Resolved: Effective Emergency Response Requires
- Ontology as an Organizing Principle
- Ontology Applications in Practice
Ontology Applications Also Means the Application of Ontology

What do these images have in common beyond their Dateline?
Ontology Applications Needed

Ontologies Needed:
- Unstructured Data
- Incident Lifecycle
- EventType
...
Resolved: Ontology Needed

- Since 9/11 We’ve Moved to More Expressive Representations in Emergency Management IT Standards
  - But We Still Need ‘Computability’ of Less Expressive, More Constrained Representations
- We’re Aiming for the “Sweet Spot” Between Theory and Practice
  - We Have Important Choices to Make
- Opportunities Exist for Ontology to Make Important Contributions
Timeline of OASIS
Emergency Management Technical Committee
Standards Work

9/11/2001 - 10/1/2002
OASIS
Emergency Management Technical Committee Formed

9/11/2001

10/1/2002 - 4/30/2004
Common Alerting Protocol
Approved as OASIS Standard

5/1/2004 - 5/1/2005
Emergency Data Exchange Language-Distribution Element
(EDXL-DE)
Approved as OASIS Standard

5/2/2005 - 6/1/2008
Goal: EDXL-HAVE
(Hospital Availability Exchange),
EDXL-RM
(Resource Messaging)
Approval as OASIS Standards

6/2/2008 - 1/1/2010
Goal: OASIS Approval of EDXL-RIM
(Reference Information Model)
& Full Adoption of Existing OASIS EM TC Standards

1/1/2010

14 February 2008 Ontolog Forum: Ontology Applications in Emergency Response (Take 2)
Recap: Take 1

- **Information Sharing More Critical**
  - NIMS Deployment on Slow Timeline
  - NIEM at v2.0 with Support
  - EDXL-HAVE and EDXL-RM Moving Forward

- **Fail-Points Still Avoided**
  - Lack of Sirens make Tornados More Devastating

- **SOA More Hype Than Ever**
  - Marketplace Confusing for Non-Technical Audience

- **Interoperability Still Difficult**
  - CAP is an Exception

- **Situational Awareness Standards Still in Discussion Stage**
Recap: Take 1

- **Decision Support More Critical**
  - Uptake of IT in Healthcare Relatively Unimproved
  - Tracking Decisions Against Results Lacking

- **AHIC 2 Now in Private Sector (LMI and Brookings Institute)**
  - Status of HITSP, CCHIT and National Disaster Medical System (NDMS) Uncertain

- **Semantic Interoperability in Health Informatics Problematic**
Recap: Take 1

- **Emergency Response Management Systems**
  - Local Offices of Emergency Services (OESs)
  - Uptake of Standards Difficult to Budget

- **Emergency Response Systems Management**
  - NIMS & NIEM Could Be Important Steps Forward
  - National Disaster Medical System (NDMS)
Applications of Ontology & Ontology Applications Both Needed

Decision Support Ontology (DSO)
- Decision Types
- Decision Points

Ontology Applications using DSOs Needed for ERMS & ERSM
- Should work with Governmental & Private SOAs
- Should Automate Marshalling Data Resources
- Should Apply Rules per Jurisdiction
Intro: Take 2

- Ontologically Consistent (ISO 11179-XMDR) Taxonomies Needed
  - Emergency Event Types
  - Emergency Organization Command Systems
  - Emergency Equipment Names and Descriptions
  - Geospatial Coordinate Systems (OGC Work Ongoing)
  - Units of Measurements (ISO, OGC, etc Work Ongoing)
  - Contact Information (OASIS CIQ (Ongoing), HumanML (Dormant), BPEL4People (Getting Started)
  - Scheduling/Temporal Systems
Intro: Take 2

- OASIS EDXL Family (Now and Growth)
  - Message Exchange Management
  - Hospital Specific Data Support
  - Resource Messaging Support
  - Reference Information Model
  - Situation Reporting
  - Compatible Specifications and Interoperability
  - Exigencies
Elysa Jones, Warning Systems, Inc., Chair, OASIS Emergency Management Technical Committee (EM TC)

