

S1000D

ATA e-BUSINESS PROGRAM

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# How to manage the choices and implementation of new technology for S1000D delivery

*Selection and Implementation of Technology and Suppliers for S1000D compliant data delivery in support of new Regional Airliner Program*



» D3Technologies



*S1000D User Forum 2012  
June 18-21, 2012*

# Outline

- Overview
- The Need
- The Approach
- Specific examples from recent program
- Results
- Q&A



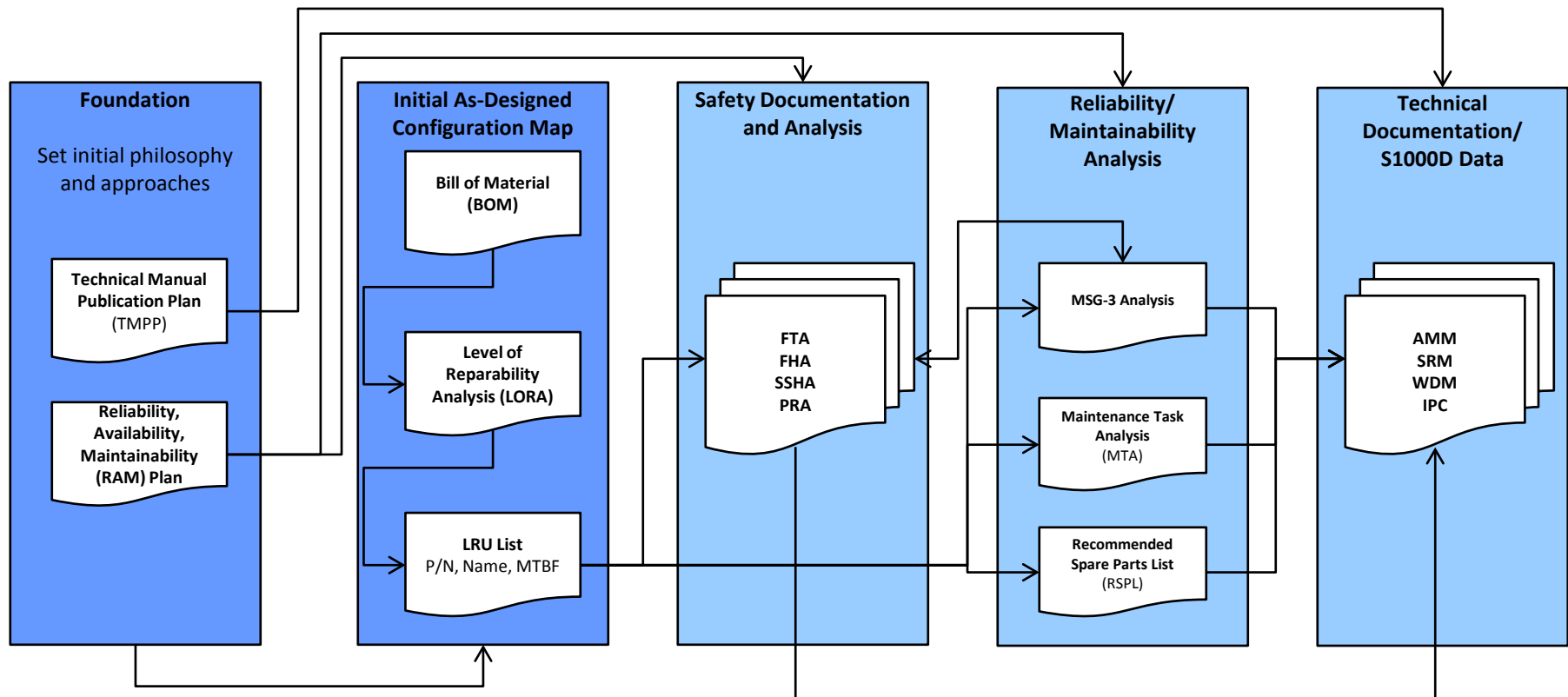
# Overview

- In an effort to distribute costs and risk on integrated programs, OEM's are pushing Customer and Product Support requirements down the supply chain onto partners and first and second tier suppliers.
- As a result of these increasingly complex Customer and Product Support expectations and requirements, first and second tier suppliers are finding themselves responsible for significant elements of what has traditionally been OEM activity, specifically the preparation and delivery of integrated Technical Documentation and Supply Chain data to standards such as S1000D.

