HELICOPTERS

AIRBUS

From ATA 2200 “Like” to S1000D

A travel in Tech Data New Generation

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S1000D USER FORUM

Renton (WA) - June 2022

Agenda

- ❑ Background: Why a migration now ?
- ❑ Current: How do we want to proceed ?
- ❑ Future: What are the expected benefits ?
- ❑ Conclusion

Background – Airbus Helicopters activity

❑ Conception, manufacturing and support of helicopters

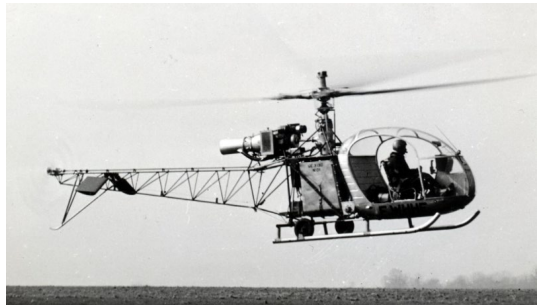
- Wide range of products, covering civilian and military activities

- Wide range of missions ensured by our products

Background – Tech Data activity

- **Provide all ICA to Customers, Operators and Maintenance Centers**
  - **When** to maintain the H/C? ➔ Maintenance programs
  - **How** to maintain the H/C? ➔ Maintenance manuals
  - **With what** maintain the H/C? ➔ Parts Catalogs
  - **How to fly**? ➔ Crew information including Flight Manuals
  - And more (service bulletins, CMM…)

- **Long life cycle**
  - Oldest H/C in service since **1956** (and still flying !)
  - ICA to be provided as long as **one** H/C flies !
  - Tech Data to be maintained even after commercialization stops



- **Permanent evolution**
  - **Technology**: Paper to Electronic but **hard copies still required**
  - **Standard**: JAR, FAR, MIL, BNAé, ATA 100, ATA2200, S1000D 1.7, 1.8, 1.9, 2.3, **4,1**, 5,0 ….
  - **Paradigm**: **Safety first** ➔ Safety first/**easy to use** ➔ safety first/easy to use/**cost effective**
  - **Customers requirements** : Tech Data **flexibility**
  - **Authorities requirements**: Tech Data **reactivity**

Background – Outcome of current Tech Data

- **Target missed when migrating to SGML**
  - **Different rules** from one H/C to another
  - Tech Data harmonization at a stake

- **Not fully compliant with basic standard ATA 2200**
  - ATA 2200 used as a basis, not as a standard
  - **Specificities** on all programs ➔ **no rationalization**

- **Weight of history**
  - **Difficult** to crack the nut ➔ Electronic Tech Data with “Paper mindset”

- **Difficult to implement a new feature for all Tech Data**

- **Multiple toolsets according program**
  - ATA 2200(like), AECMA 1000D 1.9, S1000D 4.1,
  - Tools communality reduced among programs
  - Some tools go to obsolescence

Background – Why to migrate now ?

- **Adherence to a standard is an enabler for rationalization and a must for costs reduction**

- **Our current ecosystem goes to its end**
  - Tools **obsolescence**
  - SGML supplanted by **XML**
  - **S1000D** heavily **required** in Military world

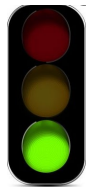
- **Harmonization is a strong request (Customer irritant)**
  - Identical **scope of publications** for all programs
  - **Numbering realignment** on **all programs**

- **Why S1000D 4.1 ?**
  - Long **experience** on S1000D with military programs
  - S1000D 4.1. considered as **mature** ➔ Basic for future evolutions
  - Largely **adopted** in aeronautic industries
  - Already adopted for new commercialized programs

Current – Questions we have already answered

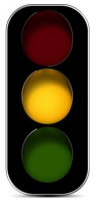
- **Do we intend to migrate all SGML ATA 2200 like data to S1000D ?**
  - **Tech data updates for long time** on these programs
  - Basic principle "**One Standard, One Process, One Tool**"

- **Do we intend to use S1000D concepts like BREX, CIR, containers, applicability, DME … ?**
  - Similar principles already used on some programs, **high benefits expected**
  - **Concepts already deployed** on new programs

