AeroSpace and Defence
Industries Association of Europe

council

The S-Serei ILS Specifications Contracting Panel

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S6000T

Introduction: S-Series ILS Specifications

- **Integrated suite of ILS specifications:**
  - Developed using US and European Product Support Best Practices and Lessons Learned
  - Supports entire Product Life Cycle
  - Optimizes data reuse and interoperability
  - Interfaces with Engineering data sources
  - Introduces In-Service Feedback which supports Data Analytics, lowers sustainment costs and improves readiness
  - Lowers cost of ILS documentation during development and decreases costs resulting from block-upgrades throughout the lifecycle
  - Applies to new, future and Legacy programs
  - Aligns with the US National Defense Strategy
  - Used today by > 55 programs

Program	Country	Company	S100	S2000	S300	S400	S500	S600	SX00
AH6I	US	Boeing	X						
CH47 Chinook	CA/IT	Boeing	X						
KC46	US	Boeing	X						
AEWC	US	Boeing	X						
AWACS	US	Boeing	X						
ANKA for MALE class UAV	TU	TAI	X		X				
T129 Atack & reconaissance helicop	TU/IT	TAI/Augusta	X						
HÜRKUS New generation basic train	TU	TAI	X						
TFX (Turkish Fighter aircraft)	TU	TAI	X	X	X				
JPALS	US	US Navy	X						
C-130	FR	Dassault	X	X	X				
MITAC MRJ	JP	MITAC	X						
UCLASS	US	US Navy	X						
NGJ	US	US Navy	X						
VXX (VH-73)	US	US Navy	X						
E2D & E2C	US	US Navy	X						
TRITON	US	US Navy	X						
ECASS	US	US Navy	X						
FIRESCOUT	US	US Navy	X						
STUAS	US	US Navy	X						
EMALS	US	US Navy	X						
AAG	US	US Navy	X						
EP3	US	US Navy	X						

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Dawn
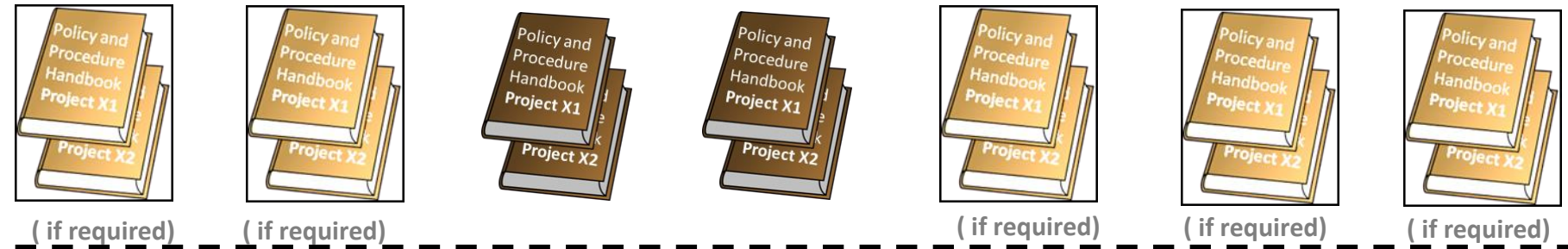
SX000i in the Contracting Process

SX000i:

- Identifies in which specification each ILS activity is covered (Mapping Table)
- Provides cross reference information to compare current specification, instruction, or process documents to S-Specifications

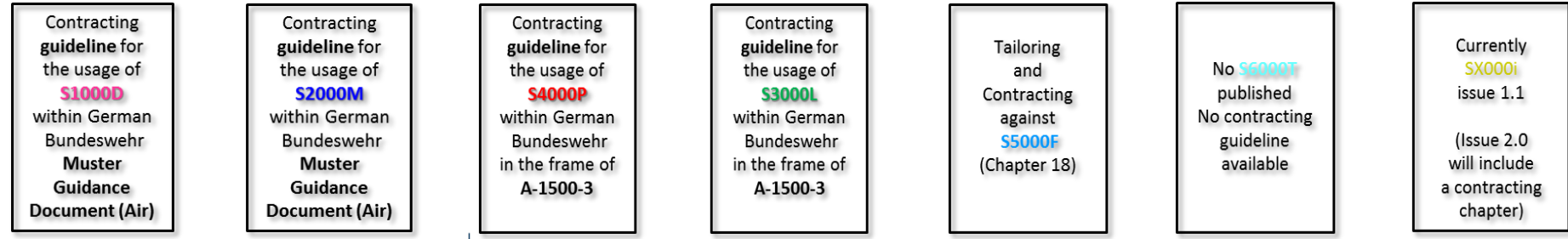| ASD /AIA S-Series deliverables			S-Series Specifications coverage									
ILS Element	**Activity**	**Deliverables**	S1000D	S2000M	S3000L	S4000P	S5000F	S6000T	SX000i	SX001G	SX002D	STE-100
Product Support Management (Life Cycle Sustainment Management)	Manage contract	Management reports Support Contract		S				I	F (2.0)			
	Capture product support requirement	Support Concept		S	P			I	T			
	Develop ILS plan	ILS Plan		S				I	F (2.0)			
	Manage In-service ILS activities	Management reports (in-service)		S				I	F (2.0)			
	Configuration management	As-allowed configuration As-is configuration	P	S	P		P		T (2.0)			S
	Perform obsolescence management	Obsolescence Report		S	F			I	T			
	Fleet management	Fleet Performance Report						F	T (2.0)			
	Lessons learned	Lessons Learned database						I (2.0)	T (2.0)			
Supply Support	Provide provisioning data	Provisioning data Initial Provisioning List (IPL)		F				I	T		S	
	Perform Material Supply	SPL Quotation Provisioning Order Delivery Invoice		F				I	T			
	Manage stocks / stores	Inventory reports		I	Recommended		I	to use	T (2.0)	internal processes		
	Manage warranty	Warranty reports		I	P	Extend	I	with	T (2.0)	internal processes		
Packaging, Handling, Storage & Transport (PHS&T)	Analyse PHS&T Requirements	PHS&T Plan		S	I			I	T			
Maintenance	Develop Maintenance Concept	Maintenance Concept			F	S		I	T			
	Perform Level of Repair Analysis	LORA Report			F			I	T			
	Develop Maintenance Plan	Maintenance Plan		S	F	I		I	T			
	Execute Maintenance Tasks	Maintenance Report Feedback data	S	S	Recommended		I	to use	T	internal processes		
	Perform Supportability Safety Analysis	Supportability Safety Analysis Report						I	T			
	Perform Maintenance Task Analysis (MTA)	MTA Report			F			I	T			
	Develop and continuously improve preventive maintenance	PMTR			I	F		I	T			
	Perform in-service maintenance optimization (ISMO)	Optimized Maintenance plan					F	I	T (2.0)			

