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

# **A Practice Introduction: Transfer iSpec 2200 manual into S1000D data modules**

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*S1000D User Forum, London*

*October 14-16, 2019*

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# 1 Why ?

## PART ONE

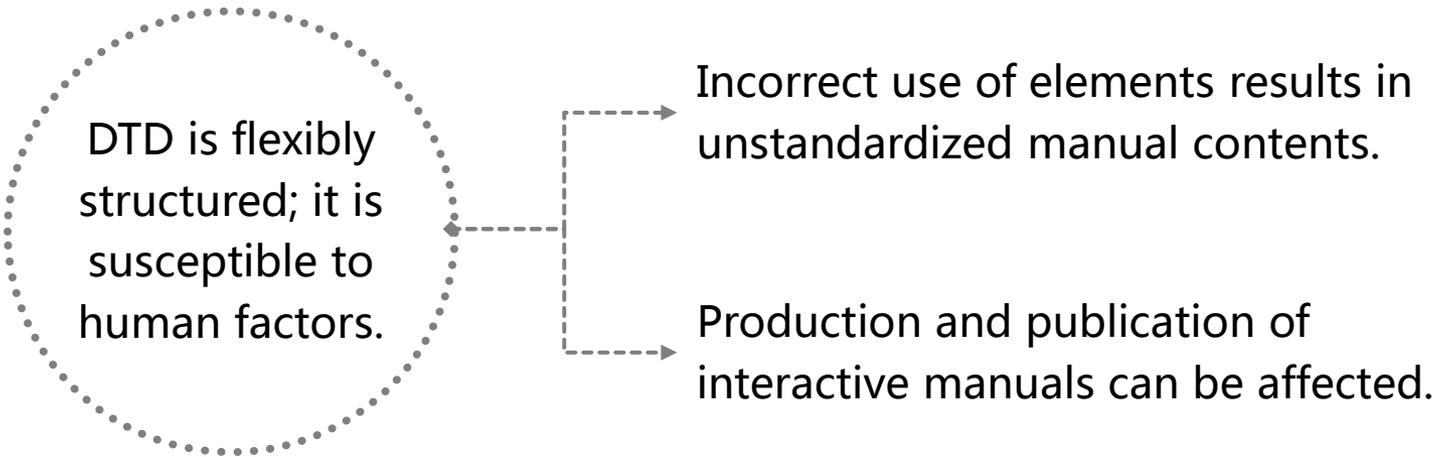
# Specifications Applied to COMAC Technical Publications

Manual	COMAC's Regional jet	COMAC's Trunk liner
Maintenance Manuals:	AMM AIPC FIM WDM SSM NDT etc. <b>ATA2200</b>	AMM AIPC FIM WDM SSM NDT etc. <b>S1000D</b>
Flight Manuals:	FCOM QRH CCOM etc. <b>ATA2200</b>	FCOM QRH CCOM etc. <b>ATA2300</b>
Component:	PPBM CMM-V <b>ATA2200</b>	CMM-V <b>ATA2200</b>

# Difficulties Encountered Before Data Transfer for Regional jet Manuals



## Data not standardized



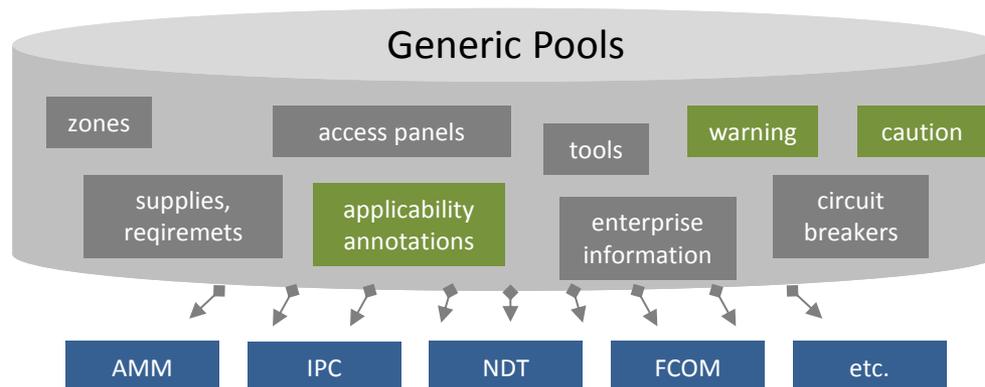
# Difficulties Encountered Before Data Transfer for Regional jet Manuals