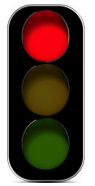


- **Are the Business Rules similar for all programs ?**
  - **Basic principles of S1000D** to be respected
  - **Adherence to S1000D XML schemas** mandatory
  - **Flexibility** per programs (restrictions only)

} **red lines not to be crossed**



- **Is a full automatic migration from our ATA 2200 "like" to S1000D possible ?**
  - Granularity **not compliant** with S1000D concept
    - Mix of operations in the same data module
    - References to paragraphs in a procedure
    - Mix between preliminary requirements and task preliminary operation
  - Too much broken links, mainly between maintenance and catalogs
  - Data preparation required to adapt source for automatic migration



Current – How we plan to proceed ?

Global

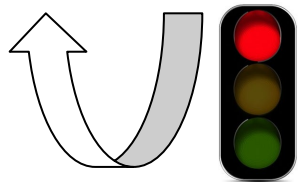
For each documentary funds

Framing

Mapping current DTD vs S1000D schemas
S1000D Guidance Document preparation
Data preparation specification
Transitory process definition

Data preparation

Identification of hard points
Split of task to fit to a data module definition
Broken links correction
Re-authoring when necessary
Data enrichment (reference usage)
Test migration to identify remaining topics



Migration

DMRL constitution
Re-numbering when necessary
Automatic transformation
Validation (BREX, integrity, sampling)
Final publishing S1000D

ATA 2200 “like”

Current – Example of data preparation - Reorganization

FROM

AIRBUS

AIRCRAFT MAINTENANCE MANUAL EC130

Air Conditioning - Removal / Installation

4-19 Removal / Installation - Coolant Solenoid Valve (SOV) PRE MOD 074864

A. Applicable Documents

(1) Main information

21-51-02, 3-1	Filling / Draining - Coolant System
21-51-02, 5-1	Functional Test - Air Conditioning System
53-51-00, 4-1	Removal / Installation - Upper Cowlings

(2) Conditional information

None

(3) General information

21-51-00, 3-1	General Safety Instructions - Air Conditioning System
24-00-00, 3-1	General Safety Instructions - Electrical Power Supply System
60-00-00, 3-1	General Safety Instructions - Mechanical Assemblies

B. Special Tools

350A95-7285-00	set of air conditioning system blanking caps

C. Materials

CM 155	Oil
CM 683	Locking compound
CM 776	Lockwire

D. Routine Replacement Parts

AMM Fig.	AMM Item	Description	Reference
Figure 401	(2), (4)	O-ring	(P/N FRF621-069-011)

E. Job Set-up

(1) Comply with the general safety instructions for the air conditioning system (21-51-00, 3-1).

(2) Comply with the general safety instructions for the electrical power supply systems (24-00-00, 3-1).

(3) Comply with the general safety instructions for the mechanical assemblies (60-00-00, 3-1).

(4) Remove the RH MGB cowling (53-51-00, 4-1).

(5) Drain the coolant system (21-51-02, 3-1).

F. Procedure

Figure 401

21-51-02, 4-19 Page 401

Split
Removal installation

Check / correct links

Separate first topic (setup) between required conditions, required safety and first steps of the procedure

TO

AIRBUS

AICRAFT MAINTENANCE MANUAL
H139-E0210-A0000-01

Environmental control - Cooling equipment - Coolant solenoid valve (SOV) - (Pre mod 074864)

Install procedure

Table of contents

References

Chap No./Document No	Title
AMM 21-00-00-00-012A (P)	Environmental control - General warnings and cautions and related safety data
AMM 24-00-00-00-012A (P)	Electrical power - General warnings and cautions and related safety data
AMM 53-51-00-00-520A (P)	Fuselage - Upper cowlings - Remove procedure
AMM 60-00-00-00-012A (P)	Rotors - General warnings and cautions and related safety data
AMM 21-51-02-00-221A (R)	Environmental control - Cooling - Fill
AMM 21-51-02-00-340A (R)	Environmental control - Cooling - Function test
AMM 53-51-00-00-720A (R)	Fuselage - Upper cowlings - Install procedure

