Host (on behalf of ASD):

ADS is the Premier Trade Organisation for companies in the UK Aerospace, Defence, Security and Space Sectors.

Keep your S1000D documentation up-to-date by reusing maintenance task and material data from external engineering systems

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Rank/title of presenter: Head of Customer Solutions & System Integration

Company/organization: HICO

S1000D User Forum, London *October 14-16, 2019*

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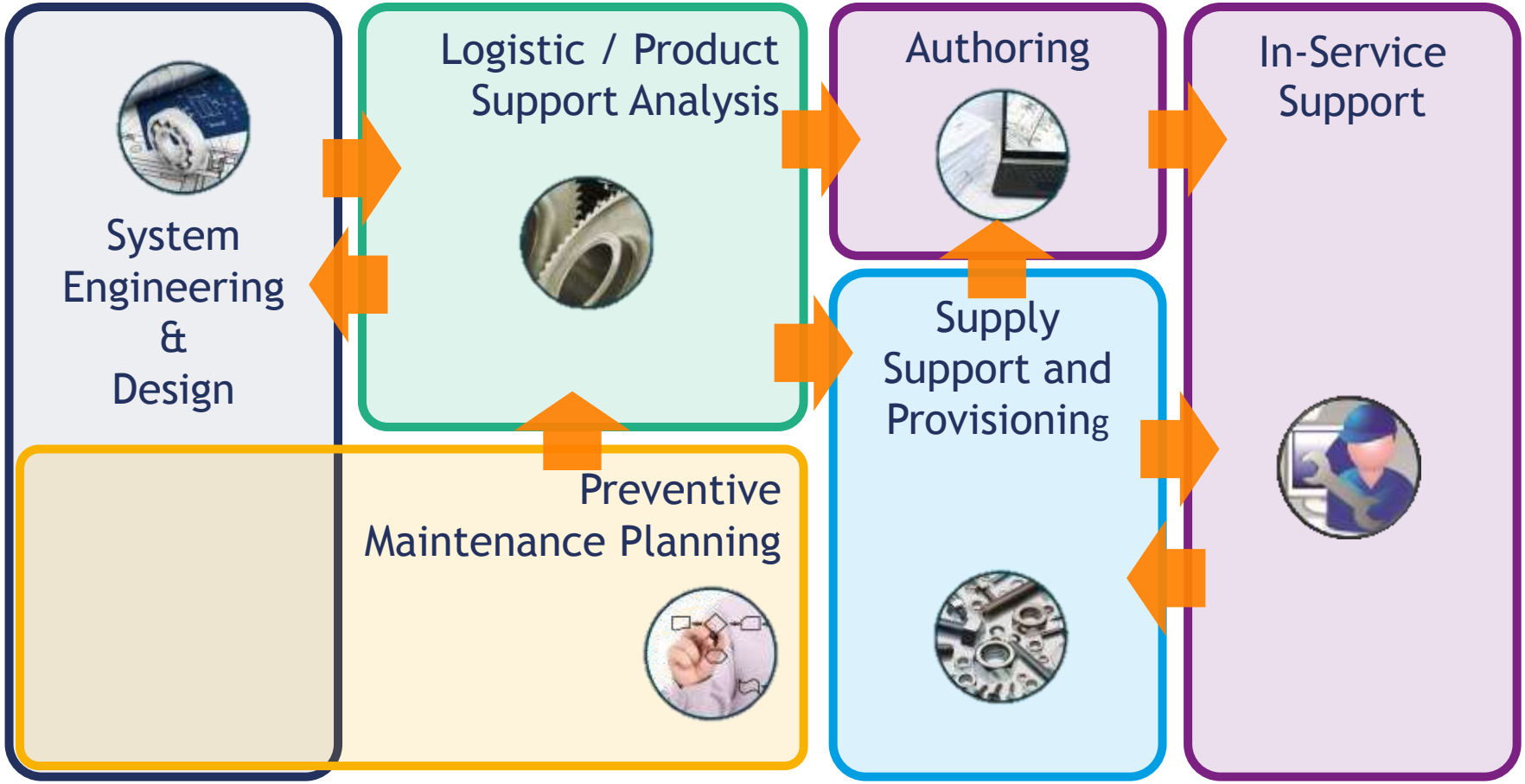
Subject Matter Expert for: S1000D, S2000M