## Large data with low reuse

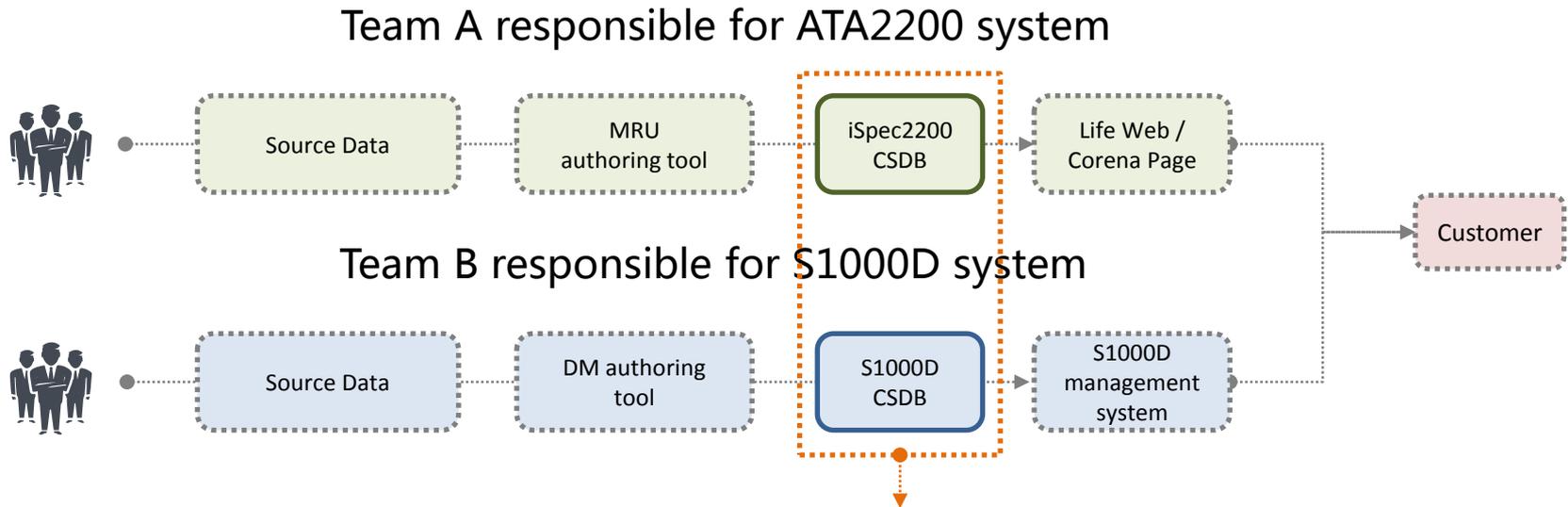
Large information of zones, access panels and tools among manuals.

Once they are updated in different chapters of one manual or among different manuals, the information may become inconsistent.