Guidance Documents for Contracting

Preparation of project specific <u>Policy and Procedure Handbooks</u>

Policy and Procedure Handbook Project X1 / Project X2 (×7)

(if required)   (if required)   (if required)   (if required)   (if required)

National / international (STANrec*) & Company Regulations / Guidance

| Contracting **guideline** for the usage of **S1000D** within German Bundeswehr **Muster Guidance Document (Air)** | Contracting **guideline** for the usage of **S2000M** within German Bundeswehr **Muster Guidance Document (Air)** | Contracting **guideline** for the usage of **S4000P** within German Bundeswehr in the frame of **A-1500-3** | Contracting **guideline** for the usage of **S3000L** within German Bundeswehr in the frame of **A-1500-3** | Tailoring and Contracting against **S5000F** (Chapter 18) | No S6000T published No contracting guideline available | Currently SX000i issue 1.1 (Issue 2.0 will include a contracting chapter) |

*NATO STANrec 4752:
S1000D Technical Publications

*NATO STANrec 4795: **ISMO
Chap. 3 (S4000P) and Chap. 10 (S3000L)

S – Series Specifications

S1000D   S2000M   S3000L   S4000P   S5000F   S6000T   SX000i

Customer expectations & requirements to S-Series

Comparison Project vs. S-Series
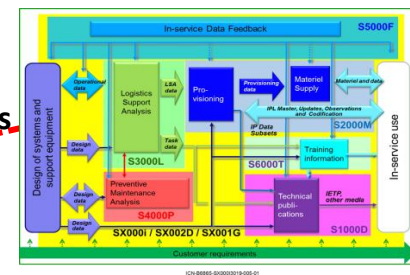
*STANrec: = NATO Standard Recommendation
**ISMO = In-Service Maintenance Optimization

Project specific
Customer requirements
(e.g. not a full blown S-Series application)

Suite of ILS Specifications

Specification Tailoring: S1000D

- Tailoring of S1000D for a contract is performed by project decisions relevant for a comprehensive set of Business rules decision points (BRDPs) which must be recorded in a Business Rules EXchange (BREX)

- Tailoring of the required information scope and depth are done by defining the Information Set required.

- BREX data modules ensure a formalized and machine readable representation of Business rules relevant for a project to ensure the correct interpretation of the content of the Common Source Data Base (CSDB).

- <u>These Business rules and BREX files can be layered</u>

Level of tailoring

Project
BREX

Swedish DMA
BREX

Defence Interest Group

BREX

S1000D default BREX

BR category 10:
Data output

BR category 1:
General

BR category 2:
Product definition

BR category 9:
Legacy data …

Project or organization
business rules

BR category 3:
Maintenance philosophy and
concepts of operation

BR Category 8:
Data integrity and management

BR category 4:
Security

BR category 7:
Data exchange

BR category 6:
Data creation

BR category 5:
Business process

ICN-83007-S1000D001-001-01

Fig 1 Business rule categories

Specification Tailoring: S2000M

S2000M has been designed and developed to allow users to select functionality which is appropriate to their specific projects. Individual chapters may be included, or excluded, and specific messages, segments and functions may also be excluded if not required. This allows users to specifically tailor their usage of S2000M to most economically meet their project or business needs.
eg

Chapter 2 Spare parts list
The Spare Parts List allows the customer and contractor to process parts data (including commercial data elements) to allow for the processes as described in the chapter Material supply of this Specification without the necessity to use processes as described in the chapter 1

eg
Data Elements Optional
hardwarePartWeight = use of this data element has been agreed between Customer and Contractor at the start of the project
eg
requirementsDefinitionNumber for AGE

Specification Tailoring: S2000M
Data Element List for Provisioning List

Within this List you will find:

➢ **Technical Information**

➢ **Commercial Information**

➢ **Manufacturer Information**

➢ **S3000L Information**

Specification Tailoring: S3000L

Tailoring of S3000L for a contract is a progressive process, from the definition of the general LSA framework down to the selection of the required data elements. This process comprises:

– **Selection** of project relevant <u>analysis activities</u> and determination of project specific <u>business rules</u> (e.g. decision for a Product breakdown method, valid values for classifications)

Product breakdown ☑ Method: Hybrid breakdown	MTA ☑	Disposal
LORA ☑ Method: simplified	PHST ☑	LSA FMEA ☑
		etc …

