

# The Application of ASD Standards in the NATO AGS Program



S-Series Specification Day 2013  
Vienna, 2013-09-19

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## The Application of ASD Standards in the NATO AGS Program

### Subjects:

- AGS System Overview
- AGS ILS Requirements
- S-Standard Implementation
- AGS Logistic information System
- S-Series Implementation Consideration

## ■ Surveillance

- In-depth knowledge/understanding of situation or entity
  - Products can retain value for considerable time
  - Products can be of general value, not just current mission/situation specific
- Complete span of operations (land, maritime)
  - Peacetime, Humanitarian Relief, UN missions, Crisis Response, Article V, Blockades etc.



## ■ Situational Awareness

- Up-to-date knowledge of what is happening in the area of interest
- Vital in rapidly changing situations



## ■ Targeting/Target Acquisition

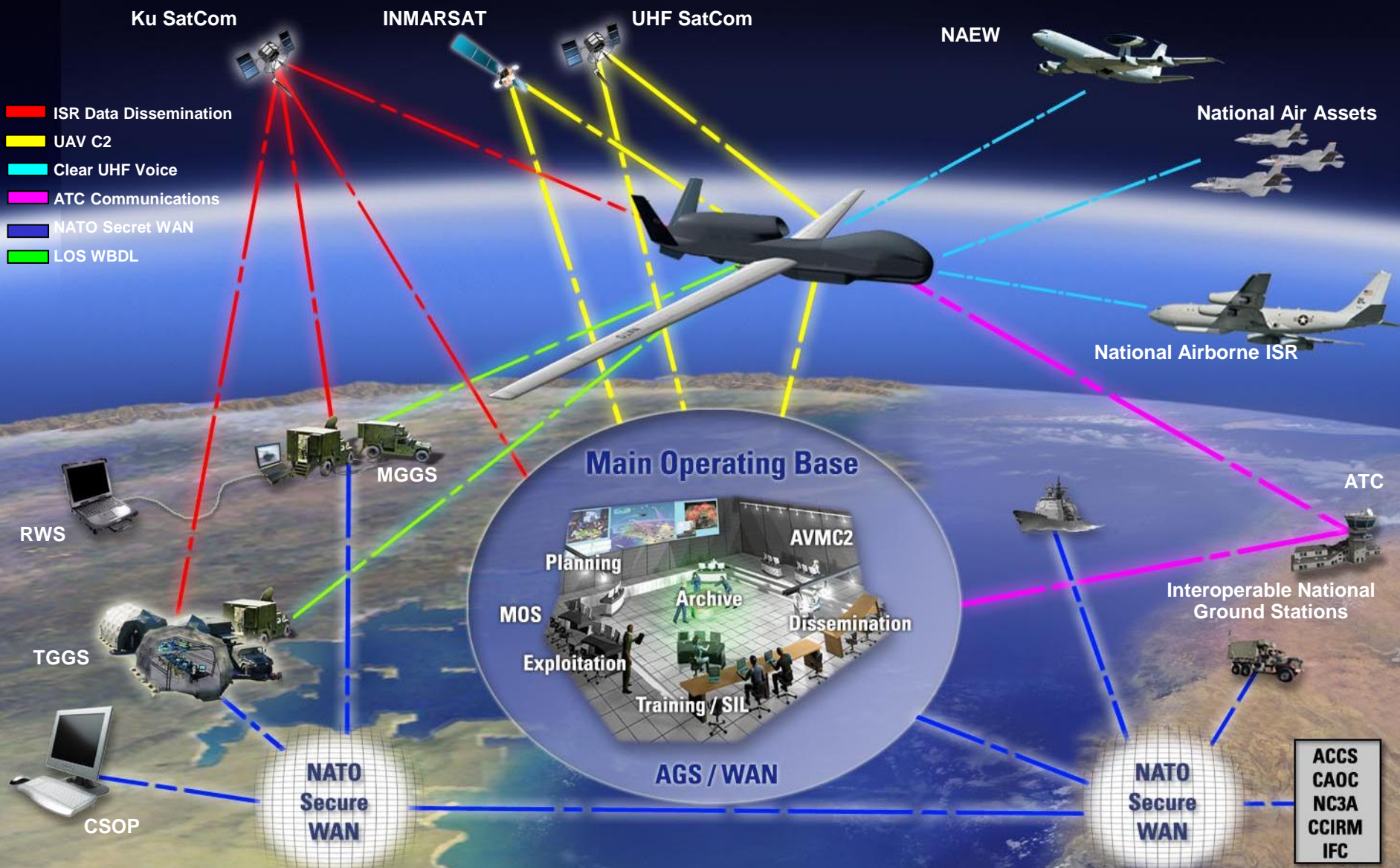
- Support very precise/selective attack
  - Maximise effects while minimising collateral damage
- Vital for targeting of mobile, time sensitive / time critical targets
  - Real-time information from sensor to shooter