Agenda

- Organizational challenges and stakeholders
- Benefits of a common IPS repository
- Increase the efficiency in creation of TechDoc
- Change- and Configuration Management
- Tagging-Guideline and Writing Procedures
- Challenges during implementation
- Real world examples

Organizational challenges and stakeholders

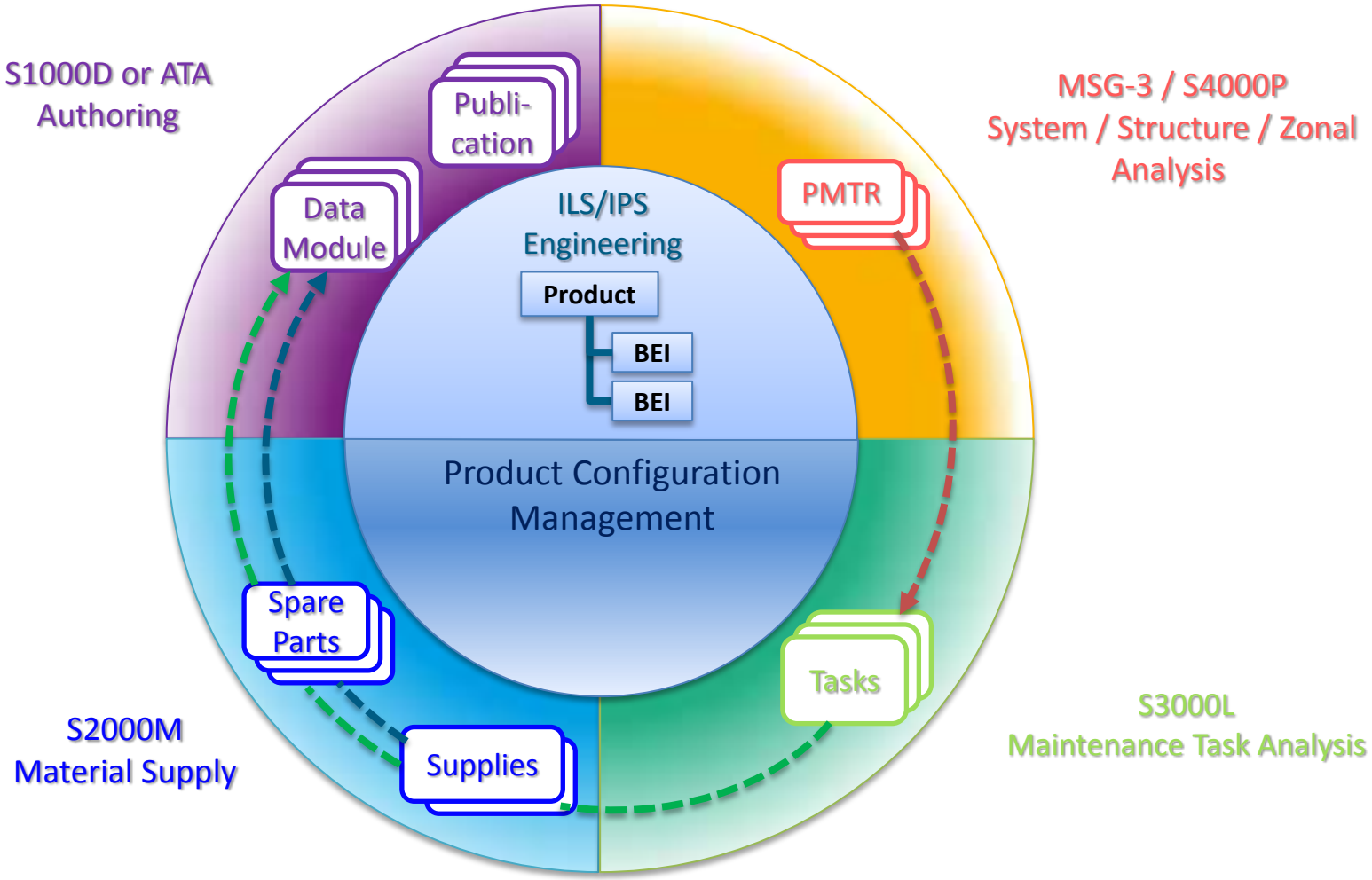


Organizational challenges and stakeholders