– **Selection** of relevant <u>Units of Functionality (UoF)</u> and data elements from the S3000L data model to cover the project requirements
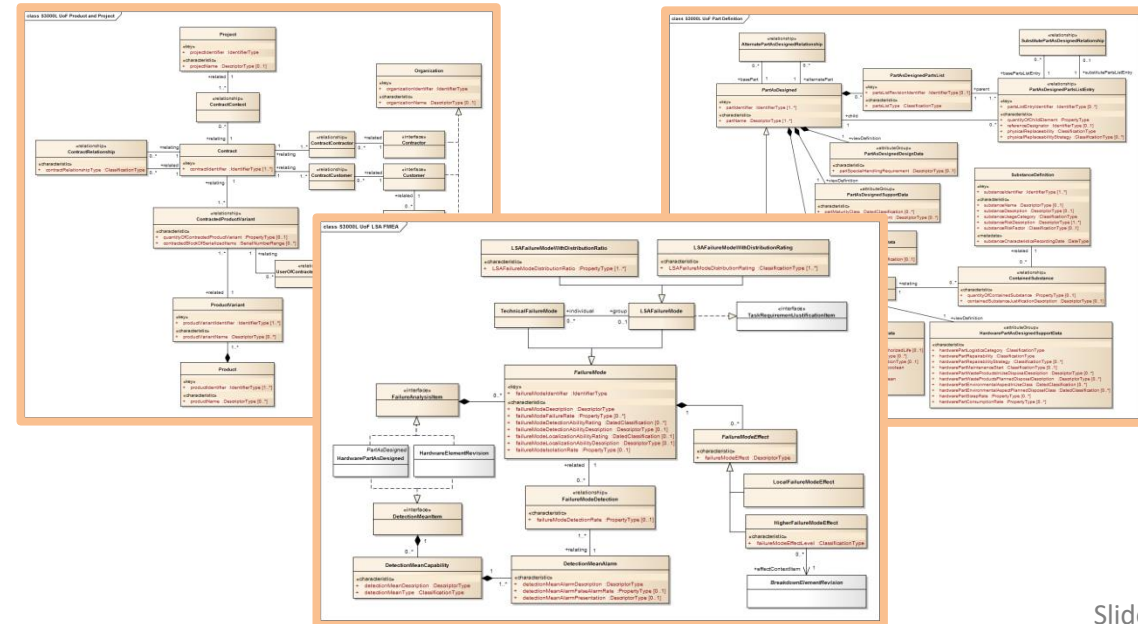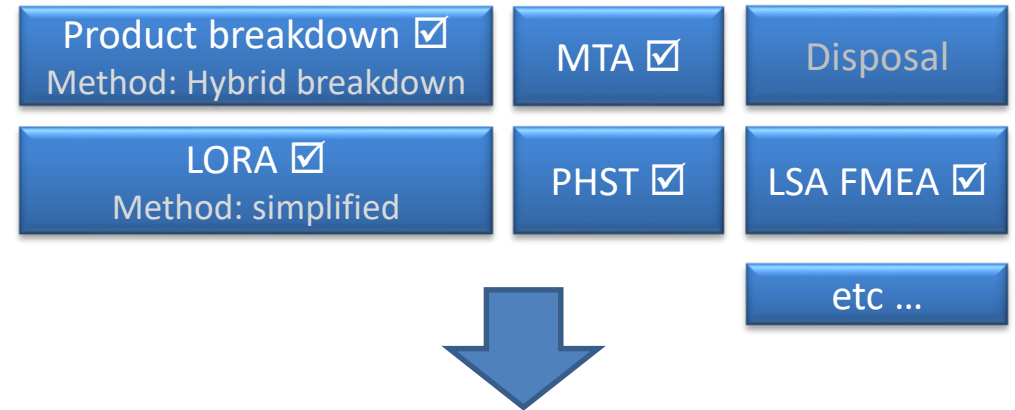
Remark:
For business rules, the rule definition approach from SX006R is planned to be adopted also to S3000L in a next issue (but not yet for coming issue 2.0)

Specification Tailoring: S4000P Chapter 2 (Developing PMTR)

- ❑ **S4000P Chapter 2** provides **analysis methodologies** to develop Preventive Maintenance Task Requirements (**PMTR**) for **Product Systems, -Structure and –Zones**

- ❑ Depending on the individual analysis project a Policy and Procedure Handbook (**PPH**), analysis Guideline (**GL**) or a similar document should be elaborated, approved and released to detail chapter 2.

- ❑ The **PPH/GL has to define** at least the following aspects:
  - » Planned analysis-relevant Product usage parameters during in-service phase
  - » Decided or intended maintenance organization and framework
  - » Analysis exclusions and minimum S4000P analysis aspects which must/should be covered (see Fig. below)
  - » Activities, responsibilities, time schedules etc. during the Product life cycle
  - » Project-individual interval ratings and/or analysis sheets/tables...
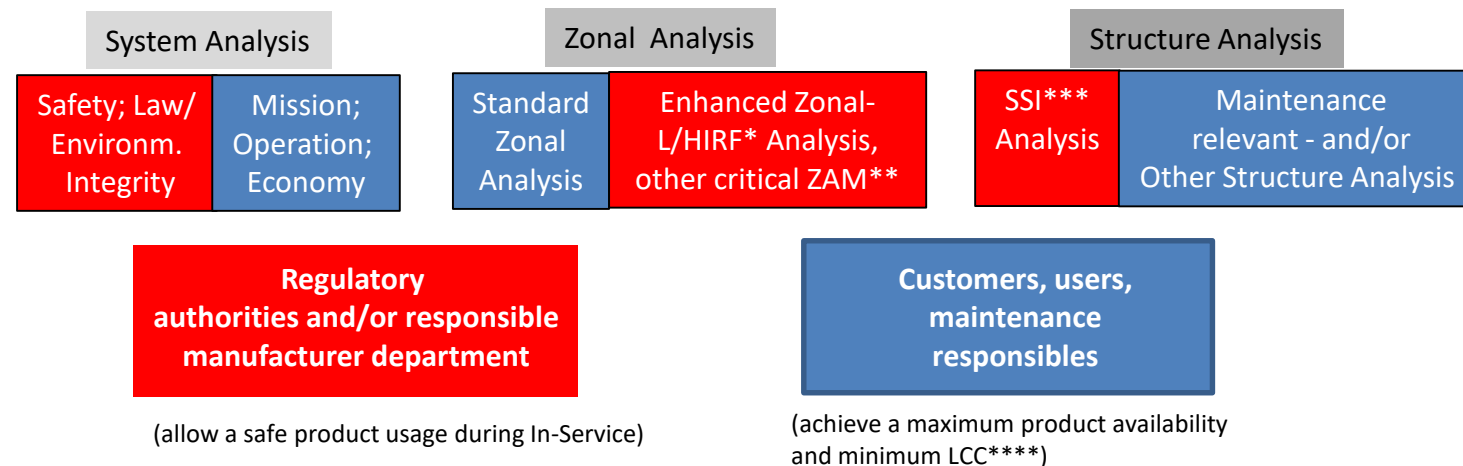
* Lightning/High Intensity Radiated Field
** Zonal Analysis Module
*** Structural Significant Item
**** Life Cycle Cost

Specification Tailoring: S4000P Chapter 3 (In-Service Maintenance Optimization)

❑ **S4000P Chapter 3** provides the **generic ISMO process**

❑ Depending on the individual analysis project a Policy and Procedure Handbook (**PPH**), analysis Guideline (**GL**) or a similar document should be elaborated, approved and released **to detail chapter 3**.

❑ The **tailoring or supplement** of an **ISMO** process **depends on the analysis background (if any)** elaborated during the Product design & development phase and/or on **basic data/experience** available from in-service phase(s).

❑ The **output of an ISMO process** must

» convince a regulatory authority (if involved) and/or the Product-safety responsible manufacturer department that **all safety and law/environmental integrity-relevant PMTR** have been determined in line with the state-of-the-art analysis methodologies. Specific for legacy projects this aspect can cause **analysis compensation work** e.g. acc. to S4000P chapter 2.