## ■ Damage Assessment



# NOV-1 – MOB Operations



# Programme Scope – What is NAGSMO Procuring?



UAV with MP-RTIP radar

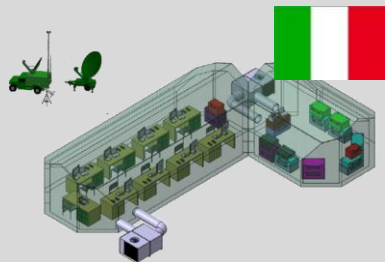
## Air Segment



AVMC2 Capabilities:

MOB – MP, UAV C2 for UAVs

DUCE: Deployed C2 for UAVs



Transportable General  
Ground Stations (TGGS)



Mobile General  
Ground Stations  
(MGGS)



Mission Operations  
Support (MOS)  
Installation  
(Ops Areas)



Additional  
Remote  
Workstations

## Ground Segment



## Support Segment

Pilot Trainer  
Mission Crew Trainers  
Simulation Capabilities  
Training Management

# NATO AGS Programme Structure





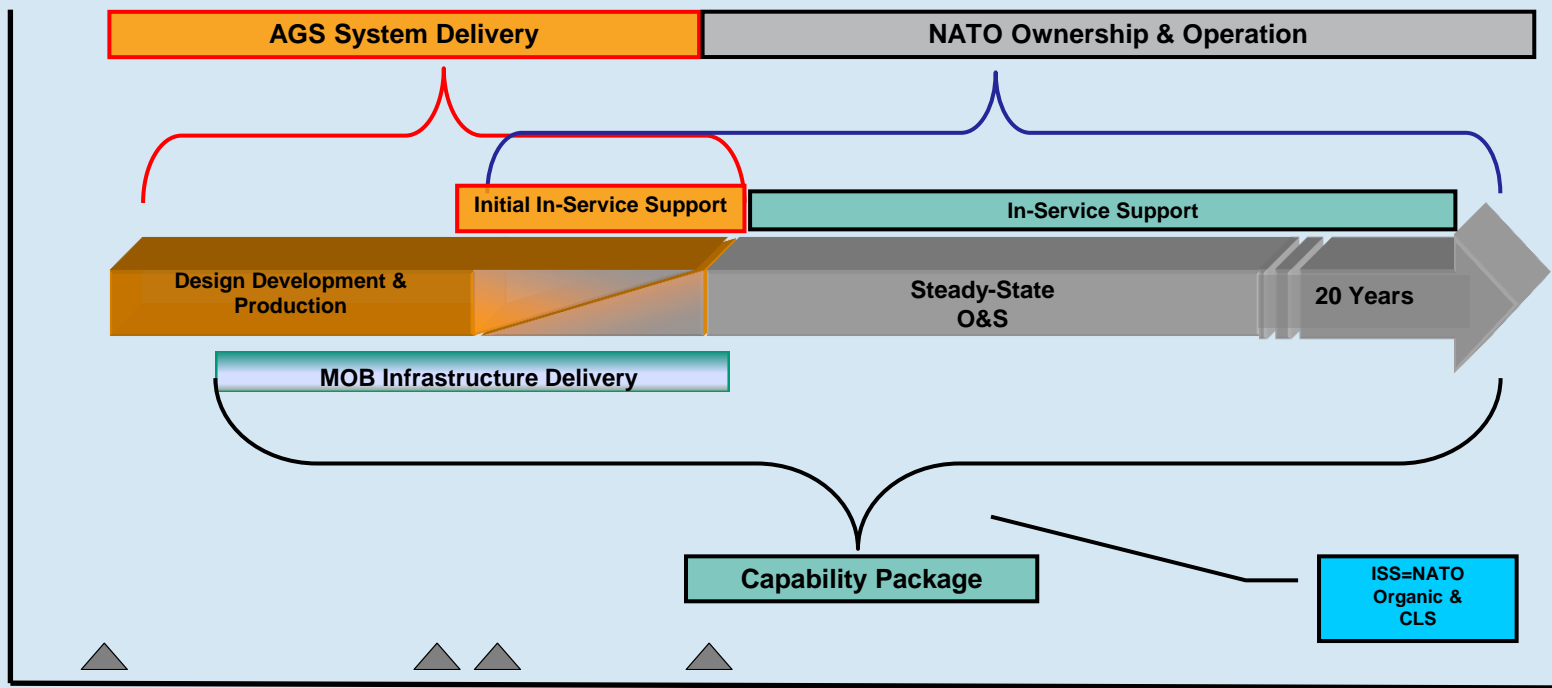
# AGS Program Overview

- AGS Program comprises of 2 phases:

- Acquisition Phase – AGS Core and Support Assets Acquisition



- Operation and Support (O&S) Phase – I-ISS, ISS and Operations



# AGS ILS Requirements

- Main factors that have driven the requirements definition for the AGS Core were:
  - Concept of Operation
  - To base the AGS UAV on the existing vehicle/parts already in use to USAF and USN
  - Operative Scenarios
- As a consequence the AGS Core will imply the use of Non Developmental Items (NDIs) and DIs items and this was properly considered in the requirements
- The application of the S1000D (V4.0.1), S2000M (V4.0) and S3000L (V1.0) were selected as part of the applicable standards for the Logistic design and analysis for DIs, but existing analysis and data were defined acceptable for NDIs
- The S-Standards were not tailored as part of the requirements. It was decided that a tailoring shall be proposed by the Suppliers, on the basis of the ones that he already applied.
- The Logistic Guidance Conference has been the initial event where the tailoring would be presented and discussed



