Methods and Tools for Collaborative Message Standard Development and Use

Current and Future States

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Vision

• Develop methods and tools that enable efficient use, reuse, and development of message or data exchange standards
Why-1?
Standards are large and hard to use

An OAGIS Message can contain 300k+ data fields!!!

OAGIS Standard

OASIS PLCS Standard

Front Office
Operation

ISO 10303-239 PLCS information model

Context

DEXs (Data Exchange Specification)

BillOfMaterial DEX

Templates

Breakdown, Part, StockItem

Automotive
Aerospace
Defense
Chemical
High-tech
Construction
Why-1?

Standards are large and hard to use

BOM has 100s of thousands data fields
Why-2?

Need support for multiple Syntaxes

Cloud and Mobile Platform

- JSON Schema Standard

Enterprise Integration Platform

- XML Schema Standard

Business Intelligent Platform

- RDF Schema Standard
Why-2?
Need support for multiple Syntaxes

Model Driven Approach

Model Syntax Independent Standard

Production Rule for XML Schema

Production Rule for JSON Schema

Production Rule for OWL/RDF Schema

Cloud and Mobile Platform

JSON Schema Standard

Enterprise Integration Platform

XML Schema Standard

Business Intelligent Platform

RDF Schema Standard
Why-3?
There is no efficient way to give back to and uptake new standard

Lack of logical connection with the standard
--> Hard to uptake a new version

Usage Guideline
Inconsistent Ways to Document

Standard
Extension

Lack of method and tool to harmonize extensions
Why-4?

Manual Development and Central Management

“The OAGi Chief Architect will review all deliverables during the project to ensure maximum re-use and consistency of business content and technical architecture.”
Where We are?

• Work with industry in the OAGi Semantic Refinement Working Group
• Lead by NIST
• Develop a web-based tool – Score
• Proven values
• To open source the tool for wider collaboration
Tool Capability

Syntax independent standard

Model Driven Approach

Production Rule for JSON Schema

Cloud and Mobile Platform

OAG JSON Schema Standard

Production Rule for XML Schema

Enterprise Integration Platform

OAG XML Schema Standard

Model

Syntax Independent OAG Standard
Tool Capability

*Common way to develop usage guideline*

Use Context Driven ISO-15000 (UN/CEFACT) Core Component Approach

- **Core Component**
- **Business Context**
- **Business Information Entity**

- **The Standard**
- **Usage Meta Data**
- **Usage Guide**

- **Bill of Materials**
- **Sales, Assemble-to-Order, Electronic Mfg**
- **Super BOM**

Provide Traceability Back to the Standard from the Usage Guide
Tool Capability

Core component search and analysis
Tool Capability

Context Information Management

### Business Context Detail

**Name**: Assemble to order Sales

### Business Context Values

<table>
<thead>
<tr>
<th>Context Category</th>
<th>Context Scheme</th>
<th>Context Scheme Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Process</td>
<td>APQC Business Process Classification</td>
<td>Sales</td>
</tr>
<tr>
<td>Production Type</td>
<td>Production Type Context Scheme</td>
<td>A20</td>
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<tr>
<td>Integration Type</td>
<td>Integration Type Context Scheme</td>
<td>A2A</td>
</tr>
</tbody>
</table>

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Tool Capability

Collaborative Usage Guide Development
Tool Capability

Syntax specific Expression

Select annotation to generate for BIEs

- □ BIE Definition
- □ BIE CCTS Meta Data
  - □ Include CCTS_Definition_Tag
- □ BIE GUID

Select Expressions

- ○ XML Schema
- □ JSON Schema
- □ Make as an array
- □ Include Meta Header
- □ Include Pagination Response

Schema Package Option

- ○ Put all schemas in the same file
- □ Put each schema in an individual file
Going Forward

• Open source the tool
• Develop standard versioning and release management
• Mash up with other standards like MIMOSA, Chem E-Standard, AgXML, etc.
• Generate API template
• Develop usage guide upgrade
• Develop extension submission
• And a lot more innovations around those functionalities
Questions & Comments?