- Overview of EM TC, Emergency Interoperability Consortium
- CAP
- EDXL-DE
- EDXL Family
- EM TC Process
Summary

- NIMS messaging standards authority aligning NIMS, DM/EDXL, and NIEM
- UICDS / NIMS alignment and simplification
- MOU / SLA’s
- Grant Language
- Practitioner driven - Coordinated groups
- Standards Messaging Repository housed by NIMS
- EDXL & NIEM EM domain common data dictionary.
- NIEM IEPD’s where standards lacking – NIMS evaluate standards candidates

Better served Practitioners
One-stop-shop for incident management systems and standards
Simplify grant language / compliance requirements
Office of Interoperability Services (OIC)
Emergency Data Exchange Language Standards Development Process

14 February 2008
Ontolog Forum: Ontology Applications in Emergency Response (Take 2)
- Elysa Jones
David Webber, IntegrityOne Partners, Chair, OASIS Content Assembly Mechanism Technical Committee (CAM TC)

- Overview of Integration Technologies
  - XML Schema
  - CAM
  - CCTS
  - ebXML, ebXML-RR
  - Ontology
## Integration Technologies

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</thead>
<tbody>
<tr>
<td>W3C XSD Schema</td>
<td>Provides lexicon of information content</td>
<td>Provides actual use patterns (templates)</td>
<td>Alignment of meaning and terms</td>
<td>Shared resources of semantic definitions</td>
<td>Alerts</td>
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<td></td>
<td>Describes structure constructs</td>
<td>Supports context handling and rules</td>
<td>Consistent domain definitions</td>
<td>Code lists</td>
<td>Process control</td>
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<td></td>
<td>Arranges groups of information</td>
<td>Rendering outputs and documentation for verification</td>
<td>Dynamic rendering</td>
<td>Distributed versioning control</td>
<td>Automated interfacing</td>
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<td></td>
<td>Simple content typing</td>
<td>Enables integration testing / certification</td>
<td>Modelling methods and practice</td>
<td>Role and access security management</td>
<td>Business Intelligence</td>
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<td>Software tooling interfaces</td>
<td></td>
<td>Business information content building blocks</td>
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<td>OASIS CAM Templates</td>
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<td>Domain Vocabulary CCTS NDR</td>
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<td>Shared Semantics ebXML RR</td>
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<td>Ontology Classification Discovery</td>
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<td>Machine Based Reasoning</td>
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</tbody>
</table>
Example: Hospital EDXL to Report

1. Content (EDXL)

2. Rules (CAM + XSLT)

3. Report (HTML)
CAM Deployment Options

EDXL

1. Receive
   - XML
   - html
   - Rendered Report

2. Validate
   - jCAM engine
   - Structure Rules Context
   - Message System

3. Process
   - Java API
   - EDXL
   - html
   - Rendered Report

B2B

Web services

1. Request
   - XML

2. Process
   - jCAM engine
   - Java API

3. Response
   - XML
   - html

Standalone

- Eclipse
- Template
- XML

EDXL

Ontolog Forum: Ontology Applications in Emergency Response (Take 2)
- David Webber
Rex Brooks, Starbourne Communications Design, Co-Chair, OASIS Emergency Messages and Notification Subcommittee (EM TC)

The Evolution of the Emergency Data Exchange Language Family of Specifications

- EDXL-DE—Distribution Element
- EDXL-HAVE—Hospital AVailability Exchange
- EDXL-RM—Resource Messaging
- EDXL-RIM—Reference Information Model (Planned)
- Possible Future Specs
EDXL: Evolving the Need for Ontology in Emergency IT Standards

  - CAP Brought into OASIS Emergency Management Technical Committee (EM TC) at Start of TC
- EDXL-DE First EM TC Standard Created from Inception to Approval
  - Process Different from CAP
  - Scoping & Requirements New Factors for TC
  - TC Task Divisions Developed over Course of Work
    - Subcommittees Formed for Infrastructure, Messages & Notification, GIS-Geospatial Concerns
EDXL: Evolving the Need for Ontology in Emergency IT Standards