» define at least those **PMTR** necessary to **fulfill the customer requirements** concerning **Product availability** and **Life Cycle Cost (LCC).** For this purpose a **tailoring of the ISMO process** on **maintenance-intensive** Product **Systems, -Structure, -Zones** can be decided in the respective PPH/GL.

Specification Tailoring: S5000F

- S5000F is peculiar in the sense that it does not have a detailed process. It is therefore possible to use it with existing processes and procedures.

- S5000F is a bi-directional data exchange, so it is necessary to decide who sends what. It is also necessary to define the frequency of the exchange, and the mechanisms used for such exchange.

- Different contracts might also imply different roles for both customer and contractor.

- S5000F data exchanges are based on "use cases" (activities), which have defined data sets, and that can reduced or expanded.

- S5000F can be implemented partially. However, given that S5000F information is very useful for data analytics and Big Data initiatives, it is essential to ensure that all relationship information for a specific use case is provided.

- S5000F has a specific chapter on "*Tailoring and contracting*"
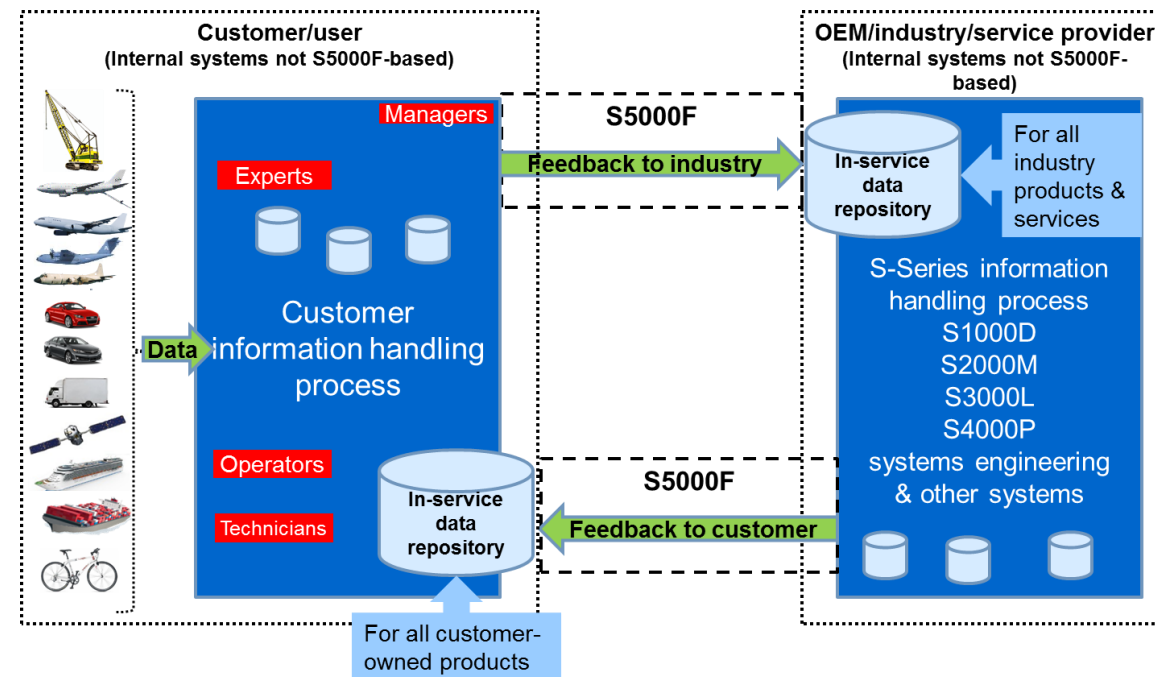
Specification Tailoring: S6000T

- S6000T First draft will be published later this year

- S6000T Follows the Instructional System Design (ISD) process, and harmonizes MIL STD 29612 along with European standards. It supports current Analysis and Design CDRL's including IPRD and IMRD

- S6000T will provide data exchanges with S3000L to aide Training Analysis as well as S1000D to support Training Development

- S6000T is being drafted so that it can be Tailored and implemented partially based on individual program requirements, however it is essential to ensure that all data relationship information for a specific use cases be followed.
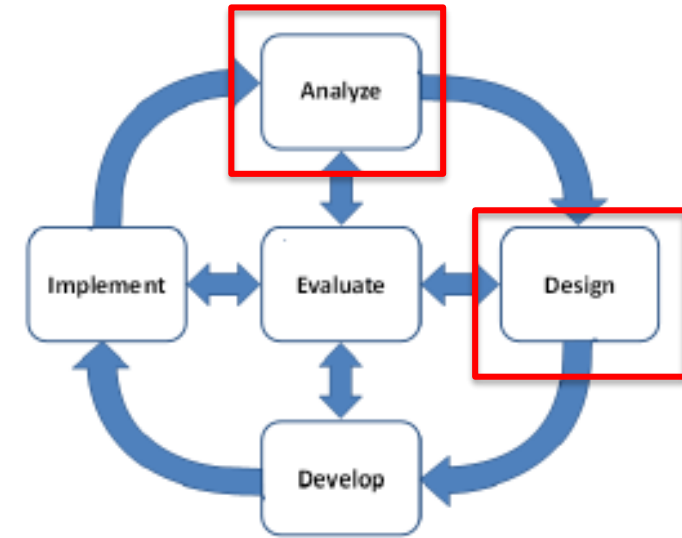
Usage of S-Series ILS Specifications with non-S-Series ILS Specifications

- **Using Complementary Specifications:**
  – Facilitates cross-linking ILS information and integrate it with other domains
  – Supports data reuse and data analytics
  – Provides added value to the business by improving consistency and preventing rework
  – Interfaces may be required:
    - S-Series ILS Specifications to Engineering through AP239 (PLCS) in work
- **Replacing Specifications:**
  – Requires effort in data conversion and traceability of the information
  – Can result in loss of information or incomplete data for Common Data Model

Other Spec

S3000L

S1000D

Other Spec.

