A easy approach towards the migration and processing of material data in your S1000D workflow

Name of presenter: Gebhard MAURER
Rank/title of presenter: Director Product Development
Company/organization: HICO

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Gebhard Maurer
Director Product Development
Member of Executive Committee
HiCo-ICS (Austria)
E-mail: gebhard.maurer@hico.com
Thomas A. Edison Straße 2
7000 Eisenstadt
Austria

Steering Committee: Subject Matter Expert for:

S1000D
S2000M
S3000L
Agenda

• Processes and stakeholders
• Initial Situation for Supply, Support and Provisioning
• Challenges & Problem Description
• Possible solution
• Workflow
• Lessons Learned
Processes and stakeholders

- System Engineering & Design
- Product Support Analysis
- Preventive Maintenance Planning
- Authoring
- Supply, Support and Provisioning
- In-Service Support

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Initial Situation for Supply, Support and Provisioning

**MATERIAL DATA**

- Hardware Supplier
- Material Management
- Technical Documentation
- Operation

**TECHPUB DATA**

Conclusio:
Huge amount of parallel, potentially uncontrolled data in different formats!

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Challenges and Problem Description

– Data inconsistencies due to
  – Different suppliers and formats
  – Potentially inhomogeneous processes
  – Different material information
– Manual effort to correct inconsistencies and data errors
– Potentially high number of rework cycles in context of hardware supplier or service provider
– Challenging change and feedback processes to address all relevant areas
– Keep all the data modules (Proced, IPD, ...) up-to-date
Challenges and Problem Description

In the whole maintenance development process many different types of data, stakeholders, databases and processes are involved.

High risk of quality loss
Possible solution

Maintenance Planning

Supply, Support & Provisioning

CSNIPD

Provisioning

Technical Data

Procedure

Generation of procedural and schedule DM on basis of Maintenance Tasks

Schedule

IPD

Generation of IPD DMs
Possible solution

• Reuse of data
  – across different IPS disciplines, customers and functions
  – rise the quality and content
  – lower costs

• Automatic Generation of
  – Applicability / Effectivity via multiple customers variants or configurations
  – IPD data modules incl. change marks
  – S2000M data messages (like CSNIPD, UPIPCO, UPIPCT, etc.)
  – Links between Procedure and IPD data modules

• Keep everything up-to-date
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Workflow

- **Import of material data** (S2000M, Excel, etc.)
- **Create Parts list** (IPD data modules)
- **Create Material list** for the authors
  - Petrol, Oil and Lubricate
  - Tools, etc.
- **Insert material** data into Procedure data modules
  - from Parts list
  - from Material lists
- **Update cycles** for Parts lists and Material lists
  - Automatic change marks in IPD & Procedure
- **Automatic check** of material data
  - in Procedure & IPD data modules
  - reports of all changed material data
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Workflow: Import of material data

DFP: Engine
MFC: N1234+PNR: ENG123-A4
NSN: 1234-12-345-6789
CSN: A00000001 001+ISN: 00A
IND: 1 + RFS:6 + QNA:6 + UOI:EA
PLC:5 + PCD:HW + SLA:CO
UPR:77999+CUR:EUR
Workflow: Create Parts list

- Structure (SNS), Figure + Variant
- Illustrations (2D) or Multimedia Objects (3D)
- Part entries
- References / Links

MFC: N1234
PNR: ENG123-A4

Illustrated Parts List

Content Generator

SNS: Title: Illustrations: Entries:
Part Number: Quantity:

DMC-PRJ1-A-25-11-70-00A-941A-Z
DMC-PRJ2-ABB-A25-11-70-00AA-941A-Z

25-11-70-870-950-A01

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Workflow: Create material list

MFC: N1234
PNR: ENG123-A4

Material list

List of Tools:
- Speed Handle
- Torque Wrench
- Safety Wire Pliers
- Metal Working Tools Set A1

List of Petrol, Oil and Lubricate:
- Mobil Aviation Gasoline
- Mobil HyJet V Hydraulic fluids
- Aviation Grease SHC™ 100
- Mobilgrease™ 28
Workflow: Insert material

Parts list:
- ENG123-A4
- Fan
- Compressor
- Shaft
- Inner-tube

List of Tools:
- Speed Handle
- Torque Wrench
- Safety Wire Pliers
- Metal Working Tools Set A1

List of Petrol, Oil and Lubricate:
- Mobil Aviation Gasoline
- Mobil HyJet V Hydraulic fluids
- Aviation Grease SHC™ 100
- Mobilgrease™ 28

Procedure data module
Workflow: Update cycles

Revision A
- DFP: Inner-tube
- MFC: KT222
- PNR: IT-001

Revision B
- DFP: Inner – tube (black)
- MFC: KT222
- PNR: IT-001A

Automatic change tracking in DMs based on Revisions

Generated Procedure Revision B

Generated IPD Revision B

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• **Validation against material rules**

  Notice | Article 'Bremse vorn - H1T06 / MTB-BRS800-801' (Issued) (Core) is invalid according to the Material-Project.
  Warning | * 'QTBF' is mandatory if 'TBF' is not empty. QTBF must be filled when TBF is used. (Core)
  Notice | Article 'Front Wheel - 09WWM / MTB-WH10AV' (Edit) (Core) is invalid according to the Material-Project.
  Warning | * 'AUL' is mandatory. AUL is mandatory. (Core)
  Warning | * 'NSN' '123455' must match the regex '^([0-9]{13})|([0-9]{4})$'. The NSN must be 4 or 13 digits. (Core)

• **Show changes during Import**

  Info | Processing Article: 'D0854 / HDK6' 'NUT, SELF-LOCKING, EXTENDED WASHER'
  Info | * Article attribute 'PNR' changed from 'HDK6' to 'HDK699'
  Info | * Article attribute 'NSN' changed from '4820121640300' to '4820121640301'
  Info | * Article attribute 'Article.Name[en]' changed from 'NUT, SELF-LOCKING, EXTENDED WASHER' to 'NUT,

• **Validate against Schema, BREX, Hotspots, etc.**

  Info | Validate hotspots
  Info | Processing Parts List 'S1000DBIKE - BICYCLE: D00-00-00-00-AA - Fahrrad'
  Warning | * No hotspot exists for entry '006' in illustrations for variant 'sx-US'.
  Warning | * No hotspot exists for entry '006' in illustrations for variant 'de-DE'.
  Warning | * No hotspot exists for entry '006' in illustrations for variant 'hu-HU'.

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• **Reused data requires**
  – Part data rules
  – Applicability rules
  – Change Management rules

• **Authoring process**
  – Update material data in various data modules
  – Scraping unused content from existing data modules

• **IPD Generation**
  – Creating general scripts to populate material data
  – Automatically generate Line Item Effectivity & Change marks

• **Reports**
  – Changes must be reported to the right persons
Thank you for your attention!

Questions?

Gebhard Maurer
Director Product Development

HiCo-ICS (Austria)
gebhard.maurer@hico.com