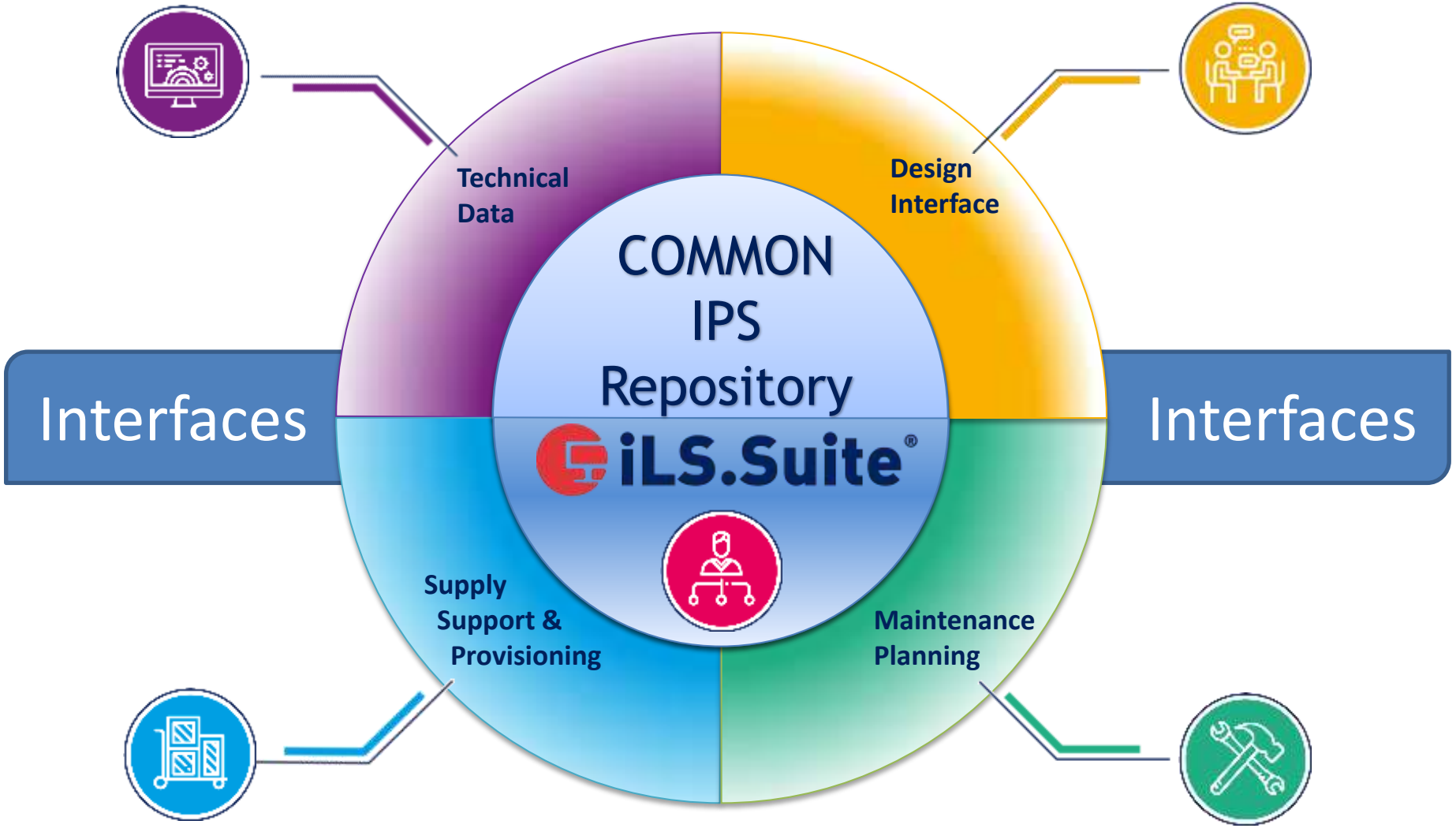
Additional Challenges

- Mixed fleets and operators
- Different TechDoc-Standard (S1000D and ATA) & project rules
- Civil and military projects
- Mixed toolset and IT-systems
- Many interfaces for data interchange
- Loss of data or rewrite of data
- No single point of contact for technical issues
- Different publishing solutions