S1000D
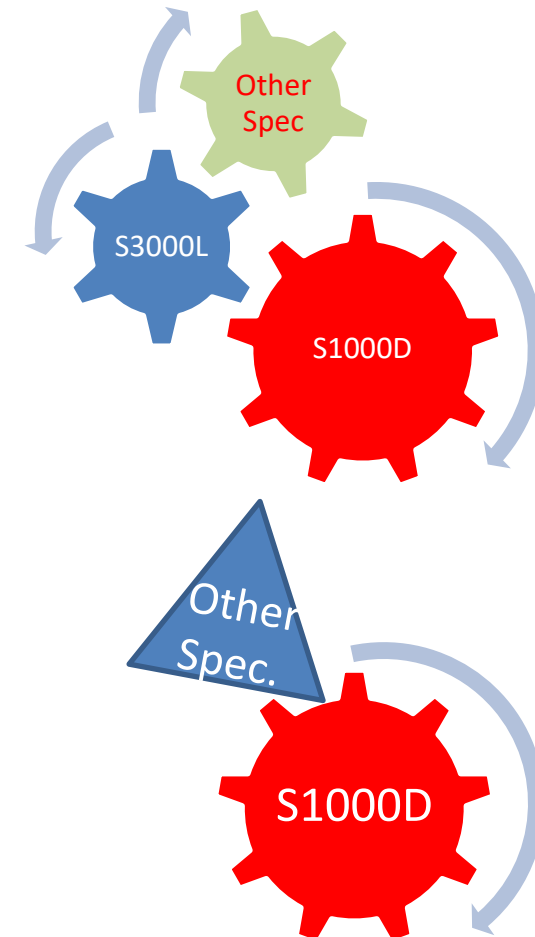
Replacing Specifications: Migration of Legacy Data

- **Conversation circumstances:**
  - Legacy to S-Series ILS Specification
  - Older S-Series ILS Specification version to newer version
- **Timing:**
  - New customer
  - Retrofit/Modification
  - Other (ie: yields long term benefit)

MIL-STD 1388-2B

RCM MIL-STD 1843

S3000L

S4000P

S1000D, Issue 4.1

S1000D, Issue 2.3

S2000M, Issue 6.1

S2000M Issue 2.1
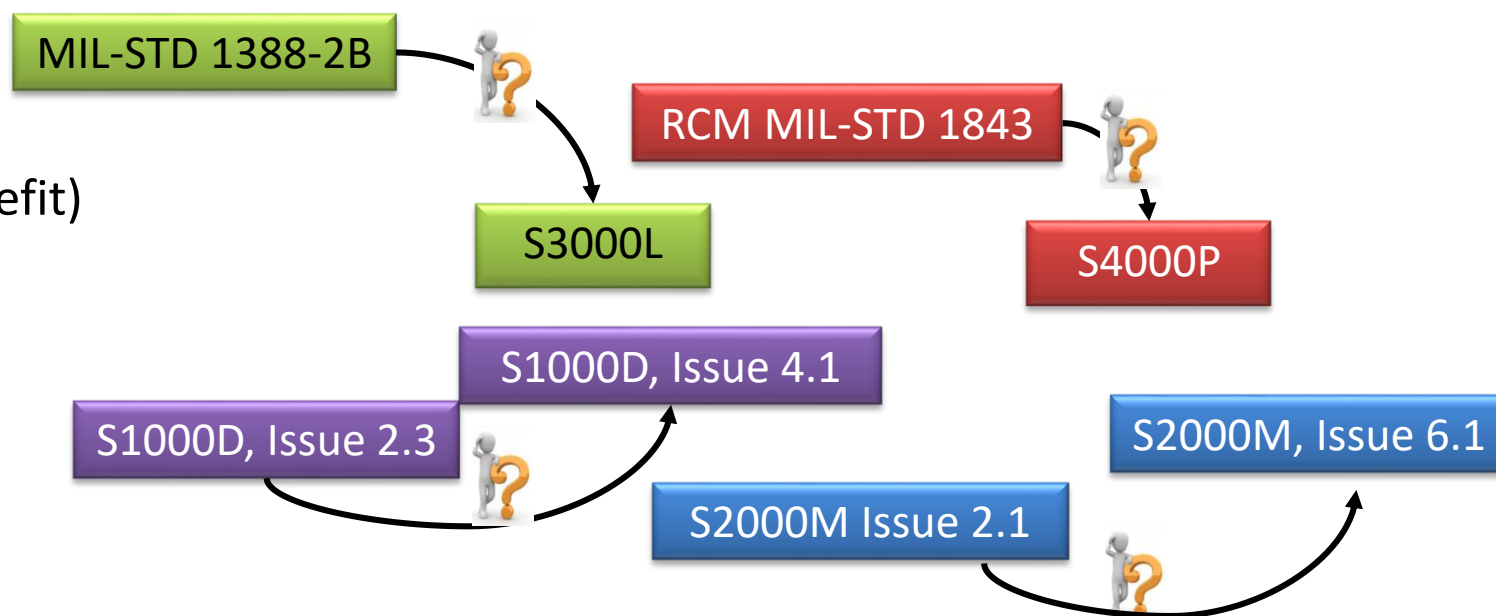
- **Aspects to be considered:**
  - Is a migration **generally possible**?
  - Does a new format fully support the already existing data or is there a **risk to lose** crucial information/data?
  - Is there a **reasonable balance** between the benefit of migration in comparison with the expected effort?
  - Is a **new IT environment** required?
  - Is a potential new IT environment **timely available** at each project stakeholder?

Migration of Legacy Data: NATO AGS example

NATO AGS (Alliance Ground Surveillance)

LSA was <u>generally contracted</u> against the ASD /AIA Specification **S3000L**, **but**:

At project start, no S3000L IT solution based on S3000L, Issue 1.1, was finally available (some under construction)

✓ **Workaround determined in the LSA Guidance Document**
   (NAGS1.6DOC01258, Issue 1.0)

Initial LSA deliverables at project start:

(ILS Guidance Conference, end of 2012)

- **Support Task Inventory (**including product breakdown and parts data)
- **Maintenance Detailed Task Analysis**

First LSA deliverables in 2014, MS Excel templates based on

MIL-STD 1388-2B format provided by Northrop Grumman

Data migration process at Airbus Defence & Space (2017)

