



## Modeling Dimension



United Nations Economic Commission for Europe  
Centre for Trade Facilitation and Electronic Business  
Unified Context Methodology



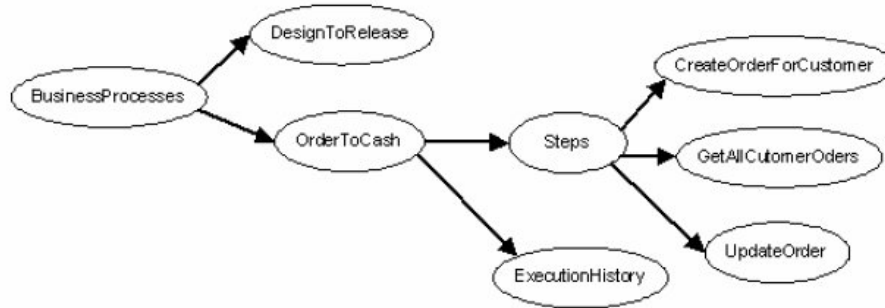
- Current UCM working spec - Classification Schemes
- Other UCM specs will cover the other aspects such as the Contextualized Profile needed for message payload generation

- Two iterative modeling aspects
  - Semantic
    - Define context values, BIEs based on values in Classification Scheme instances, etc
  - Type/Value domain (not typically impacting to business semantics)
    - Select primitive types for data types, etc
- Related to context value libraries, CC/BIE/BP libraries, datatype libraries
- Multiple specs required
- Output is a Contextualized Profile for syntax-specific payload generation
  - Note: A message structure is out of scope for UCM – only a payload is in scope

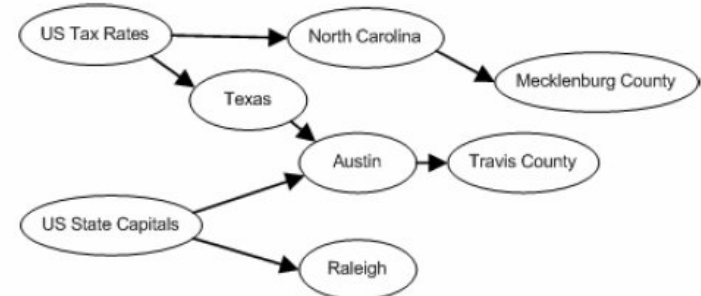
## Some Aspects of Classification Scheme Spec....



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Unified Context Methodology



- Context Path / Context Nodes
  - A sequence of Context Nodes which represent a change in semantic precision is a Context Path
  - A Context Node has a Context Value
  - The directed edges in a DAG indicate the broadening or narrowing of semantic precision
  - Root nodes provide the most imprecise point of understanding, while the 'ending' node provides the most precise understanding



- Context Intersection / Union
  - Context Paths may come through the same Context Node for very different reasons
    - US Tax Rates -> Texas -> Austin -> Travis County is a different semantic understanding than US State Capitals -> Austin, but both include the Austin context value
  - Intersections / unions expressed using the expression grammar

# Final Thoughts

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- We have been active in semantic research for years
- Continuously trying to improve the ambiguities in the standard
- Thinking of a non-normative OWL version of OAGIS
- Open to ideas



Questions?  
[www.oagi.org](http://www.oagi.org)