- **EDXL-DE Created to Provide Uniform Emergency Message Routing**
  - Staying in Scope a Challenge
  - Finding Appropriate Levels for Information Units
  - CAP Becomes One Kind of Payload

- **Created in the Context of CAP Adoption**
  - Lack of Standards in Emergency Management IT
  - Unintended Uses of CAP
EDXL: Evolving the Need for Ontology in Emergency IT Standards

◆ EDXL-DE 1.0 Lessons Learned:
  ■ Get Scope & Requirements Clear at Start
  ■ Document Object Model: Method to Define Levels of Information
  ■ ValueListURN Developed as Way to Avoid Problems of Lists from Different Jurisdictions/Organizations:
    ● Types of Emergencies
    ● Organization System Position Names
    ● Location Specifiers, e.g. Street/Postal Addresses
  ■ ISO 11179 Extended Metadata Registry (XMDR) Offers Solution to ValueListURN Specifier
EDXL-HAVE (Hospital AVAILability Exchange) Brought to OASIS as a Candidate Specification: HavBed

- Another EDXL-DE Message Payload
- A Snapshot Report of Hospital or Hospital System Capabilities—Recommended by HITSP
- Represents the Intersection of Emergency Management and Health Informatics

EDXL-HAVE Reuses:
- ValueListURN for Lists
- geo-oasis:WhereType for GeoLocation Info
- CIQ for Contact Info, Person Names, Addresses
EDXL-HAVE & EDXL-RM

EDXL-RM (Resource Messaging) Brought from Practitioner Steering Group (PSG)

- Another EDXL-DE Message Payload
- Brought as a Candidate Specification, Recast as Requirements Document-Step Forward (Maybe)
- EDXL-RM Reuses:
  - ValueListURN for Lists
  - geo-oasis:WhereType for GeoLocation Info
  - CIQ for Contact Info, Person Names, Addresses
EDXL-HAVE & EDXL-RM

- **EDXL-RM 1.0**: 16 Specific Message Types & Flexibility for Unspecified Messages
- **EDXL-HAVE & EDXL-RM** Represent Message Exchange Patterns (MEPs)
  - Can be Represented by Ontologies or Taxonomies
  - Can be Specified in SOA-RR Service Descriptions as Text or WSDL
  - Can be Included in BPM for SOA Choreographies
  - Can be Handled by Ontology Applications
- **EDXL-DE, EDXL-HAVE & EDXL-RM** Lessons Learned:
EDXL-HAVE & EDXL-RM

- EDXL-DE, EDXL-HAVE & EDXL-RM
  Lessons Learned:
  - Reuse Message Elements & Information Units
  - Reuse Specification Processes

- Next Step: Emergency Data Exchange Language Reference Information Model (EDXL-RIM)
  - More Abstract Than EDXL-DE, -HAVE, -RM, but Less Abstract than Reference Model such as SOA-RM
  - Represent as XML Schema, RDF Schema and OWL-DL
  - Provide Guidance for Future EDXL Specifications, Versions of Existing Specifications
Rex Brooks, Prepared by Danny Thornton, OASIS SOA Reference Model Technical Committee (SOA-RM TC), Reference Architecture Subcommittee

- Overview of Example OASIS SOA-RM TC Reference Architecture
  - Integrated Response Services Consortium (IRSC)
  - ebXML Registry-Repository, FreebXML Open Source Project
  - Federated RRs for Emergency Management & Health Informatics Domains
Integrated Response Services Consortium (IRSC)
SOA Registry-Repository (RR) and SOA Service Visibility