# Difficulties Encountered Before Data Transfer for Regional jet Manuals

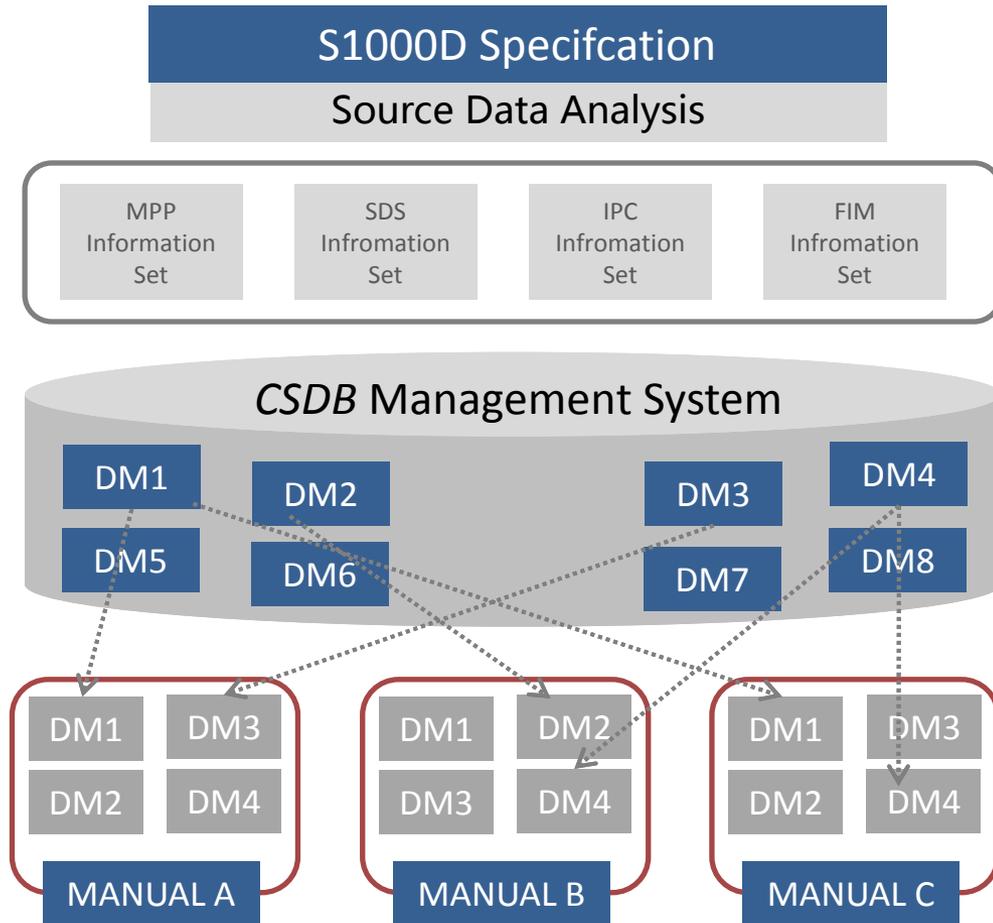
## Different systems managed by separate teams



Cost of system maintenance rise.

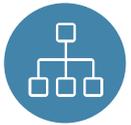


## Advantages of S1000D specification



- Data will be highly structured and standardized.
- Management of technical publication data will be more efficient.
- Interactive electronic technical publication can be further developed.

## Advantages for COMAC Internal Management



A set of S1000D-based business rules and document systems has been well-established.



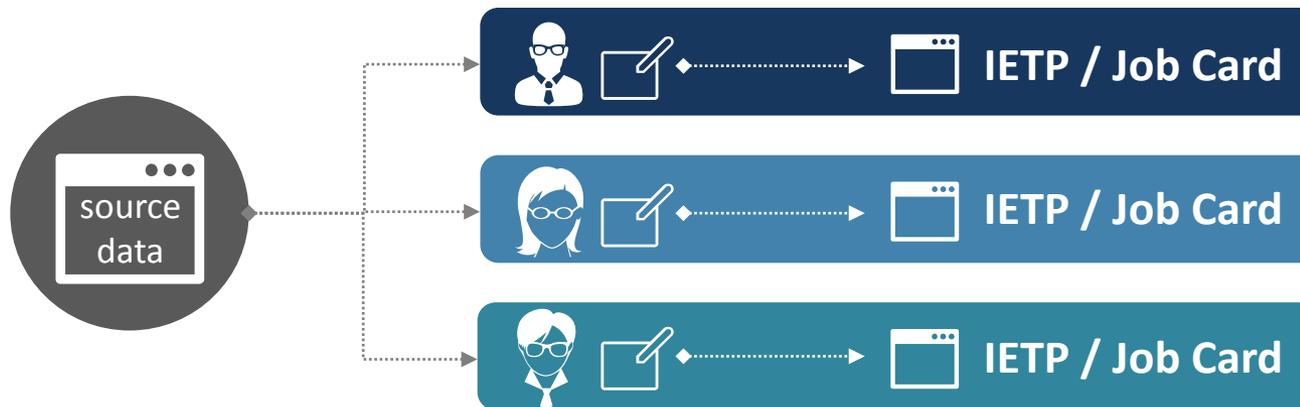
A S1000D-based authoring management system has been developed and put into use.