# The Need

- Managing the preparation and delivery of integrated Technical Documentation and Supply Chain data to standards such as S1000D.
  - Previously completed at OEM/Tier 1 level
  - Requires specific skills at technical AND management level
  - Requires substantial hardware/software infrastructure
  - Typically an overhead level activity

# Integrated Approach Overview



# The Approach

- Meeting these challenging requirements necessitates an objective, repeatable and defensible means for
  - Defining requirements
  - Identifying, qualifying, evaluating and selecting appropriate tools and technologies
  - Identifying, qualifying, evaluating and selecting partners/suppliers
  - All such that you are able to meet Customer expectations and requirements while also meeting internal Resource, Budget and Schedule constraints.

# The Approach

- Defining Requirements
  - Recommend a matrixed approach
  - Work through SOW/Contract/PSA/CSP line items
  - Provide for internal tracking (line item number, etc)
  - Identify which are general guidance, and which are actionable
  - If possible, tie to industry/regulatory standards for traceability



# The Approach

- Identifying, qualifying, evaluating and selecting appropriate tools and technologies
  - Once the matrixed requirements have been identified, begin searching for tools that fit the bill
  - Does end-user/customer have specific required/recommended tool?
  - Do tools ‘play well’ with existing IT and CM infrastructure?
  - Do tools ‘play well’ with existing skill sets/resources/staffing?
  - Create a scoring approach and include relevant stakeholders
  - Does it make sense to do internally/organically or outsource?



# The Approach

- Identifying, qualifying, evaluating and selecting partners / suppliers
  - Similar approach to Tools (recommended from customer, etc.)
  - Create a ROM/SOW package and seek RFP's
  - Get customer feedback for potential partners (schedule, cost, performance – seek both positive and negative)
  - Create a scoring approach and include relevant stakeholders

# The Approach

- Meet Customer expectations and requirements while also meeting internal Resource, Budget and Schedule constraints
  - Determine internal limitations/concerns early
  - Best method is to ensure adequate estimates during business development phase
  - Engage early and often during RFP/RFQ/Contracting phase