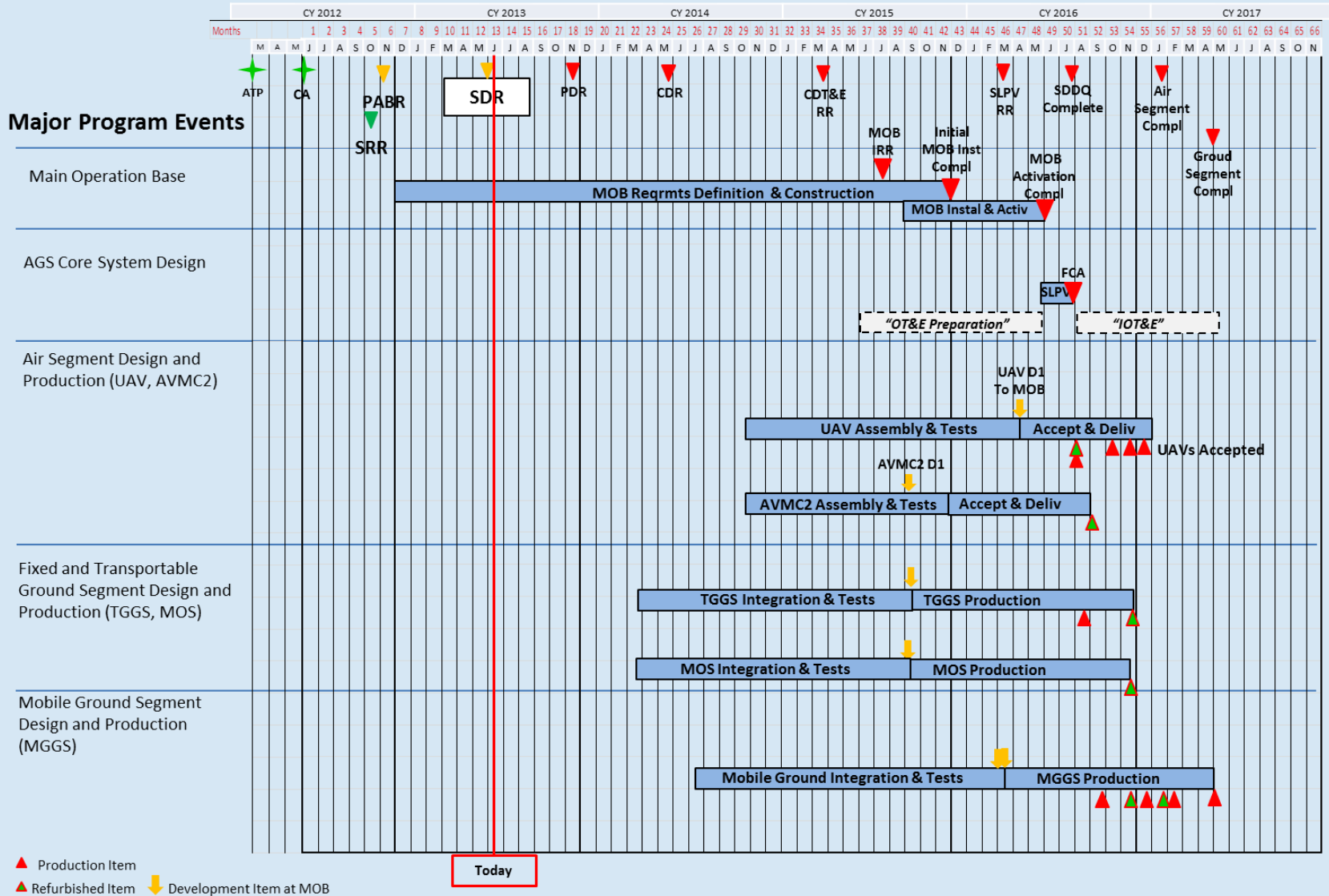
# AGS ILS Requirements

- The Suppliers initially proposed the delivery of different type of data for Dis and NDIs as per the requirements.
- The proposal resulted immediately impracticable as the data that would be delivered would be compliant to different standards and tailoring, making not possible or very difficult the acceptance, the use and the maintenance of the data.

	Technical Manual	LSA	Provisioning
Applied Standard	S1000D V2.2	1388 2B USAF Tailoring	None
	S1000D V3.0	1388 2B USN Tailoring	

- NAGSMA and the Suppliers concurred that the scenario would take to an unmanageable situation and agreed to apply the S-Series standards to all items (DIs and NDIs) and to properly tailor them for the AGS program

# AGS Top Level Schedule



# S3000L Tailoring

- The LSA is considered by NGSMA the most important analysis process since it links the system configuration and system engineering data to all other logistic databases. It is the basis for all other logistic activities and, for this reason, the “master” database for the DE
- NATO AGS is one the first program that include the S3000L in the specification, therefore there is no much experience in its application.
- To acquire information and recover the gap, NAGSMA:
  - Participate as auditor to the S3000L Working Group in Berlin and proposed to use the AGS as case study to the Committee
  - Organised workshops provided by companies identified to have some experience in S3000L application involving AGS Program’s Prime and Sub Contractors