COMAC is capable of authoring data modules following S1000D Specifications.

## Customer Requirements

- Customers require unified format of source data to redevelop and create documents or applicable software that are in line with their own requirements.
- An increasing number of domestic airlines have further requirements for the functions and convenience of the interactive electronic manuals.



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## PART TWO

# How ?

## Feasibility Demonstration



Is the top level document system well designed?



Can the manuals meet requirement of continued airworthiness regulation after transfer?



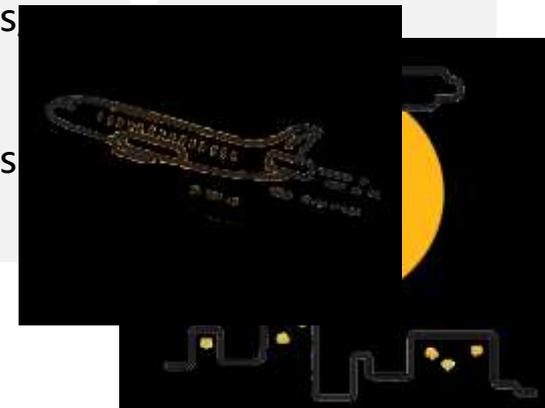
Does the existing S1000D-based system meet the requirement of data migration?



What effect will have on related documents ( service documents customer documents



Which manuals should be transferred? And the plans?



## Action Plan

Preparatory Work

Data Migration

Put PMs into use



ATA2200 –  
based Manual  
Data



Define range of elements and attributes to be transferred.



Design Schema focusing on the original ATA2200 data.



Test the data.



Create mapping relations between the data and S1000D data modules.



Develop data transfer tools.



DDN package  
meeting  
S1000D

## Feasibility of the Data Migration Plan



COMAC did a test of the data transfer before the plan is carried out. **The accuracy rate reached 95%.**

No.	Testing Point	Solution
1	Information of zones, access panels, tools, consumable materials and warnings and cautions are input by text.	Identified by system, and manage them in CIR.
2	Task number links are text contents, and identified via subtask.	Identified by system, and transfer them to <dmRef> or <externalPubRef> respectively.
3	Transfer of applic information	Identified by system automatically.
4	Consistency of the original level with procedural schema level	Label selection and format development during transfer.

If the plan and tools for the transfer are optimized, the **accuracy rate** can reach at least 98%.



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# 3 Encountered Problems

**PART THREE**

# Solutions for Major Issues



## Inconsistent coding rules

Auto-transfer adopted for manuals with simple ruled DMC.

AIPC, SSM, AWM etc.

Task NO.	DMC	Title
<u>23-75-01-01</u>	XXXXX-A- <u>23-75-01-01A-941A-A</u>	Installation of VSU for Cockpit Door Surveillance System



Semi-automatic transfer adopted for manuals with intricately ruled DMC.

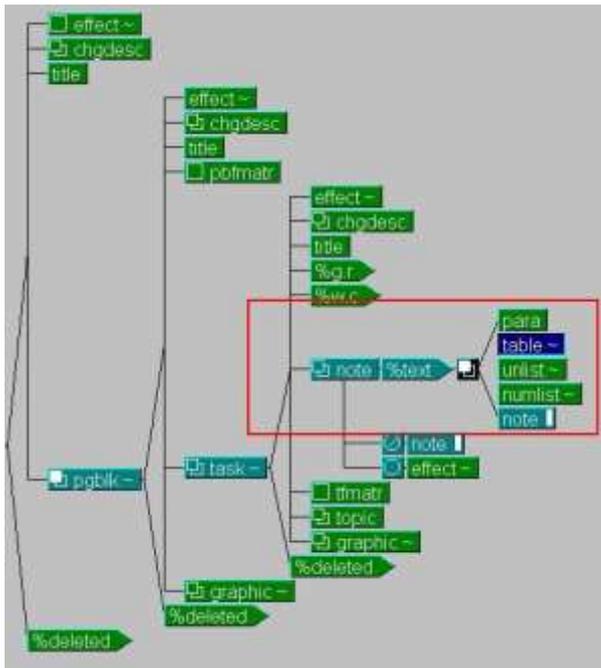
AMM, FIM, NDT etc.