General

Not relevant

Preliminary requirements

Required conditions

Action/condition	Data module/technical publication
Remove the RH MGB cowling.	AMM 53-51-00-00-520A

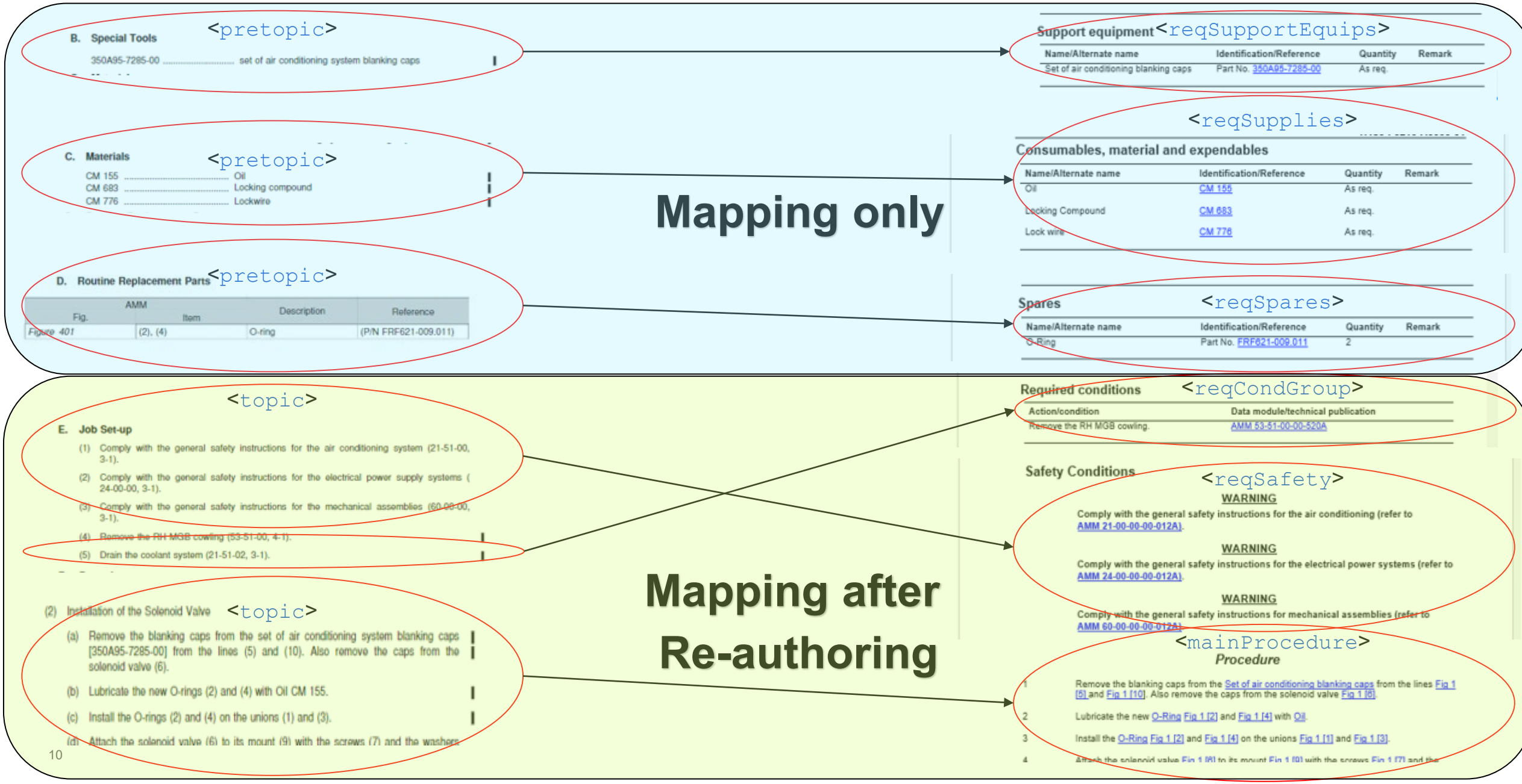
Support equipment

Name/Alternate name	Identification/Reference	Quantity	Remark
Set of air conditioning blanking caps	Part No. 350A95-7285-00	As req.	