- SOA RR can provide SOA service visibility as defined by the OASIS SOA Reference Model and OASIS SOA Reference Architecture
- OASIS SOA service visibility expressed as
  - **Awareness** – Provide centralized (mediated) search and access of service descriptions for relevant domains
  - **Willingness** – Service descriptions contain information that allow a consumer to determine the applicability of a provider’s service
  - **Reachability** – Service descriptions provide information to establish automated or other types of communication with the service
Advertising SOA Services – Service Descriptions

- Based on ongoing work for the OASIS SOA Reference Architecture
Implementation of IRSC SOA Service Visibility

- Visibility of IRSC Emergency Management and Health Informatics services offered through standards-based IRSC SOA RR
  - Service Descriptions published to IRSC SOA RR
  - SOA RR complies with electronic business XML (ebXML) standard
  - Based on FreebXML open source project
  - FreebXML representation in Open Ontology Repository Initiative
Where is the Ontology Support in SOA RRs?

- Open Ontology Repository Initiative will determine additional ontology support for SOA RRs
- This community will likely take ontology support in SOA RRs to the next level
Underlying Ontology Support and an ebXML SOA RR

- Standards and classification schemes part of the standard ebXML and FreebXML SOA RR
- FreebXML SOA RR can be loaded with classification schemes, concepts, and their relationships
- Service Descriptions and their artifacts can be stored and classified in the FreebXML SOA RR
Example Search of an ebXML SOA RR
Integration With ebXML RR

- Standard JAXR interface for programmatic integration of ebXML compliant RRs
Example Web Application Using JAXR to Front ebXML RR
Michelle Raymond, Principle Research Scientist, Honeywell ACS Labs, Knowledge Services

- Examining Emergency Management Needs Across Domains for Data Exchange Support
- National Building Information Model Systems (NBIMS)
- OASIS Open Building Information eXchange TC (oBIX)
- Using oBIX with EDXL-DE
- Using SOA-RR Framework
- Ontology Needs
In the Face of Disaster

In Emergencies, Information must Flow Smoothly in Detection, Response, Mitigation & Recovery for ALL.

14 February 2008
Ontolog Forum: Ontology Applications in Emergency Response (Take 2)
- Michelle Raymond
Emergency Management
Information Needs

- **Cleanly Cross Domains**
  - Connect correct information NOW!
  - Information services
  - Reasoning services
  - Action services

- **Data Exchange Support**
  - Sharing policies
  - Distribution assignment
  - Creating Common Operating Picture
  - Scope and view accounting
National Building Information Model Standard (NBIMS) Vision

- **NBIMS Vision: Improved process**
  - using a standardized machine-readable information model
  - containing all appropriate information about a facility
  - formatted to be useable throughout its life-cycle
  - for all participants needing knowledge about the facility.

**Vision Statement:** An improved planning, design, construction, operation, and maintenance process by using a standardized machine-readable information model for each facility, new or old, which contains all appropriate information created or gathered about that facility in a format useable throughout its life-cycle by all.
Official Definition:
A Building Information Model (BIM) is a digital representation of physical and functional characteristics of a facility. As such it serves as a shared knowledge resource for information about a facility forming a reliable basis for decisions during its life-cycle from inception onward.
Business Processes

- Interfaces to business processes at the core of NBIMS
- Standardizing commonly-recognized relationships
- Identify information needing to flow through the model
- Make information available to appropriate parties

Formalizing information flows will:

- Identify authoritative sources for information
- Ensure that correct data is collected
- Data need only be entered once into the model
Hierarchical Information Relationships

Geospatial Information (GIS)

- Country
- State / Province
- County
- City
- Site
- Natural Asset
- Air / Space
- Underground
- Water / Sea
- Land / Parcel
- Facility / Built

Building information (Building Information Models)

- System
- Space
- Sub-Systems
- Level
- Overlay
- Structure
- Linear Structure
- Node
- Segment
- Room
- Components

IAI-IFC Usage

© BIMS 2006
**Ontolog Forum: Ontology Applications in Emergency Response (Take 2)**

**Hierarchical Building Information Relationships**

**Building**
- Or Structure

**Systems**
- Ex. Structural, MEP, Flooring, Ceiling, Exterior, Walls
  - Attributes
  - Metrics
  - Sub-Systems (part of systems)