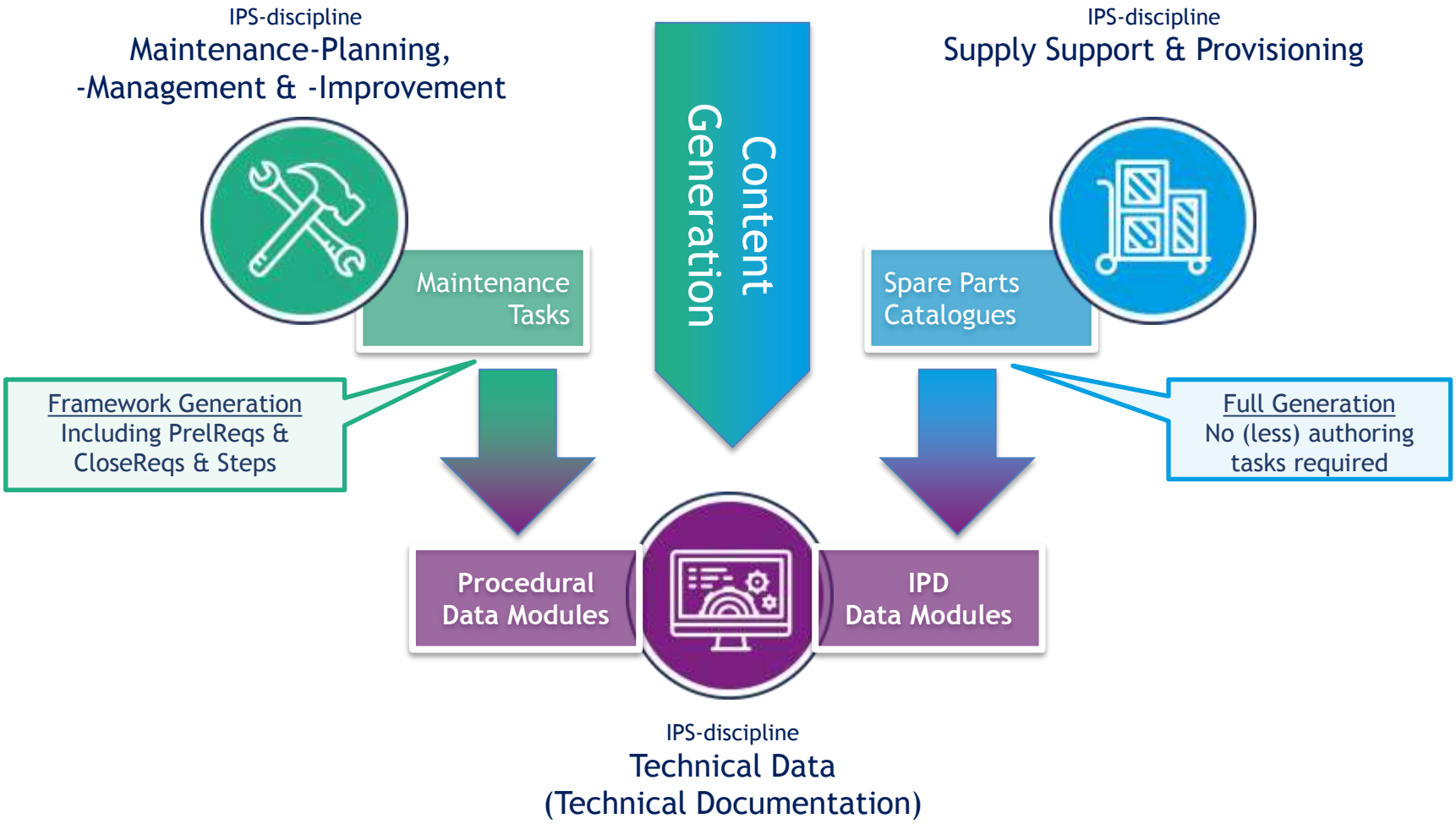
Benefits of a common IPS repository



Benefits of a common IPS repository



Increase in efficiency in creation of TechDoc



Procedural/Task generation

MFC: N1234
PNR: ENG123-A4

Remove procedure
Open for access procedure
Disassemble procedure
Repair procedure