Applicable to: T2 and pre mod 074864

21-51-02-10-720A
Conf 001-A-A
2022-03-03 Page 1

Current – Example of data preparation – SGML/XML mapping



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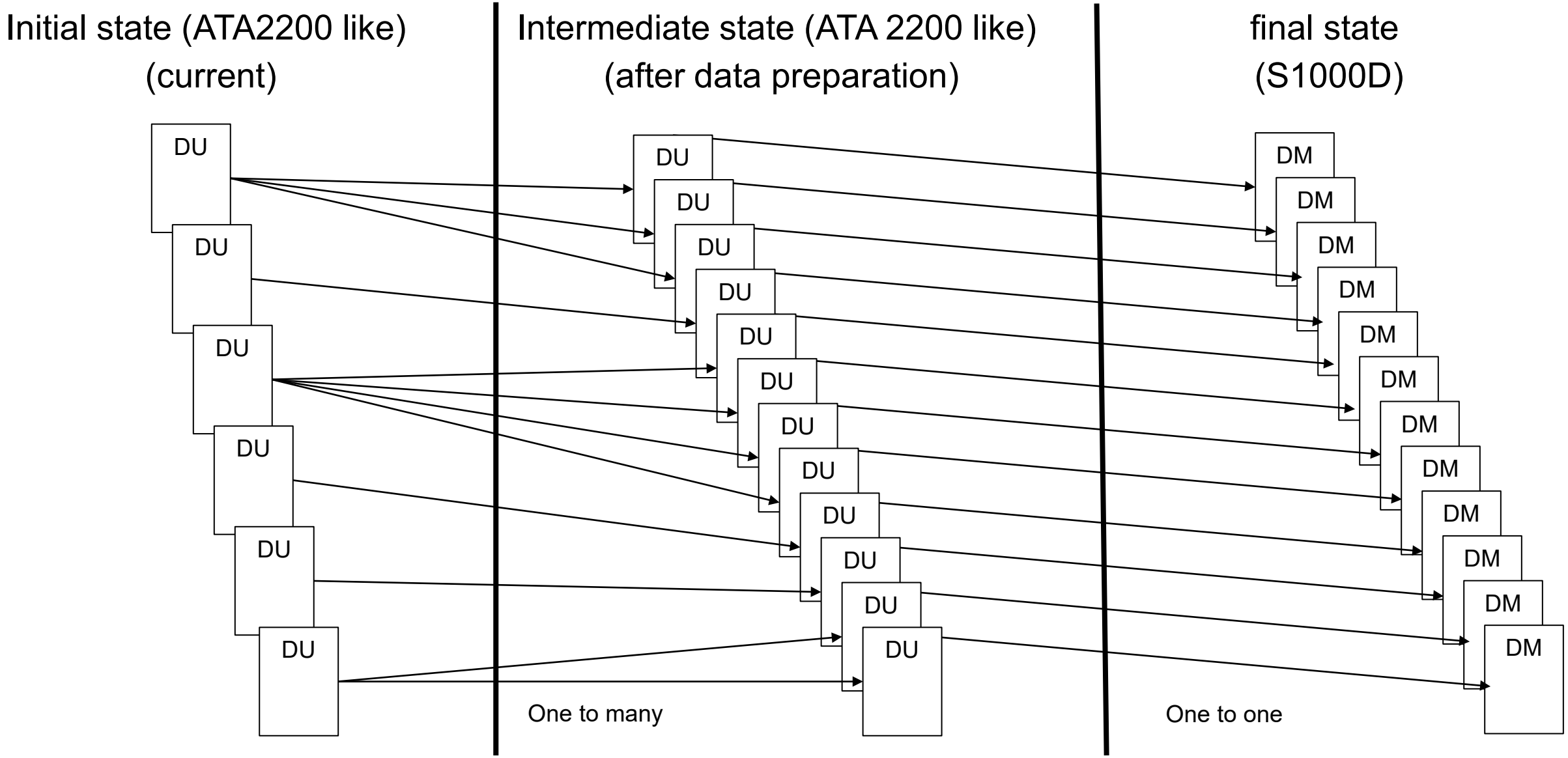