**Space**
- Vertical Horizontal, Empty
  - Level (Stories)
    - Room
    - Attributes
    - Standards
    - Void
    - Metrics
    - Attributes
  - Vertical

**Overlays**
- Typically associated with building hierarchy elements.
  - Assets
  - Personnel
  - Business Groups
  - Example
    - Furniture Equipment Phone
    - Space Assignment Business Group
    - Marketing Administration
    - Metrics
    - Financial Classifications
    - Zones
    - Secure Areas Systems
    - FCA, MDI

**IFC objects, relationships, space**

**Systems**
- Represent the physical entities of the building. Systems use NA classifications such as Omni-Class and Uniformat and are transported/exchanged via IFCs.

**Space**
- Is physical in nature, but can be unbounded (have no or cross physical boundaries) but it will always be tied to the physical structure or systems in some way.

**Overlays**
- Are more abstract data - organizational, operational, functional, financial, non-fixed assets, resources, personnel, etc. that is data tied to the Systems and

**Reports or Extracted Data from BIM**
- (examples from all classifications)
  - Area
  - Gross
  - Net
  - Usable
  - Volume
  - Surface
  - Quantities
  - Sq. Ft.
  - Linear Ft.
  - Materials & Types

© BIMS 2006

Michelle Raymond
One object exists in multiple contexts

In a briefing document
- Properties

In product catalogues
- Properties

In classification systems
- Properties

In building specifications
- Properties

In a CAD system
- Properties

BARBi - Norway
LexiCon - Nederland
NBS - England
SDC - France

In a calculation system
- Properties

In a facility management system
- Properties

For demolition and reconstruction
- Properties

One concept carries the same unique identification in every language
78AF4E98C3D4406BB873DBB85E1FE7DB

NBIMS – North America

Courtesy of Lars Bjørkhaug, Norwegian Building Research Institute
© BIMS 2006
oBIX – Open Building Information eXchange

- Enables Building Management Systems to communicate with external services
- Represents information in a standardized format
- Enables defining specialized contracts to invoke operations based on security permission and situation awareness
- Provides for changing permissions based on alarm states

oBIX Architecture objectives provide means for reliable, extensible, safe interoperability.
# oBIX 2.0 Stack

<table>
<thead>
<tr>
<th>oBIX Building</th>
<th>oBIX Energy</th>
<th>oBIX Security</th>
<th>oBIX Industrial</th>
</tr>
</thead>
<tbody>
<tr>
<td>• HVAC equip</td>
<td>• Meter</td>
<td>• Users/badges</td>
<td>• Process</td>
</tr>
<tr>
<td>• Fire</td>
<td>• Price structures</td>
<td>• Doors/readers</td>
<td>• 1131/1499</td>
</tr>
<tr>
<td>• Elevator, etc</td>
<td></td>
<td>• Cameras/video</td>
<td>• Batch/recipes</td>
</tr>
</tbody>
</table>

**oBIX Enterprise**
- Distributed database: query, search, navigation, caching
- Ontology: site, building, story, equipment, space, relationships

**oBIX 1.0 Foundation**
- Object model
- XML
- Contracts
- Web Services
- Watches, points, histories, alarming
oBIX payloads in Distribution Element example

Emergency Operations
First Responders
Chemical Plant
Railyard Office
Other Recipients

Tornado Touchdown Alert
Send DE
CAP
oBIX
proprietary protocol
CAP

invoke contract
"NWS Alert"
Contracts

Invoke "Tornado – Take Shelter Alert"
requests "Safety Chemical Containment Operation"
Building Management System
Knowledge Solutions needed

- **Cleanly Cross Domains**
  - Know where to get data – SOA-RR
  - Domain Information Structure - Ontology
  - Reasoning Systems
  - Ontology based API