➢ New LSA Guidance Document (NAGS1.6DOC01258, Issue 1.1) provided by Prime Contractor Northrop Grumman in 2016
➢ Implementation of S3000L IT tool at Airbus DS and migration of legacy data to S3000L format (3 weeks migration effort)
➢ First delivery of LSA data to Prime Contractor in S3000L format in 2017
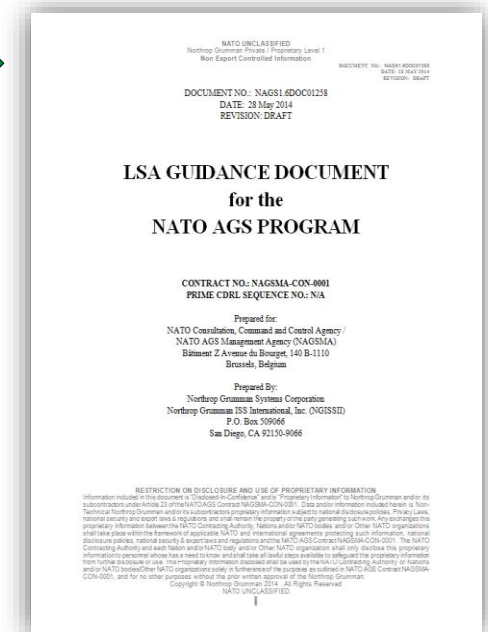
Request for Proposal: Requirements and Deliverables

Deliverable	Requirement	Specification
ILS	The Contractor shall develop, deliver, and sustain the Support program to include all 12 IPS elements.	SX000i
Technical Publications	The Contractor shall deliver Technical Data and Publications in accordance with the TMCR.	S1000D
Material Management	The Contractor shall conduct and document Provisioning Data for aircraft and other aerospace airborne and ground equipment supplied for military and non military customers.	S2000M
LSA	The Contractor shall conduct and document all analysis required to support the project and other deliverables.	S3000L
Preventive Maintenance Policy and Procedure Handbook(s) (PPH)	The contractor shall conduct preventive maintenance analysis and optimization. A PPH for chapter 2 and/or chapter 3 analysis shall be elaborated and delivered, which shall define all activities associated with the analysis to develop preventive maintenance task requirements and/or to optimize resulting tasks through in-service life.	S4000P
Maintenance Records and Product Performance	The Contractor performing the maintenance shall provide the Maintenance Records and associated information as per Use Case 3 of S5000F Chapter 4. The Contractor will also provide the Product Performance data as per Use Case 4 of the same chapter.	S5000F

Request for Proposal: Requirements and Deliverables Multi-Spec Application

Deliverable	S-Spec	Requirements
Maintenance Plan	**PMTR = S4000P Chap 2**	The contractor shall prepare a Maintenance Plan defining the requirements for Product supportability engineering including the development of Preventive Maintenance Task Requirements (PMTR) according to S4000P chapter 2.
	MTA = S3000L	The Contractor shall perform Maintenance Task Analysis (MTA) on basis of PMTR and for identified corrective maintenance tasks. In addition a packaging of preventive maintenance tasks with a subsequent MTA for task packages is required.
	IPP = S2000M	The Contractor shall develop an Initial Provisioning Program (IPP) to support the tasks identified in the MTA.

Other ILS elements must be defined on the basis of S3000L data and elaborated in parallel.

The Contractor shall report the execution of the Maintenance Tasks and associated weapon system performance according to S5000F chapter 4. |

RFP Requirements Statements for S-Series ILS Specifications: Examples from Existing Contracts (1/2)

- LSA:
  - The Contractor must perform LSA using S3000L International procedure specification for LSA.
  - Obsolescence Management is part of the LSA system and the Contractor must comply with the S3000L Standard, Chapter 15.
  - The LSA must incorporate (the customer's) specific equipment (**GFE**, **STE**) and all the data necessary to support **(the national logistic system)**, S1000D technical publications and **SCORM COURSEWARE** Training.
  - The Contractor must ensure that LSA support to the **Weapon System** is fully integrated between the Contractor's S1000D Technical Publication, **SCORM COURSEWARE** Training, Engineering Processes and Spare and Provisioning and other systems as listed in S3000L.
  - The LSA must provide a common electronic data output to support at a minimum the IETM, Publications, **national maintenance information system**, Training and **national training management** systems.
  - The Contractor must provide a Candidate Item List (CIL) for LSA as per S3000L chapter 3 page 60 template. This item must be delivered as per CDRL XXX as per the LSA working group agreed to timeline.
  - The LSA Database must support interoperability with S1000D **COMMON SOURCE DATABASE (CSDB)** for Product Breakdown Data, Maintenance Planning Data, Maintenance Task analysis data and Initial Provisioning Data in accordance with data exchange standard S1003X or similar as agreed to by the Customer.

RFP Requirements Statements for S-Series ILS Specifications:
Examples from Existing Contracts (2/2)

- Technical Publications:
  – The Seller shall prepare Technical Information and Data in accordance with ASD 1000D specification and in ASD STE-100 Simplified English.
  – The Buyer, with advice of the Seller, shall select, no later than 24 months after CED, the version of ASD S1000D to be used by the Seller for the formatting of Technical Information and Data.

- Provisioning/Material Management
  – The Seller shall deliver provisioning data, incorporating technical and commercial information, in accordance with ASD S2000M.
  – The Seller shall administer Buyer's purchase orders in accordance with ASD S2000M.
  – All spares data must be provided i.a.w. S2000M Issue 4.0. The items on the IPL must be justified by the corresponding tasks in LSA as per S3000L, unless proper evidence can be provided that such items are required in addition to LSA requirements.
  – GSE and STE justified by a LSA task as per S3000L will be ordered i.a.w. S2000M.

Data Element Sharing between Specifications

- Data elements are shared between different S-Series specifications thanks to SX002D, Common Data Model (CDM)

- The CDM includes all classes and attributes shared by <u>at least</u> 2 specifications

- Continuous harmonization:
  - Increases the interoperability between the specifications
  - Allows for data reuse / data analytics