Current – Time and scale frame

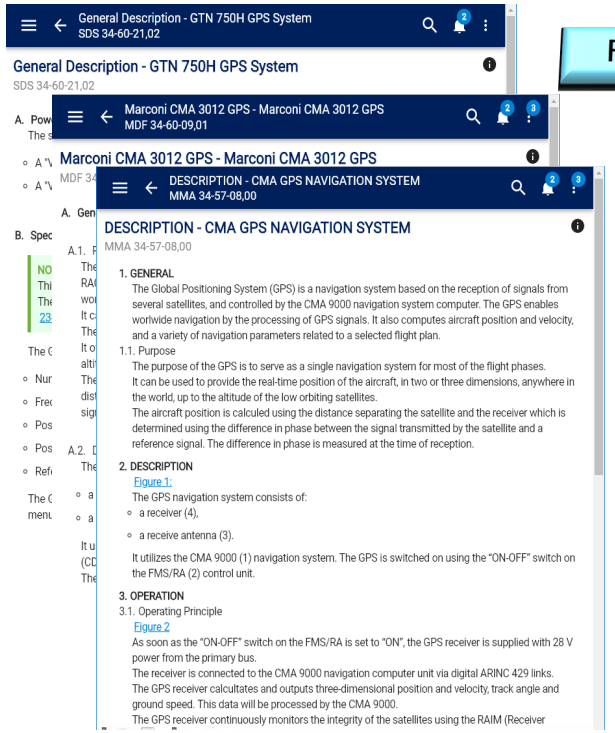
2019 2020 2021 2022 2023 2024 2025-2026

Pre-Study

Framing of the project

Guidance Document

Data preparation



More than

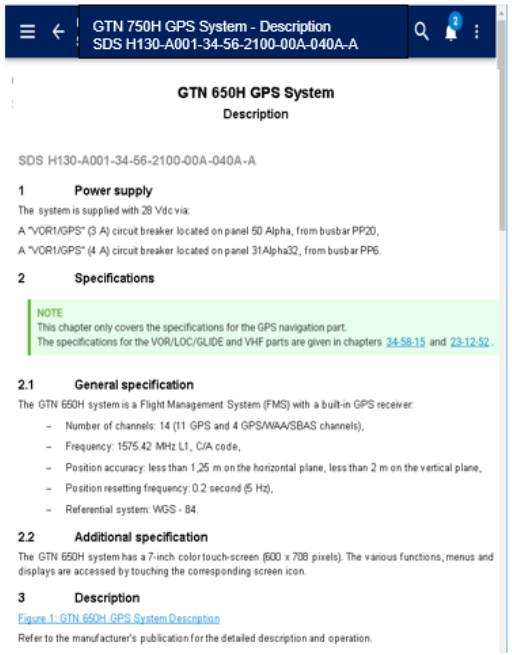
25 Documentary funds