Task NO.	Title	
<b>21-22-02-400-801</b>	Installation of Regulating Valve	
DMC	TechName	InfoName
<b>XXXXX-A-21-22-02-00A-720A-A</b>	<b>Regulating Valve</b>	Installation

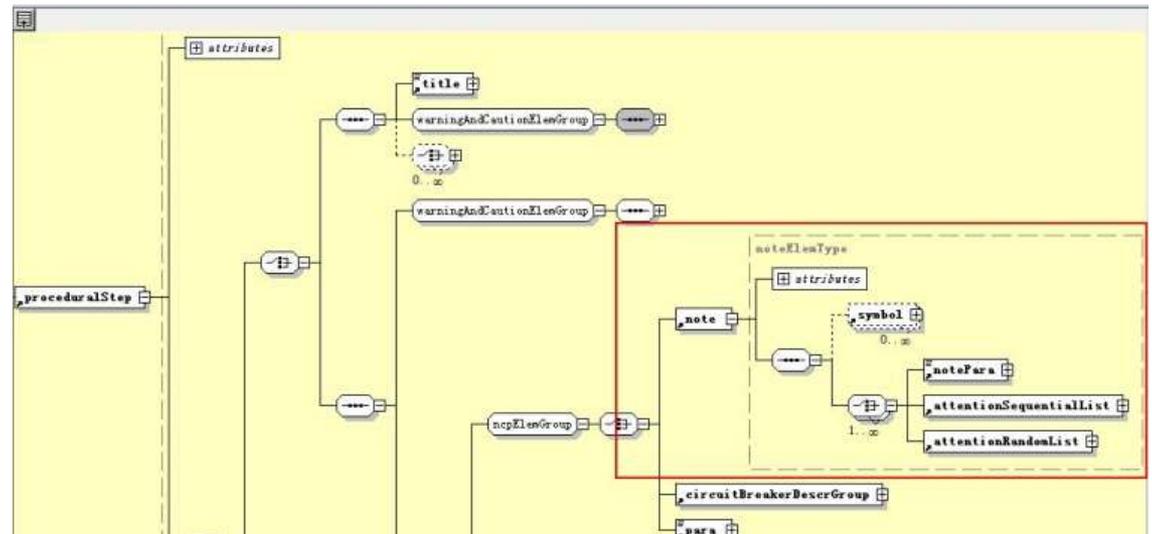
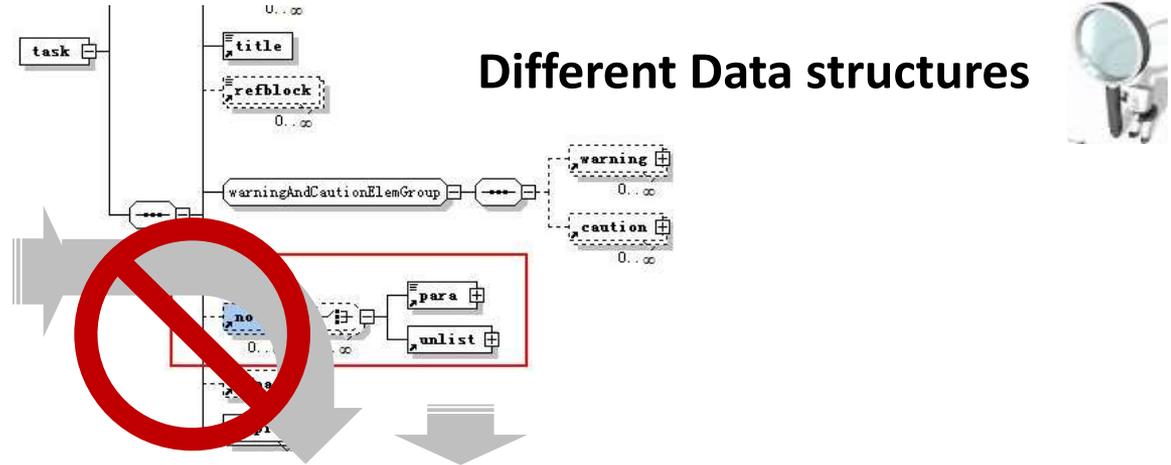
Task NO.	Title	
<b>21-22-02-000-801</b>	Installation of Regulating Valve	
DMC	TechName	InfoName
<b>XXXXX-A-21-22-02-00A-520A-A</b>	<b>Regulating Valve</b>	Removal