# Specific Examples

- Requirements and Deliverables Mapping

Product Support Plan - Requirements Verification Matrix								
Req LIN	CSP Section and Description	Actionable Requirement	Recommended Approach	Document or process	Owner/POC	ECD	Notes - Discussion	Functional Organization - Skillset
PSP-0173	1 Master Minimum Equipment List (MMEL)	Y	Currently working with MJET to determine MMEL recommendations (if any)	SSIMSI List, MVP List	J. Knolla	TBD		S&SE - Technical Documentation
PSP-0174	2 Airplane Flight Manual (AFM)	N/A	No direct AFM data re: Tailcone Installation	N/A	J. Knolla	N/A		N/A
PSP-0175	3 Quick Reference Handbook (QRH)	N/A	No direct QRH data re: Tailcone Installation	N/A	J. Knolla	N/A		N/A
PSP-0176	4 Dispatch Deviation Guide (DDG)	Y	Related to MMEL discussion above	SSIMSI List, MVP	J. Knolla	TBD		S&SE - Technical Documentation
PSP-0177	5 Flightcrew Operating Manual (FCOM)	TBD	TBD	TBD	TBD	TBD		S&SE - Technical Documentation
PSP-0178	6 Weight and Balance Manual (wBM)	Y	This data supported by our WT & Bal reporting, no additional support envisioned re: Tech Pubs	WT & Bal Report	TBD	TBD		S&SE - Technical Documentation
PSP-0179	<b>9 . 5 DATA FOR AIRCRAFT MAINTENANCE (IF APPLICABLE)</b>	---						
PSP-0180	Seller will furnish to Buyer, electronically, source data related to Seller's Products, including, without limitation, text or artworks, to be incorporated into the Aircraft maintenance manuals listed below that are to be published by Buyer. Such data will include maintenance data including, without limitation, system description, maintenance practices, servicing, removal, installation, adjustment, test inspection, check, cleaning, painting and repair procedures. More specific details regarding the scope and extent of the data to be provided to Buyer will be established by Buyer after consultation with	Y	See below for specifics	Varies	J. Knolla	TBD		S&SE - Technical Documentation
PSP-0181	1 Maintenance Requirements Manual (MRM)	Y	Supported by S1000D content	S1000D	J. Knolla	TBD		S&SE - Technical Documentation
PSP-0182	2 Maintenance Planning Document (MPD)	Y	Supported by MSG-3 activity	S1000D	J. Knolla	TBD		S&SE - Technical Documentation
PSP-0183	3 Maintenance Task Cards Manual (MTCM)	Y	Supported by S1000D content	S1000D	J. Knolla	TBD		S&SE - Technical Documentation
PSP-0184	4 Aircraft Maintenance Manual (AMM)	Y	Supported by S1000D content	S1000D	J. Knolla	TBD		S&SE - Technical Documentation
PSP-0185	5 Structural Repair Manual (SRM)	Y	Supported by S1000D content	S1000D	J. Knolla	TBD		S&SE - Technical Documentation
PSP-0186	6 Fault Isolation Manual (FIM)	Y	Supported by S1000D content	S1000D	J. Knolla	TBD		S&SE - Technical Documentation
PSP-0187	7 Powerplant Build-up Manual (PPBM)	N/A	Not applicable to Tailcone Installation	N/A	J. Knolla	TBD		N/A
PSP-0188	8 Component Maintenance Manual (CMM)	Y	Really only applicable to supplier parts	Tech Docs Plan - TBD	J. Knolla	TBD		S&SE - Technical Documentation
PSP-0189	9 Non-Destructive Testing Manual (NDT)	TBD	May not apply to Tailcone Installation	TBD	J. Knolla	TBD		S&SE - Technical Documentation
PSP-0190	10 Aircraft Recovery Manual (ARM)	TBD	May not apply to Tailcone Installation	TBD	J. Knolla	TBD		S&SE - Technical Documentation
PSP-0191	11 Airport Planning Manual (APM)	N/A	Not applicable to Tailcone Installation	N/A	J. Knolla	TBD		N/A
PSP-0192	12 Corrosion Prevention Manual (CPM)	Y	Supported by S1000D content	S1000D	J. Knolla	TBD		S&SE - Technical Documentation
PSP-0193	13 Illustrated Tool & Equipment Manual (ITEM)	TBD	May not apply to Tailcone Installation	TBD	J. Knolla	TBD		S&SE - Technical Documentation
PSP-0194	14 Maintenance Facilities and Equipment Planning Manual (MFPEM)	TBD	May not apply to Tailcone Installation	TBD	J. Knolla	TBD		S&SE - Technical Documentation
PSP-0195	15 Service Letters (SL)	Y	This will be post EIS	Tech Docs Plan - TBD	J. Knolla	TBD		S&SE - Technical Documentation
PSP-0196	16 Standard Wiring Practice Manual (SWPM)	N/A	Not applicable to Tailcone Installation	N/A	J. Knolla	TBD		N/A