400 different manuals

3 000 000 equivalent page

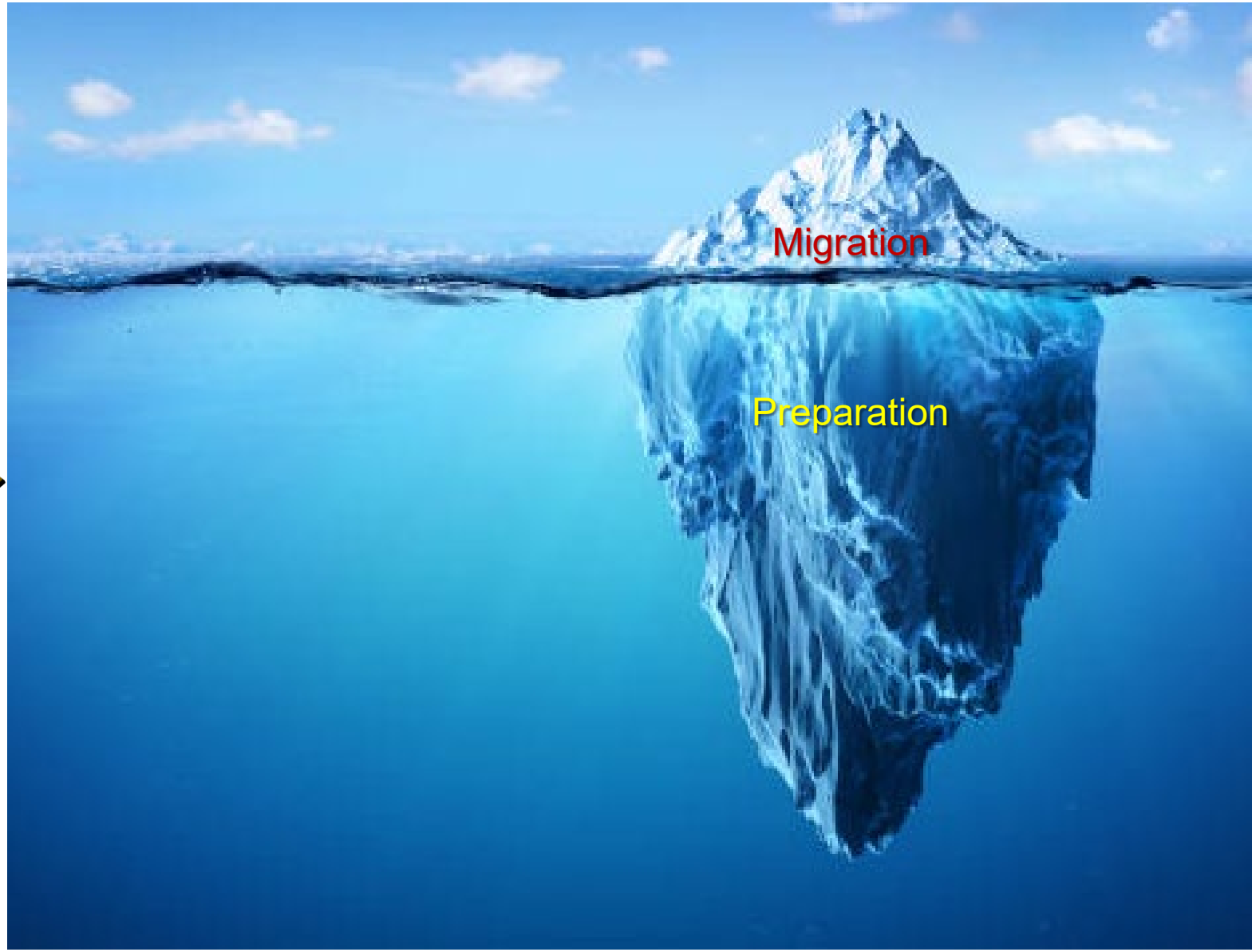
1st batch migration

Last batch migration



Current – Nice plan ! So ?

This is reality

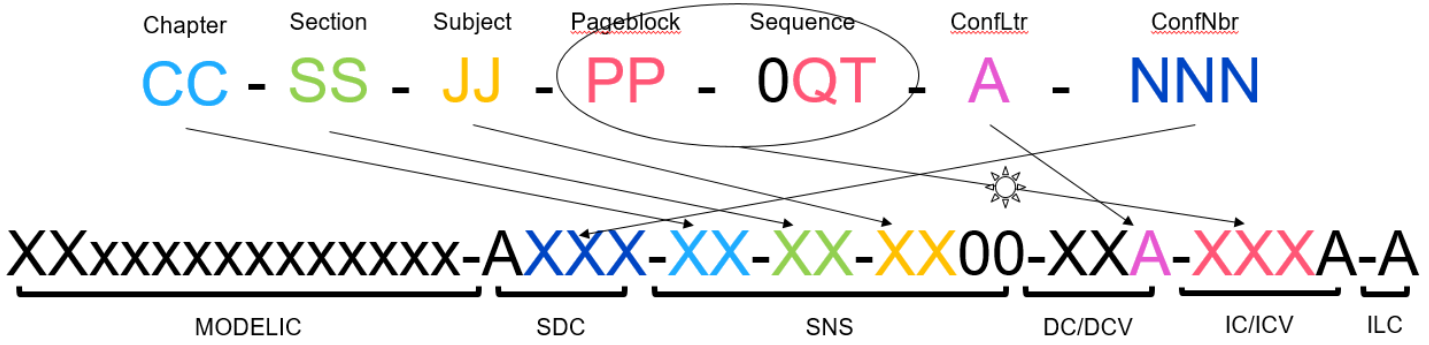


Current – Where do we stand?