- **CDM Units of Functionality:** A set of data classes that are used together to describe a specific functionality or business area and the relationship between the business objects
  - Issue 1.1: 13
  - Issue 2.0: 29
- **CDM Classes:** A set of data elements that grouped together provide the characteristics of a business object
  - Issue 1.1: 75
  - Issue 2.0: 169
- **CDM Data Elements (attributes):** An individual data item or field that describes one particular characteristic of a business object
  - Issue 1.1: 107
  - Issue 2.0: 307
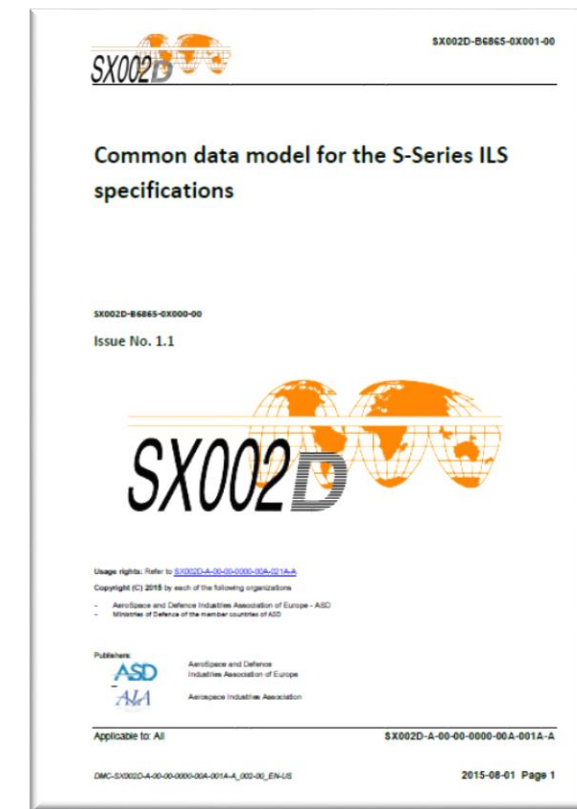
Example:
Product and *ProductVariant* are used by S2000M, S3000L and S5000F.

Data Element Lists for Building Contractible Reports: Technical Documentation (S1000D)

- Business Rules (Layered)
- BREX (Layered)
- List of applicable publication
  - Gives the list of the deliverable publications
- Data module requirement list (DMLR)
  - Gives the actual scope of the data that shall be produced and delivered
  - Schemas to use
  - Illustrations
- Completed Functionality matrix
  - Analyze the necessary complexity for the deliverable (PDF, IETP, Paper, …)

Data Element Lists for Building Contractible Reports:
Initial Provisioning Information (S2000M)

S2000M

3.6   Business rules

Table 2 Table legend

(1) = Shall be provided when there has been a change to its value. Else shall not be there.			
Definition for Cell-Values:			
M = Mandatory data elements which are essential in establishing an item record.			
C = Conditional data elements used depending upon the nature of an item record. (eg parent/child relationships, …)			
O = Optional data elements introduced by special arrangements between customer and contractor.			
A = Provided if available			
-- = Not used on this message			
X = Data element is applicable to this message.			
n/a = Not applicable. Data element is not applicable to this message or differentiation Spare/Non-Spare is not relevant.			

Data Elements:

Mandatory: 35

Conditional: 42

Optional: 16

DATA ELEMENT NAME	TEI / ACRONYM	Draft	Formal	Master	Update¹⁾	Restate	Part Oriented Provisioning Project Message (Baseline)	Location Oriented Provisioning Project Message (Baseline)	Part Oriented Provisioning Project Message (Update)	Location Oriented Provisioning Project Message (Update)	Provisioning Program Message	CODREQ Message	Tailorization Possible	Applicability - Spare	Applicability - Non Spare	Business Rule
lowerLimitSalesQuantity	LLQ	A	C	C	C	C	X	X	X	X	-	-	X	-	-	Shall be provided if item is a spare part and typeOfPrice (TOP) is not 05 or 07 and Price Break applies (ie more than one set of price break information exists).
upperLimitSalesQuantity	ULQ	A	C	C	C	C	X	X	X	X	-	-	X	-	-	Shall be provided if item is a spare part and typeOfPrice (TOP) is not 05 or 07 and Price Break applies (ie more than one set of price break information exists).
hardwarePartUnitOfIssuePrice (in case Price Break Data is used - "band pricing")	UOP	A	C	C	C	X	X	X	X	X	-	-	-	X	-	Shall be provided if item is a spare part and typeOfPrice (TOP) is not 05 or 07 and Price Break applies (ie more than one set of price break information exists).
inventoryManagementClass	DMC	A	O	O	C	O	X	X	X	X	-	-	X	X	-	Shall be provided if item is a spare part and use of this data element has been agreed between Customer and Contractor at the start of the project.
hardwarePartUnitOfIssue	UOI	M	M	M	C	M	X	X	X	X	-	C	-	X	-	Shall be provided if item is a spare part. When a change introduces a new spareable item, this data element is mandatory.
hardwarePartQuantityPerUnitOfIssue	QUI	C	C	C	C	C	X	X	X	X	-	C	-	X	-	Shall be provided if item is a spare part and if hardwarePartUnitOfIssue (UOI) is non definitive. When a change introduces a new spareable item, this data element is to be provided if hardwarePartUnitOfIssue (UOI) is non definitive.
hardwarePartPackagingRequirement	PLC	C	M	M	C	M	X	X	X	X	-	-	-	X	-	Shall be provided if item is a spare part. To be provided in Draft if Cat 1 Container exists. When a change introduces a new spareable item, this data element is to be provided. (C)onditional in Draft if extended update process applies.
hardwarePartProcurementSource	PSO	M	M	M	C	M	X	X	X	X	-	-	-	X	-	Shall be provided if item is a spare part. When a change introduces a new spareable item, this data element is mandatory.
hardwarePartPurchasingLeadTime	PLT	M	M	M	C	M	X	X	X	X	-	-	-	X	-	Shall be provided if item is a spare part. When a change introduces a new spareable item, this data element is mandatory.
hardwarePartPoolItemCandidate	PIC	O	O	O	C	O	X	X	X	X	-	-	X	X	-	Shall be provided if item is a spare part and use of this data element has been agreed between Customer and Contractor at the start of the project.
obsoletePart	OSP	C	C	C	C	C	X	X	X	X	-	-	-	X	-	Shall be provided if item is a spare part and is obsolete.
hardwarePartStandardPackageQuantity	SPQ	M	M	M	C	M	X	X	X	X	-	-	-	X	-	Shall be provided if item is a spare part. When a change introduces a new spareable item, this data element is Mandatory.