- Rectifying or Supporting Task
- Function (Infocode)
- Preliminary / Closing Requirements (Links to Tasks)
- Intervals, Personal , Material, Safety
- Subtasks

Content Generator

Preliminary Reqs:
Spares:
Supplies:
Support Euipment:
Safety:
Subtasks:

Closing Reqs:

S1000D 2.3

<prelreqs>
<spares>
<supplies>
<supequip>
<safety>
<mainfunc>
<step1>, <step2>, …
<closereqs>

S1000D 4.1

<preliminaryRqmts>
<reqSpares>
<reqSupplies>
<reqSupportEquips>
<reqSafety>
<mainProcedure>
<proceduralStep>
<closeRqmts>

other (e.g. ATA iSpec2200)

DMC-PRJ1-A-25-11-70-00A-300A-Z **DMC-PRJ2-ABB-A25-11-70-00AA-300A-Z**

Benefits

- Reuse of independently written Tasks / IPLs
- Generation of Precedure-/Task and IPD/IPL data modules
- Flexible data mapping with project or install location specific values
- Reuse of centralized material (spares, supplies or equipment)
- Automatic linking to other Tasks / IPLs
- Generation of Common Information Repository
- Generation of Maintenance Schedule data modules
- Generation of S2000M CSNIP / UPIPCO / UPIPCT / others