# S3000L Tailoring

- The tailoring of the LSA for AGS is currently on going and is not easy due to:
  - Complex tailoring of the standard. The standard is very open but mapping and tailoring the DEs result not immediate
  - Considering the relevant amount of data already available as per 1388 2B. Direct application of S3000L has not been possible; LSA data base is likely to be build on the basis of the 1388 2B data structure
  - UoF not completely defined in V1.0 causing problems in DEs mapping
  - Not availability of commercial tools that fully implement the S3000L
- To comply with program milestones an incremental approach has been adopted:
  - Initial deliveries will be in 1388 2B “like” format adaptable to S3000L
  - Final delivery will be fully compliant with the S3000L tailoring



# S2000M Tailoring

- The use of the S2000M is a normal practice in significant military programs and therefore tailoring was easily applied
- Provisioning Guidance Conference was held 8 months after Contract Award to agree on contractual requirements and define common rules and procedure for procurement.
  - CSN oriented IPL will be applied
  - Part Number-oriented IPL to be used for Long Lead Items
  - Provisioning Guidance Document has been prepared. (under NAGSMA evaluation 80% completed)
- To facilitate the S2000M tailoring NAGSMA and the Contractors prepared a DEDs matrix for data selection and assessment.
- By using this matrix we analysed the DEs considering the communality with the S3000L identifying the data source to avoid data duplication
- The application of the S2000M in the acquisition phase is limited to Chapter 1. Other chapters are also intended to be used for the O&S phase

# S1000D Tailoring

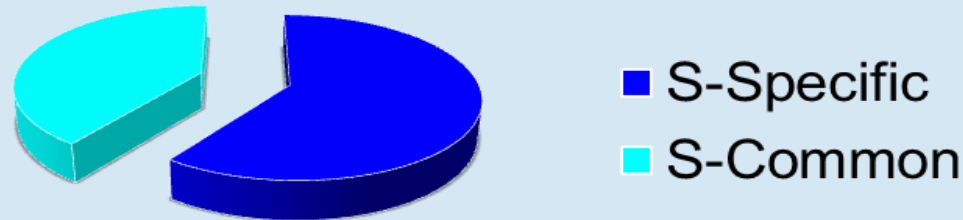
- As Technical Manual for NDIs items have been prepared iaw different version of the standard, NAGSMA decided to modify contract for the application of the V 4.0.1 to all items.
- V4.0.1 vs V4.1 was selected to save time and cost since the Contractor already started a conversion activity of existing DMs
- Guidance Conference for Technical Publication has been held 8 months after Contract Award and the Technical Manual Development Plan has been prepared
- To apply the V4.0.1 to the NATO AGS program a detail activity of BR definition is still on going:
  - using as reference BRs prepared for other NATO program and Contractor directions
  - BRs have been divided in 4 categories with different priority with respect of applicability and implementation time
  - BRs have been defined for Category 1 (mandatory for implementation) and 4 and partially for Category 2
  - The defined BRs are deem sufficient to proceed with the DMs preparation

# S-Series Tailoring

- While tailoring the S-Series Standards, NAGSMA is also preparing the forthcoming ISS phase
- Definition of the Support phase includes the definition of the process and procedures that will be in place and that will make use of data created and stored in the S Series CSDBs.
- Thinking of synergies for the defined Support Strategy it was determined that:

**The Tailoring of the BRs and DED of the ASD Standards  
have to consider the processes  
that will generate and that will manage the data**