- **Data Exchange Support**
  - EventTypes in Policy Management within SOA
  - Incident Lifecycle - Ontology
  - Ontology to Ontology – Semantic clustering
  - Data slicing – Metadata for scope and view
Links and References

- **(NBIMS)** National Building Information Model Standard
  - Project page: http://www.facilityinformationcouncil.org/bim/
  - BIMS Slide Show:
    www.facilityinformationcouncil.org/bim/docs/BIM_Slide_Show.ppt

- **(oBIX)** Open Building Information Exchange

- **(EDXL)** Emergency Data eXchange Language
  - Associated EMTC Standards: http://www.oasis-open.org/committees/tc_home.php?wg_abbrev=emergency#technical

Presenter Contact is welcome via: michellearaymond@gmail.com
Dr. Bob Smith, Professor Emeritus, California State University Long Beach, OASIS Open Building Information Exchange

- Overview of Necessity for Ontology in ERMS & ERSM
  - Top-Down, Bottom-Up Approach
  - Roadmaps, Baselines and Benchmarks
  - Aligning Scope and Scale
  - Fail Points & The Critical Path for Success
  - The Public-Private Interface
  - Opportunities to Help Integrate Ontology
Response Service Life Cycle Management
Evidence from A Tale of Two Sectors
of Ontology Management Success

❖ My Objectives: Marshall Evidence
   ▪ Identify important opportunities for the Ontolog Forum Community members
   ▪ Identify relevant next steps towards common goals via Ontology Management methods
   ▪ Reframe Evidence of Ontology driven Response and Emergency Response Frameworks in key Industrial Sectors

❖ Outline (Top Down And Bottom Up approach with 3 layer model)
   ▪ Layer 1: Aligning Engineering and Management Functions in Mega Projects ( $1/3 Billion and up, 1-5 years of design integration)
   ▪ Layer 2: Roadmaps, Baselines and Benchmarks in Response Management Methods in Mega Projects ( OOR * OR = Rx)
   ▪ Layer 3: How are Mega Projects in the Architecture-Engineering-Construction Sectors aligning with the Health Information Technology Sectors? (Evidence of success and V*V agents in OOR)
Layer 1: Aligning Engineering and Management

- **Alignment tensions of large organizations with many domains and diverse stakeholders:**
  - Simple organizations evolve under stressors such as
    - technology and standards change (OASIS, OGC, OMG, UN)
    - environmental change (Energy Crisis, Climate Crisis, Water Crisis)
    - Political and Regulatory change (IPCC, AB-32 in CA, CERES)
  - Organizations “studied” intensively with
    - limited taxonomies and common frameworks (Simon, Mintzberg, Carley, Strategy Maps, Leontief)
    - very limited open computer based modeling
      - ontology based simulations (Paul Fishwick)

- **New Patterns of organizational adaptations**
  - nodes on the Global Information Grid (OMG-GAO Ent. Arch.,NC)
  - functional-structural modeling of resource dependencies

- **Evidence of Ontology Management evolving with Ontology Engineering?**
  - Challenge of Perspective, Process, Input-Output/Results, Value Alignment, Knowledge formalization, Internal Control/Audit and Governance distinctions
  - Ontology Resilience and Maintenance issues in Mega Projects dictates
  - Rules for Rulemaking and Agents that can say “No”
Layer 1: Comparison and Convergence: OE and OM “Persona”

◆ Ontology Engineering
  - Education: Philosophy-ICS
  - Focus on Project Internals
  - Available metrics: Technical Performance
  - Professional Judgments well codified in academic values
  - Network Communication flows dominate
  - Wiki or Current Communication flows
  - Semantic Technology well developed; Project Management Ontologies emerging (?)