- **Exiting documentary funds sometimes too far from the target**
  - Current structure not fully to S1000D because too much permissive
    - ➔ More rework than expected
  - Old procedures with not accurate content
    - ➔ More re-engineering than expected
  - Migration possible but not fully in line with global target
    - ➔ Data preparation longer than expected

- **Examples of traps**
  - Steps of procedure instead of required conditions
  - Warning, caution, notes placement
  - Wrong use of applicability

- **Complexity to establish Data Module Code from ATA key**



No equivalent of ICV
No equivalent of ILC
No equivalent of DC

But the need exists

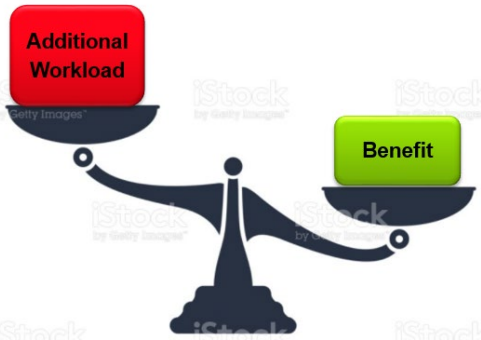
Current – How we expect to stick to the target ?

Risk assessment at beginning of the project has taken into account some “life accidents”

We have some buffers

Compliance is not negotiable
We must comply to decisions stated in S1000D Guidance Document

Priority 1: Stick to S1000D compliance



Focus on high value topics,
accept some “dysharmonizations”

As a spare, some data could be migrated as embedded PDF and re-authored after migration.

Current – How we expect to stick to the target ?

Train people to S1000D but also to Principle during data preparation

Change the approach, give sense, more explain “why” than ‘’how”

Dedicated team for data preparation analysis and correction, regular blank migrations to isolate potential issues

Anticipation and iterative process

Strong coordination with production team to produce in parallel

Alignment on targets, not endangering the normal production

Future: The big dream

Quality

Production Costs

Environment

Harmonize Structure

Safety

Harmonize Breakdown

New Services

Data Centric

One Standard

(Real) Digital

Publication lead time

Customer Satisfaction

Clarify Offer

Rationalize Means

Enable Evolution

Future: What do we expect ?

New ecosystem

Means

- S1000D
- AH S1000D Guidance Document
- AH S1000D Business Rules Checker

Enables

- *Means rationalization*
- *Structure harmonization*
- *Breakdown harmonization*
- *Offer clarification*
- *Evolution*
- *Data Centric*
- *(Real) Digital*
- *New Services*

Reduces

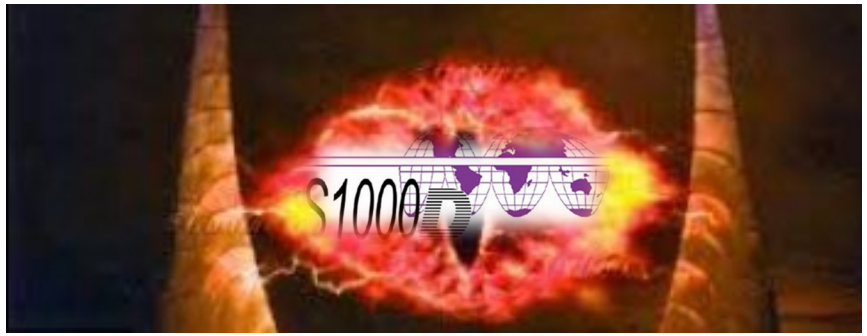
- *Rework*
- *Production costs*
- *Publishing lead time*
- *Environment impact*

Improves

- *Quality*
- *Safety*
- *Coherence*
- *Global performances*
- *Customer Satisfaction*