## ASD Tailoring



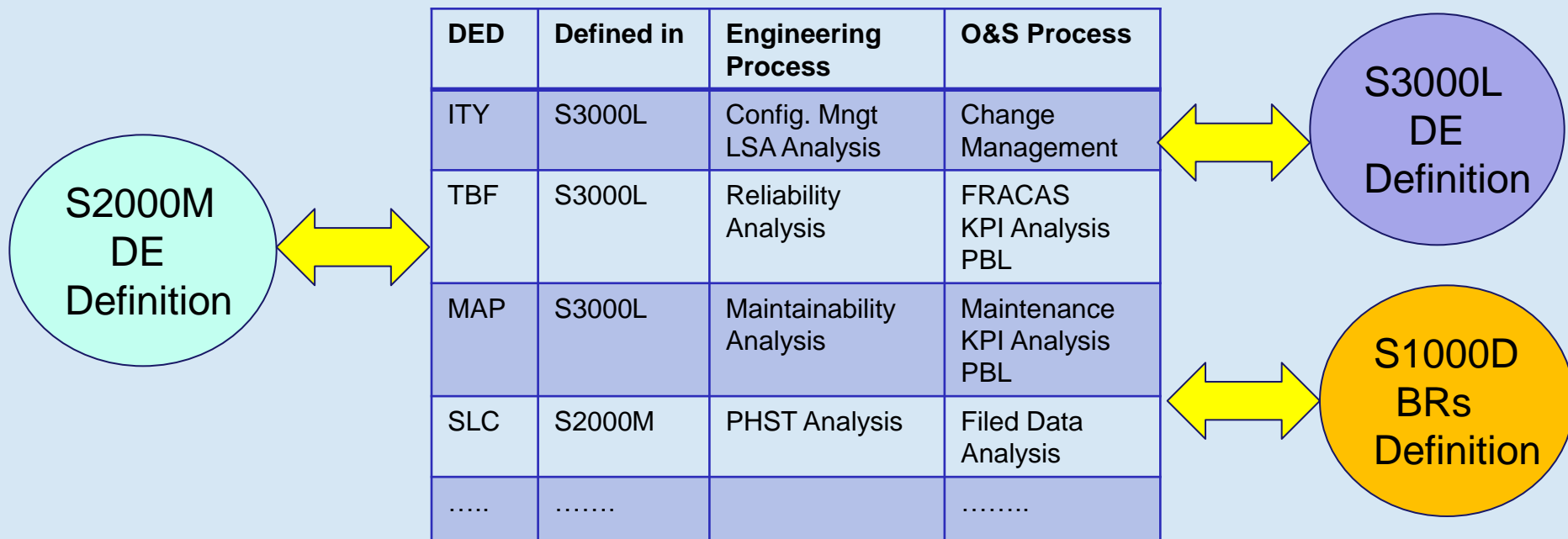
- The S Standards are related to each other through the Common DEs and BRs
- The data contained in the S-Series databases are used and may be modified during O&S phase of the system by various support and engineering processes