Change- and Configuration Management

MFC: N1234
PNR: ENG123-A4

include

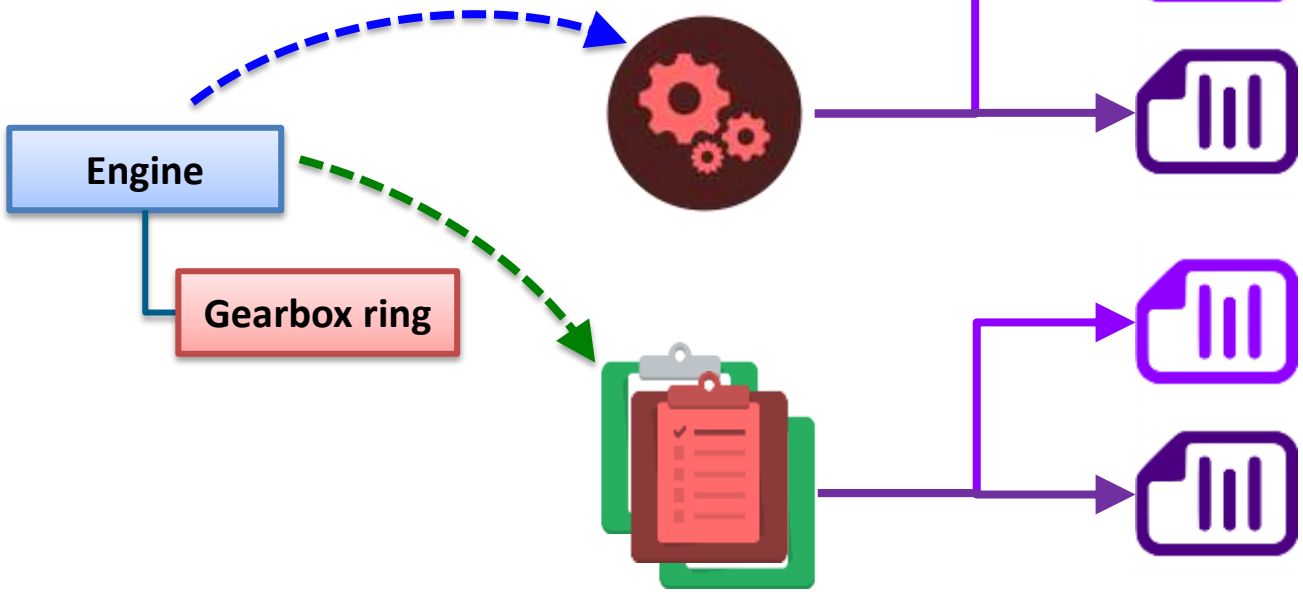
MFC: N1234
PNR: RING-A1

replaced by

MFC: B3426
PNR: C23-88.1

Structure update

1. Structure
2. IPL / Material
3. Tasks
4. Data modules



Change- and Configuration Management

Revision A

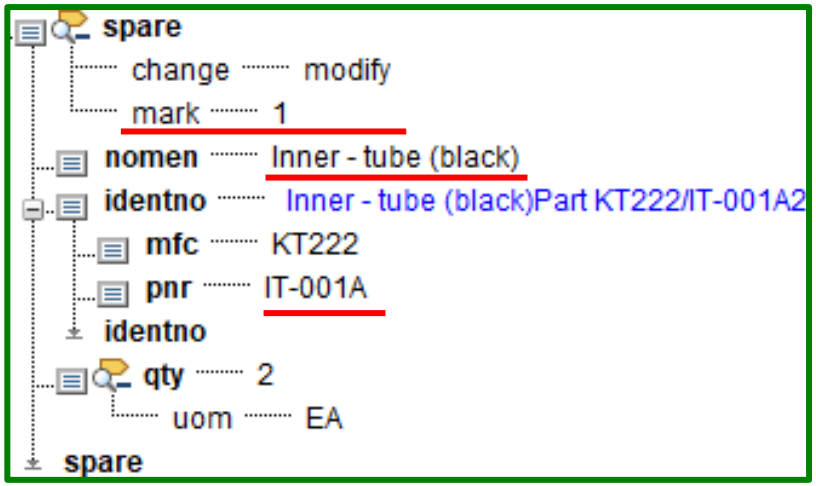
DFP: Inner-tube
MFC: KT222
PNR: IT-001

Revision B

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

Material data update

Generated Procedure Revision B



Tagging-Guideline and Writing-Procedures

Normative Directives and Requirements | Customer Strategy

S1000D

Business Rules Decision Points (BRDP)

Customer Strategy strategic approaches

High-Level Customer Requirements

Use of S1000D requires a customer specific definition („S1000D–tailoring“)

Process- and System-Implementation

Specification

BREX development

Content Generator development

Stylesheet development

Implementation

Launch

Guidance Documents

Tagging Guides (BREX, Schemas)

Test Content

automized **QA-processes**

Content Development Specifications

TechDoc-Project **Planning**

....

TechDoc-Project **Planning**

Authoring, IPC-compiling, 2D-/3D-illustration, etc.

Content Development

Tagging-Guideline and Writing-Procedures

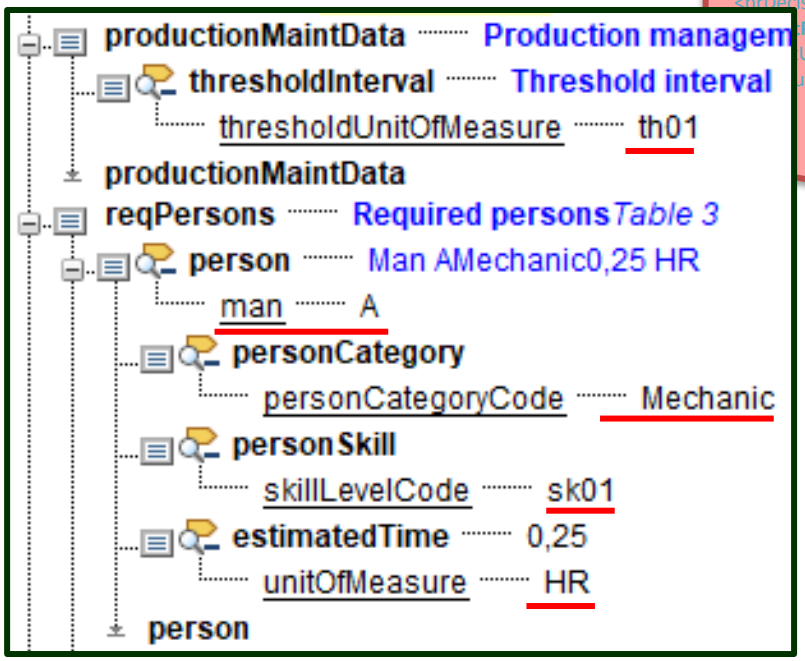
BREX

```
<structureObjectRule>
 <brDecisionRef brDecisionIdentNumber="BR-00071"/>
 <objectPath allowedObjectFlag="2">//maintLevel/@maintLevelCode</objectPath>
 <objectUse>Maintenance level</objectUse>
 <objectValue valueForm="single" valueAllowed="ml01">Level 1  (home)</objectValue>
 <objectValue valueForm="single" valueAllowed="ml02">Level 2 (authorized
workshop)</objectValue>
</structureObjectRule>
<structureObjectRule>
 <brDecisionRef brDecisionIdentNumber="BR-00067"/>
 <objectPath allowedObjectFlag="0">//trade</objectPath>
 <objectUse>Element –trade- is forbidden</objectUse>
</structureObjectRule>
```

