Tales from the Front Lines:
Integrating and customizing COTS tools to meet all of your requirements

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Now that you know who I am, I would like each member of the audience to stand up and introduce themselves.
Actual Introduction

• Over the past couple of years, we have been working with customers through various stages of S1000D implementation:
  – Analysis
  – Business Rules development
  – Implementation
  – Conversion

• We wanted to share some of the lessons we had learned with the S1000D community.
What’s the strategy?

• Putting in the work upfront to thoroughly assess how S1000D is implemented pays dividends later.

• S1000D system implementation is broken up into three distinct phases:
  – Inception
  – Implementation
  – Rollout
Inception

- The Inception phase of an S1000D system consists of the following steps:
  - Requirements Gathering
  - Business Rule Development
  - Tool Selection
  - Training*
Requirements Gathering

• Identify all the requirements for your specific program:
  – Content requirements
    • Types of content required. e.g.
      – Repair data,
      – Troubleshooting data
      – Parts data
    • Advanced diagnostic capabilities?
    • How will any existing content work with S1000D?
  – Functional Requirements
    • How is content published?
    • What existing systems need to remain in use?
Business Rule Development

• Business Rules can be broken down into three categories:
  – Program Rules
  – Authoring Rules
  – Information Sets

• **Authoring rules** – Rules on usage of specific elements and attributes. These rules are codified in the BREX and Applicability data modules.

• **Program rules** - General S1000D rules that are not necessarily enforceable in a CSDB.

• **Information sets** - rules and guidelines for Data Module coding.
Business Rule Development (cont.)

- Program Rules:
  - Determine for all data module types if/how they will be used:
    - Ex: Fault Isolation vs. Process DM
  - Decision for general S1000D issues:
    - Linking
    - Graphic types
    - Applicability
  - Incorporating higher level set of business rules
  - Incorporating other related standards
    - SCORM
    - S2000M
    - Etc.

- Authoring Rules:
  - Detailed element/attribute usage
Business Rule Development (cont.)

– Information Sets
  • Identify which information sets are applicable
  • Define data module coding strategy
  • Define list of program information codes
    – Consistency is key

– Applicability
  • Define applicability parameters:
    – Product Attributes
    – Condition Types

• Timeframe
  – Business rule can be developed against an aggressive schedule.
Tool Selection

How do you choose the right set of tools for you?

• Use S1000D functionality matrix.
  – Add your own requirements as needed.

• Evaluate tools based on the functionality matrix and business rules.

• Essential tool to identify potential technical “gotchas”.
  – 80/20 Rule

• Make sure tool(s) support selected version of S1000D.
# Functionality Matrix

<table>
<thead>
<tr>
<th>Functionality</th>
<th>Access</th>
<th>Annotation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Login</td>
<td>2 2 A</td>
<td></td>
</tr>
<tr>
<td>Suspend and restart</td>
<td>1 1 A</td>
<td></td>
</tr>
<tr>
<td>Exit</td>
<td>1 1 A</td>
<td></td>
</tr>
<tr>
<td>Action complete indicator (checkbox)</td>
<td>1 1</td>
<td></td>
</tr>
<tr>
<td>Global data annotation</td>
<td>2 2 A</td>
<td></td>
</tr>
<tr>
<td>Local data annotation</td>
<td>2 2 A</td>
<td></td>
</tr>
<tr>
<td>Personal annotation</td>
<td>1 1 A</td>
<td></td>
</tr>
<tr>
<td>Redlining text</td>
<td>3 3 A</td>
<td></td>
</tr>
<tr>
<td>Redlining graphics</td>
<td>3 3 A</td>
<td></td>
</tr>
</tbody>
</table>
Implementation

• Configuration of base tool(s)
• Identify “Gaps”
  – Determine the delta between your overall requirements and the capabilities of tool(s).
• Develop Strategy:
  – Create a technical strategy on how to address missing functionality.
  – Identify short and long term needs.
• Go!
Rollout

• Testing
• Ramp up authoring staff
  – Training
    • S1000D Usage
    • Authoring rules / style
  – Consider phased rollout
• Begin authoring
  – Incorporate your lessons learned as you go
Lessons Learned
Lessons Learned

• Take it easy! Roll out an S1000D environment incrementally.
  – Provides simplified learning experience
  – Focus on set of DMs being rolled out.

• Process DM Complexity
  – Process DMs are virtually a programming language.
  – Defining a clear strategy as for how to use Process DMs is imperative.
  – Develop a “coding standard” for process DMs.
Lessons Learned

• Applicability
  – Do not use product serial numbers in applicability statements.
  – Keeping applicability data in sync:
    • Product cross-reference table (PCT) DMs typically contain “as built” information.
    • Integrating the PCT with “as-maintained” information is critical.
      – Can be accessed from MRO / maintenance systems.
Lessons learned

• BREX Validation
  – Is validation of data against BREX required?
    • Validate as post-process after authoring?
      -or-
    • Validate business rules during authoring?
  – BREX can only validate authoring rules.
    • Program rules are enforceable via a “whip”.

17
Lessons Learned

• Information codes:
  – Two means of addressing:
    • Implicit - One information code describes all related “operations”.
      – i.e., 120 describes all preparations
    • Explicit – Create information codes for all operations.
      – Use Information Code Variant to delineate various types of “operations”.
      – i.e., 120A describes “Preparation for Maintenance”
      120B describes “Preparation for Draining”, etc..
QUESTIONS?
Thank You

Come see us in the vendor area!