# Specific Examples

- Scoring Matrix

	W/weighting	Requirement	Source/Doc.	Option 1				Option 2				Option 3			
				Value	Score	Weighted	Notes	Value	Score	Weighted	Notes	Value	Score	Weighted	Notes
<b>Technical</b>				4.5	5.6			6.0	8.5			6.0	8.5		
Design	1			7.0	7.4			5.3	6.5			6.7	7.0		
TBD	1	NA	NA	6.0	6.0			5.0	5.0			4.0	4.0		
TBD	1	NA	NA	6.0	6.0			5.0	5.0			7.0	7.0		
TBD	1	NA	NA	8.0	8.0			2.0	2.0			7.0	7.0		
TBD	1	NA	NA	4.0	4.0			6.0	6.0			5.0	5.0		
RM&S	1			4.1	5.4			5.4	9.0			3.3	5.1		
MTBF	2	84000	Internal	3.0	6.0			6.0	12.0			3.0	6.0		
MTBUR	2	84000	Internal	3.0	6.0			6.0	12.0			3.0	6.0		
R&R Time	1	<15 min	TRD	5.0	5.0			5.0	5.0			3.0	3.0		
FMEA	1	NA	NA	5.0	5.0			5.0	5.0			5.0	5.0		
FHA	1	NA	NA	5.0	5.0			5.0	5.0			5.0	5.0		
SSA	1	NA	NA	5.0	5.0			5.0	5.0			5.0	5.0		
DMC	2	≥ 0.0073	Internal	3.0	6.0			6.0	12.0			3.0	6.0		
Manufacturing	1			5.0	5.0			5.0	5.0			4.0	4.0		
Impact to LMI manufacturing	1			5.0	5.0			5.0	5.0			4.0	4.0		
Certification	1			3.0	3.0			7.0	7.0			8.0	8.0		
Impact to MOC	1			3.0	3.0			7.0	7.0			8.0	8.0		
Test	1			3.0	3.0			7.0	21.0			8.0	24.0		
Fireproofability	3			3.0	3.0			7.0	21.0			8.0	24.0		
Vendor/Integrator	1			4.0	4.0			7.0	7.0			5.8	5.8		
Impact Inlet Interface	1			2.0	2.0			3.0	3.0			5.0	5.0		
Reliability impact	1			6.0	6.0			7.0	7.0			8.0	8.0		
Productibility impact	1			3.0	3.0			6.0	6.0			3.0	3.0		
TBD	1			4.0	4.0			7.0	7.0			3.0	3.0		
TBD	1			4.0	4.0			8.0	8.0			6.0	6.0		
TBD	1			5.0	5.0			5.0	5.0			4.0	4.0		
Weight	1			5.3	5.3			5.0	5.0			5.7	5.7		
Impact to weight	1			6.0	6.0			4.0	4.0			8.0	8.0		
TBD	1			5.0	5.0			6.0	6.0			5.0	5.0		
TBD	1			5.0	5.0			5.0	5.0			4.0	4.0		
<b>Schedule</b>				5.0	5.4			4.4	7.8			4.4	7.4		
Design	2			8.0	16.0			2.0	4.0			4.0	8.0		
RM&S	1			5.0	5.0			5.0	5.0			5.0	5.0		
Certification	1			5.0	5.0			5.0	5.0			5.0	5.0		
Test & Validation	2			5.0	10.0			5.0	10.0			5.0	10.0		
Vendor/Integrator	3			2.0	6.0			5.0	15.0			3.0	9.0		
<b>Commercial</b>				3.7	5.3			6.0	3.3			5.4	8.3		
Cost - NRE	1	\$ -		\$ -	3.0	3.0		\$ -	6.0	6.0		\$ -	7.0	7.0	
Cost - Recurring	1	\$ -		\$ -	3.0	3.0		\$ -	8.0	8.0		\$ -	6.0	6.0	
Warranty impact	2	\$ -		\$ -	3.0	6.0		\$ -	5.0	10.0		\$ -	6.0	12.0	
PSA/CSP	2	\$ -		\$ -	3.0	6.0		\$ -	8.0	16.0		\$ -	5.0	10.0	
TBD	2	60 months		TBD	5.0	10.0		TBD	5.0	10.0		TBD	5.0	10.0	
TBD	2	60 months		TBD	4.0	8.0		TBD	5.0	10.0		TBD	4.0	8.0	
TBD	1			TBD	5.0	5.0		TBD	5.0	5.0		TBD	5.0	5.0	
SUMSCORING (Raw/Weighted)				4.41	6.62			5.48	8.53			5.28	8.07		
RANKING (Raw/Weighted)				4	4			1	1			3	3		

# Specific Examples

- Software/Infrastructure Selection
  - Customer had originally defined ATA iSpec2200, changed to S1000D with some ATA 200/300 parts data
  - Customer identified Arbortext XML as desired authoring tool
  - We needed an S1000D compliant CM/CSDB tool that integrated to Arbortext
  - Looked out across service providers for Professional Services effort to build-up a 'from-scratch' CSDB/CM application
  - Cost and schedule risk was unfavorable, so we wrapped Tool into Partner Selection effort

# Specific Examples

- Partner Selection

- Due to schedule and budget concerns, we elected early to find a ‘one-stop-shop’ approach for CM/CSDB assistance
- Although I typically prefer to have at least 3 choices, we were unable to find 3 potential partners given the above intent (on past programs, this has been possible)
- That said, typically best to have a weighted scoring approach featuring heavily on key factors (schedule, budget, risk, etc.)



# Specific Examples

- Selling the program internally



# Results

- Integrated Planning Tool
- Strong partnership with Corena USA
- Initial content development underway
- Developed/strengthened skill sets and have grown capacity
- This could have gone the other way - outsource
- Can now integrate management and content development with other Engineering Services offerings or as stand alone

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# Q&A

- Questions
- Thank you for your attention