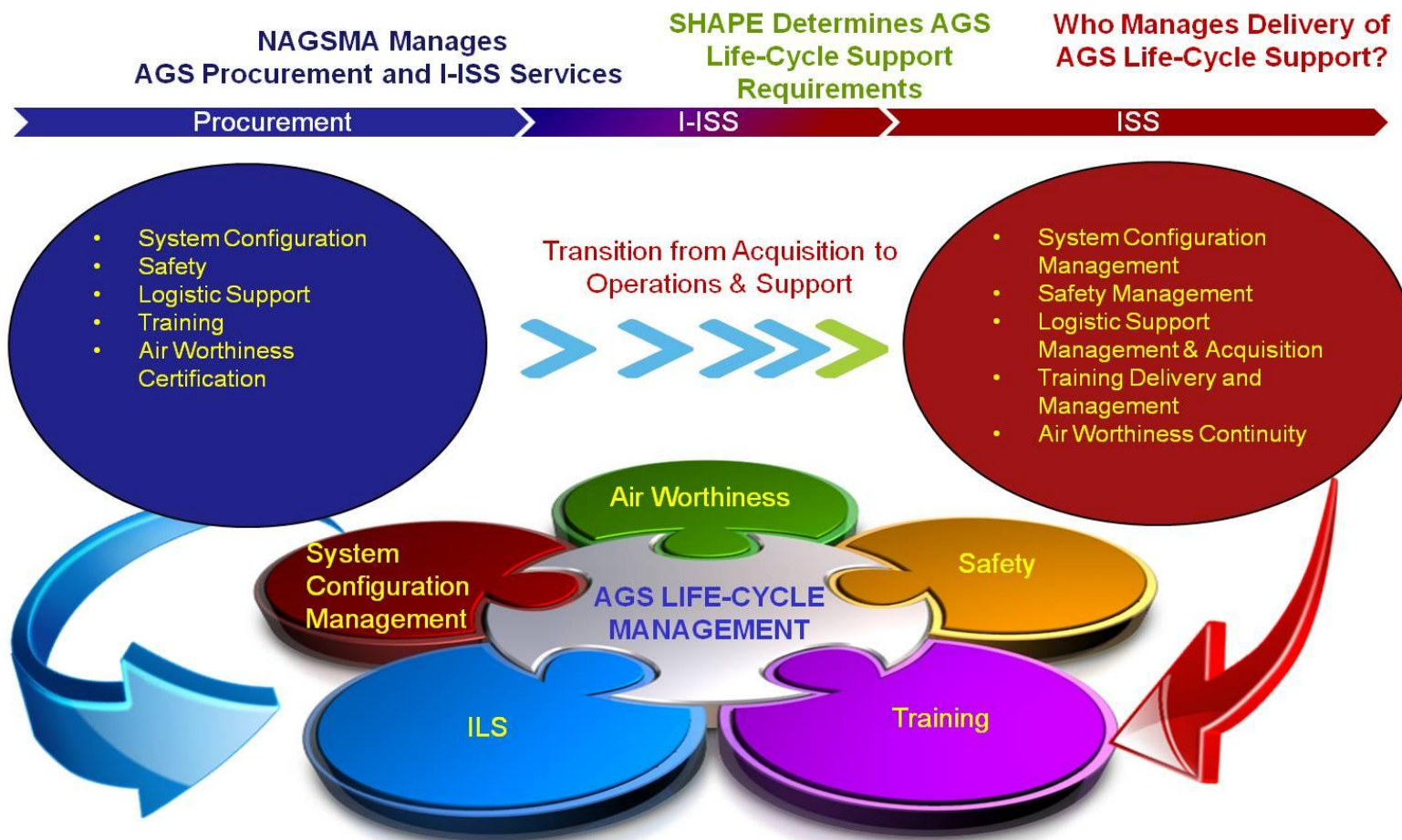


# S-Series Tailoring

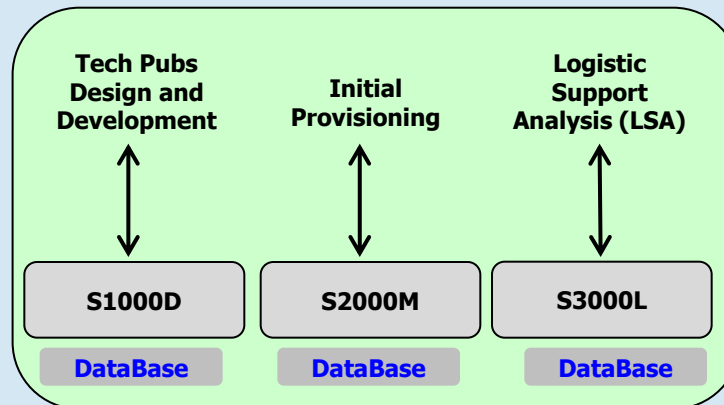
In defining the DED for S3000L and S2000D and the BRs for S1000D, we are mapping the data elements to identify the S-CSDB that should be the reference one.

The engineering process that generates the data and its use during O&S phase are the basis for this assessment