◆ Ontology Management
  - Education: Business School, Civil Engineering
  - Focus on Project Context & Legal Constraints (RFP/Contracts)
  - Available metrics: Productivity & Results (Time, $$ in SoW, RFP Contracts)
  - Hierarchy mindset → Nets
  - Project Tools well developed but require emerging Semantic Technology to be effective

- Bob Smith
Layer 2: Roadmaps, Baselines, Benchmarks: Tasks, Tools, and OOR

推动证据：发展中的概念管理任务：
- 视觉（可行和可伸缩目标；替代路径；评估标准嵌入在组织化决策支持系统中）
- 耗资韧性（明确优先级和从预期和意外挑战中恢复的能力）

必要概念管理工具及OOR：
- 行业路线图和行业节点，目标导向的基线和基准演进（NHIN-NBIMS）
- 关于概念基准的度量
- 重大路径上的失败点意识
- 暴露隐藏的假设：
  - “现实检查”过程，
  - 智能传感器集成
  - 表达在公开和专有模型中
  - 在历史框架上作为服务组件开发

- Bob Smith
Layer 3: Evidence of Convergence in Healthcare & Building Sectors

- Roles of evolving OOR Design and Governance
- Sectors: Architecture-Engineering-Construction and Health Information Technology
  - Fallon & FIATECH-NIST value implications
  - RAND, Partners NHIN-HIE value implications
  - BIMStorm value implications
- Expected Mega project <--→ OOR effects
  - Ontology critical, ontology based standards obviously key
  - Challenge is framing task opportunities in productive terms
  - Since some sectors are far ahead of others, which management patterns and technology knowledge is being transferred where needed?
- Convergence between Facilities & Functions—All Hazards Belief Networks
  - An evolving concept: More distinctions needed: 2 x 2 table enough?
  - Convergence defined and illustrated (Popper vs Kuhn vs Feyerabend)
  - Facilities perform Functions: Physical Architects when designing structures balance many trade-offs within scope of many standards
    - BPS&J’s Gupta: 2-3 years ahead of time
    - BIMStorm success with demonstration using ICF
- Session Speaker’s Evidence of Convergence?
  - oBIX→ Expansions with many related physical and virtual objects
  - SOA Frameworks of Standards viewed from Functional-Process perspective NOT Vendor

- Bob Smith
Mega Projects and RFP Mechanisms

- Integrated Roadmaps, Blueprints, and RFPs
  - Evidence of Semantic Interoperability between
- SOA Maturity and RFP Templates
  - Basic use of ontology projects and products
  - Legal aspects of an RFP in Mega Projects
  - Legal-Technical metrics and up front loading of performance expectations
- Scope, Objectivity, OODA Loops capabilities
  - Obvious opportunities for proper RFP Templates to accommodate dynamic semantics
- Life Cycle dynamics and Nodes on GIGs
  - The long term view needs to be better connected to current Mega Project initiatives
Visions and Values: EDXL & SOA Frameworks in Mega Projects

- Small component and role (IF Any) in Mega Projects today
- Where does a sponsor obtain the highest knowledge leverage?
  - Very early in design modeling
  - Very early in RFP development
  - Very early institutionalizing of SOA-RR recursiveness (GSA and NBIMS; USGBC and green entrepreneurs or greenwashers)
- Public-Private Partnership Scenarios
  - David Bain’s Empire Express lessons learned
- Opportunities for Ontolog Forum Members to participate in the Response Vision → Blueprint Visibility
Roadmaps and SOA-RR Response Blueprints: Mega Project Lifecycles

- **Simple high level Time Lanes**
  - (Converting Roadmaps to Blueprints to RFPs to Intelligently Built Life Cycle Systems…) Person in Lane; Roles, Functions : Actions results, impacts, fail points, lessons learned
    - Elysa Jones
    - David Webber
    - Rex Brooks
    - Danny Thornton
    - Michelle Raymond
    - Bob Smith
    - Missing Roles 1
    - Missing Roles 2
    - Missing Roles 3
- Bob Smith
Resolved: Ontology Needed

- Since 9/11 We’ve Moved to More Expressive Representations in Emergency Management IT Standards
  - But We Still Need ‘Computability’ of Less Expressive, More Constrained Representations
- We’re Aiming for the “Sweet Spot” Between Theory and Practice
  - We Have Important Choices to Make
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