BREX development

Tagging-Guideline and Writing-Procedures

- Rectifying Task
- Function (Infocode)
- Preliminary
  - **Maintenance (Level = 2)**
  - **Intervals (100 Flight Hours)**
  - **Personal (Position=1, Category=Mechanical Engineer, Skill=Beginner, Trade=AF999, Time=0,25h**
  - Material
  - Safety
- Subtasks



BREX

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 <objectPath
allowedObjectFlag="2">//maintLevel/@maintLevelCode</objectPath>
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 <objectValue valueForm="single" valueAllowed="ml02">Level 2 (authorized workshop)</objectValue>
</structureObjectRule>
<structureObjectRule>
 <brDecisionRef brDecisionIdentNumber="BR-00067"/>
 Path allowedObjectFlag="0">//trade</objectPath>
 Use>Element –trade- is forbidden</objectUse>
 ureObjectRule>
```

Content

Generator

Content Generator
development

Required Conditions

Action / Condition	Data module/Technical publication
Light set to off	
Light removed from bicycle	

Required persons

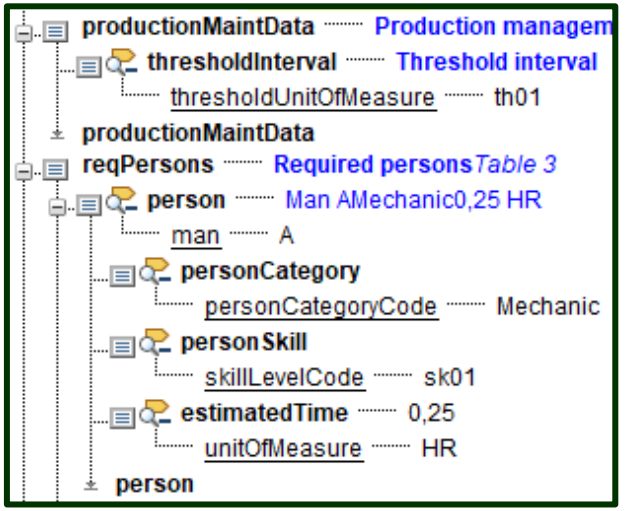
Person	Category	Skill	Est. Time
A	Mechanic	Basic	0,25 HR

Support Equipment

Nomenclature	References	NSN	Partno.	Mfc.	Qty
Special Toolset					1 EA

Stylesheet

Project B



Required Conditions

Action / Condition	Data module/Technical publication
Light set to off	
Light removed from bicycle	

Required persons

Person	Category	Skill	Trade Code	Est. Time
A	Mechanic	Basic	AF999	0,25 HR

Support Equipment