# Solutions for Major Issues

Create transitional Schema documents, and test MRU output from ATA2200 system.



Elements or labels can not be corresponded from DTD to schema directly.



## Solutions for Major Issues



**Redundant and scattered common information**



Three Generic Pools used for ATA2200-based manuals



Retrieve information in the manual



Input the design document



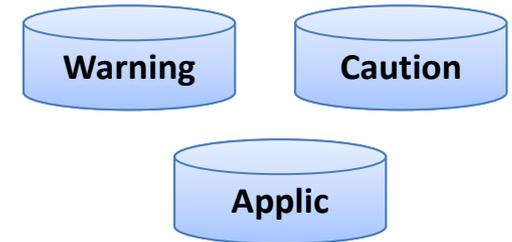
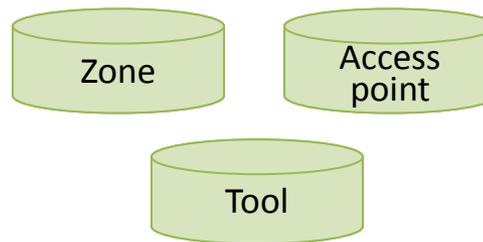
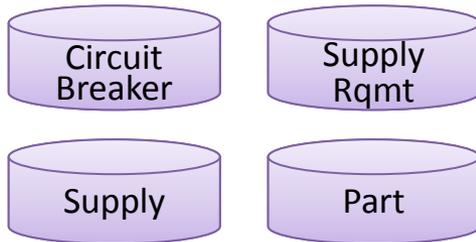
Transfer the original data directly



Process information



Process information



**Ten CIR used for S1000D -based data modules**

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PART FOUR

# Summary and Reflections

## Effect Analysis



Data optimization and auto-creation of DM reference information in line with Schema make the manual more standardized and complete.



Common information can be reused more frequently, and the manual authoring and update management are more efficient.



Decreases the number of maintenance personnel by 35% and reduces the maintenance cost.



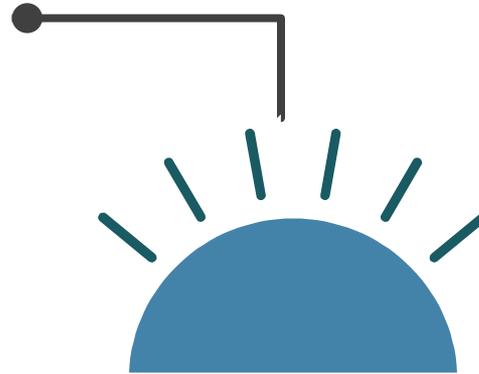
Meet customers' requirements, offering more support to the flexible interactive manuals.



## Experience Sharing

Listen to opinions from customers.

Consider thoroughly to minimize the impact to customers.



Cost of transfer is huge. Feasibility should be studies comprehensively.

## Experience Sharing

Adopt automatic or semi-automatic of transfer based on manual characteristics.



The more standardized the data is, the easier the transfer work.

## Reflections

**As a user of S1000D specification, it is COMAC's earnest hope that the committee collects successful cases on specification transfer and includes the methods into S1000D to improve related rules and standards.**

**Thank you**  
for your attention!

**Questions?**

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