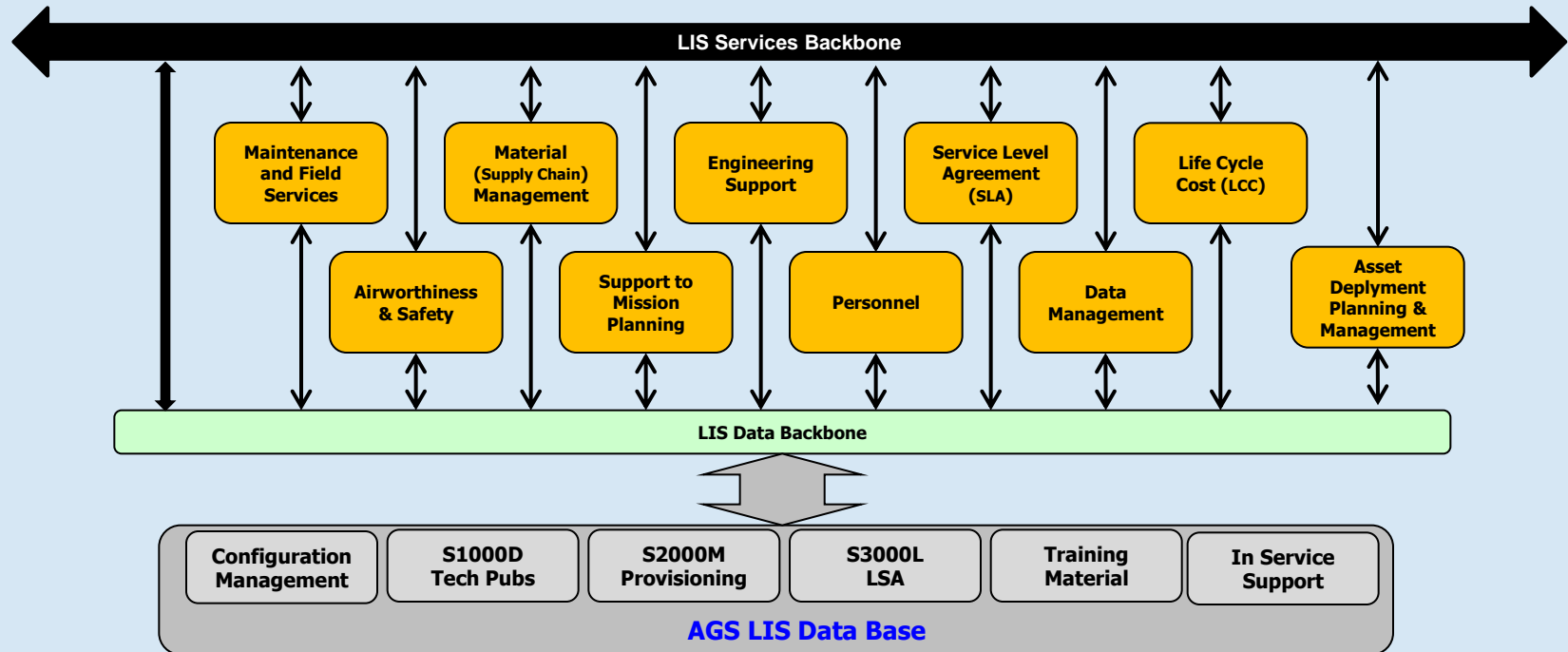


- To allow the compliance with ASD Suite in developing LSA, Tech Pubs and Provisioning three different Data Bases will be delivered by the Contractor. This will cause:
  - Duplication of information
  - a complex network of DEX will be required to be defined and implemented to assure data consistencies
  - Change Management will imply modification of data not easily to be managed due to data duplication



- NAGSMA is going to define a Logistic Information System (LIS) for AGS LCM where these databases will be integrated and used to support O&S data and processes

# AGS LIS Architecture



- A modular Logistic Information System (LIS) will be developed to support the AGS Life Cycle Management (LCM)
- The LIS Data Base Management System (DBMS) will allow the management of all In Service Support data and processes
- Feedbacks from the field will make necessary the ASD Suite Databases updating
- A specific Data Management Module will be devoted to data integration, managing data duplications and consistencies



- Mapping of DEs for data integration between the S-Standards result complex and seem not to be effective
- For the implementation of the S-Series as a whole a mapping of all DEs and the ability to properly address them would be very helpful
- Since it is currently no possible to apply the PLCS concept for the ASD Standards, it would be helpful to have flexible DEX that could be easily set.
- The implementation of the S-Series would benefit from the definition of the UoFs if they would be considered by all S-Standards with the possibility of mapping all processes by the user