Nomenclature	References	NSN	Partno.	Mfc.	Qty
Special Toolset					1 EA

Stylesheet

Project A

Stylesheet development

Challenges during implementation

- Definition of independel Tasks/IPLs
- Convincing the customer to create detailed guidelines
- Generation scripts and data mapping
- Project- / Install-Location specific characteristics
- Shift of work – less work for Authors – more for engineers
- Who is repsonsible for warning, caution & notes
- And some more

Real world Aircraft examples

iLS.Suite®

Design Interface

PMTR

Technical Data

Procedure

Reuse of material data using MaterialSetter & Update processes

Supply & Provisioning

IPL

MMP

Generation of Mater Maintenance Plan

Schedule

Generation of schedule DM based on procedure DMs

IPD

Generation of IPD DMs

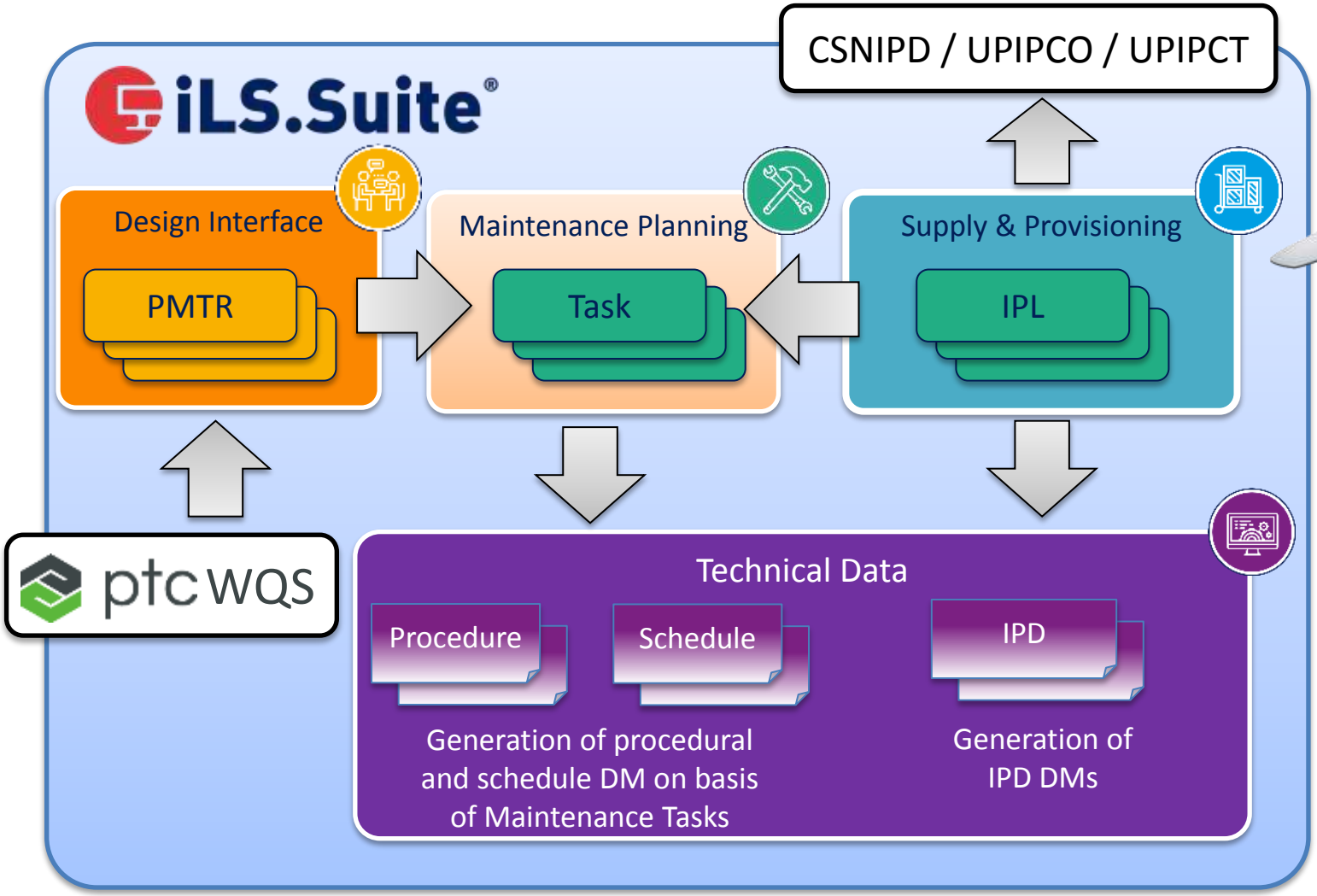
Swiss Aircraft Manufacturer

SIEMENS

Cortona3D

TEAMCENTER

Real world Helicopter examples



Swiss & Dutch Helicopter Manufacturer

Real world Submarine examples

SIEMENS SAP

iLS.Suite®

Design Interface

PMTR

Maintenance Planning

Task

Supply & Provisioning

IPL

Technical Data

Procedure

Schedule

IPD

Generation of procedural and schedule DM on basis of Maintenance Tasks

Generation of IPD DMs

German Submarine Manufacturer

Thank you

for your attention!

Questions?

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& System Integration

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andreas.pinter@hico.com