To conclude, the journey just began

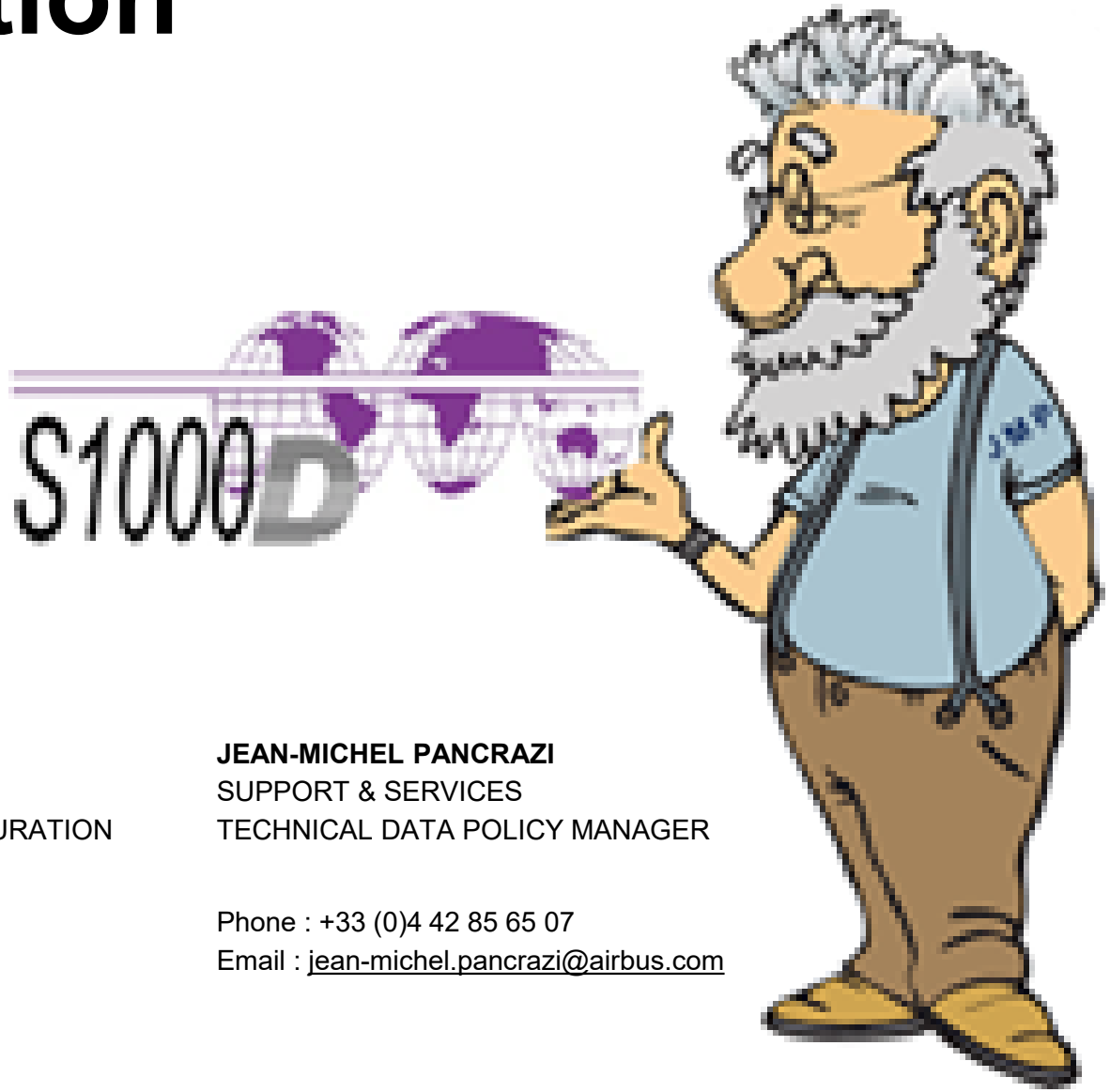
- ❑ **Complex but exciting project**
- ❑ **Ambition regularly reassessed but we do not want to cross the red lines**
- ❑ **Drastic improvement of our Tech Data operational efficiency expected**
- ❑ **Tech Data quality, accuracy and consistency positively affected**
- ❑ **And last but not least, mid/long term benefits for End Users.**



One ~~ring~~ standard to rule them all

Thanks for your attention

Questions ?



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