Data Element Lists for Building Contractible Reports:
Logistics Support Analysis (S3000L)

S3000L-B6865-03000-00

Data element	Type	Definition	Class/Interface	UoF
conditionTypeName	ClassificationType	conditionTypeName is a word by which the condition type is known and can be easily referenced. Examples: - serviceBulletinConditionType - ashoreOrAfloatConditionType - operationalEnvironmentConditionType - maintenanceEnvironmentConditionType	ConditionType	Applicability Statement
conditionTypePropertyValue	PropertyType	conditionTypePropertyValue is a property that is valid for a specific ConditionType.	ConditionTypePropertyValue	Applicability Statement
containedSubstanceJustification Description	DescriptorType	containedSubstanceJustificationDescription is a phrase that gives more information on the most important property for the function of the hardware part as designed, that the included substance has.	ContainedSubstance	Part Definition
contractedBlockOfSerializedItems	SerialNumberRange	contractedBlockOfSerializedItems identifies an interval of serialized items as known by the customer.	ContractedProductVariant	Project
contractIdentifier	IdentifierType	contractIdentifier is a string of characters used to uniquely identify a Contract and to differentiate it from other Contracts.	Contract	Project
contractRelationshipType	ClassificationType	contractRelationshipType is a classification that defines the type of relationship that is established between two contracts. Examples: - subcontract - relatedContract	ContractRelationship	Project

Applicable to: All

S3000L-A-22-00-0000-00A-040A-A

Chap 22

2014-07-01 Page 8

DMC-S3000L-A-22-00-0000-00A-040A-A_002-00_EN-US

Data Elements: 270
- Mandatory*: 251
- Optional*: 119

* Assuming that the whole S3000L specification is used.

Note that the specific tailoring for each individual program will reduce the number of mandatory and optional data elements to the required by the program in question.

Data Element Lists for Building Contractible Reports:
Preventative Maintenance (S4000P, Chap 2)

- Line sequence number for each listed PMTR, CMR in the preventive maintenance data exchange list
- Breakdown Element Identifier data
- Pre-selection of Analysis Relevant Candidate with justifications
- Part number/drawing number
- Name of the subsystem, equipment, item affected by the PMTR, CMR
- PMTR, CMR
    – Applicability on Product variants
    – Task type identification/name
    – Numerical interval 1 (type & threshold)
    – Numerical interval 2 (type & threshold)
    – Source (S4000P, national/international law, etc)
    – Issue number for system, subsystem, equipment, item, Structural Significant Item & zone
    – Criticality
    – Development status

Data Element Lists for Building Contractible Reports: Preventative Maintenance (S4000P, Chap 3)

- Importance/in-service impact rating
- ISMO analysis
  - Status
  - Result summary
- Result for PMTR, CMR
  - Task type
  - New task type
  - Numerical interval 1 (type & threshold)
  - Numerical interval 2 (type & threshold)
- PMTR, CMR temporary interval adaptation

- PMTR, CMR criticality update
- Selection of trend leaders and/or pilot areas for PMTR, CMR
- Result for PMTR, CMR
  - Additional task type
  - Numerical interval 1 (type & threshold)
  - Numerical interval 2 (type & threshold)
- PMTR, CMR criticality for additional PMTR
- Selection of trend leaders and/or pilot areas for additional PMTR, CMR

Data Element Lists for Building Contractible Reports:
In-service data feedback (S5000F)

S5000F-B6865-05000-00

Data element	Type	Definition	Class/interface	UoF
equipmentStatusReason	ClassificationType	equipmentStatusReason is a classification indicating the reason for which an equipment has been in that status during a specific period of time.	EquipmentStatus	S5000F UoF Equipment
equipmentStatusType	ClassificationType	equipmentStatusType is a classification that describes the status of the equipment.	EquipmentStatus	S5000F UoF Equipment
eventConfirmedStatus	DatedClassification	eventConfirmedStatus is a classification at a specific moment in time describing whether the event has or not been confirmed.	Event	S5000F UoF Event
eventDescription	DescriptorType	eventDescription is a narrative statement explaining an Event or the circumstances surrounding it.	Event	S5000F UoF Event
eventGroup	ClassificationType	eventGroup is a classification that is used to categorize the type of Event.	Event	S5000F UoF Event

- Data Elements
  - Total: 980 (including 87 shared with other specifications*)
    - Mandatory: 653**
    - Optional: 327**
  - Minimum required: 8 (for one of the use cases)

* From SX0002D Common Data Model Issue 1.1
** Assuming that the whole specification is used

Note that S5000F is NOT intended to be used in its totality, so the actual number of data elements will be tailored for each specific program as required.

Bundeswehr Reports and Data Element List:
Data elements of the Bundeswehr's core LSA

- Bundeswehr core S3000L LSA data elements:
  - Data Elements: 81
  - Conditional Data Elements: 17

UoF	Class	Data element	M	C
Event and Dama-ge	SpecialEvent	specialEventTitle	x	
	SpecialEvent	specialEventDescription	x	
	Damage	damageDescription	x	
LSA Candidate Task Requirement	TaskRequirement	taskRequirementIdentifier S4000P	x	
	AuthorityDrivenTaskRequirement	taskRequirementAuthoritySourceType		x
	AuthorityDrivenTaskRequirement	taskRequirementAuthority		x
	TaskRequirementRevision	taskRequirementRevisionIdentifier	x	
	FunctionalFailure	functionalFailureEffectCriticality S4000P		x
Task	Task	taskIdentifier	x	
	RectifyingTask	packagedTask	x	
	TaskRevision	taskRevisionIdentifier	x	
	TaskRevision	taskName	x	
	TaskRevision	informationCode	x	
	TaskRevision	taskPersonnelSafetyCriticality	x	
	TaskRevision	taskProductIntegrityCriticality	x	
	TaskRevision	taskOperabilityImpact	x	
	TaskRevision	taskDuration	x	
	TaskRevision	taskTotalLabourTime		x
	Subtask	subtaskIdentifier	x	
	Subtask	subtaskRole	x	
	WarningCautionNote	warningCautionNoteIdentifier	x	
	WarningCautionNote	warningCautionNoteDescription	x	
	WarningCautionNote	warningCautionNoteType	x	
	SubtaskByDefinition	subtaskName	x	
	SubtaskByDefinition	subtaskDescription		x
	SubtaskByDefinition	subtaskDuration	x	
Task Resources	TaskResource	fixedResourceMarker	x	
	TaskPersonnelResource	taskPersonnelResourceRole	x	
	TaskPersonnelResource	taskNumberOfPersonnelResource	x	
	Skill	skillCode	x	
	TaskFacilityResource	taskFacilityResourceQuantity	x	
	TaskMaterialResource	taskMaterialResourceQuantity	x	
Task Usage (Part 1)	TimeLimit	timeLimitHarmonizationIndicator	x	
	TaskFrequency	taskFrequency		x
	TaskFrequency	taskFrequencyCalculationMethod		x
	ParameterThresholdDefinition	thresholdValue S4000P	x	
	EventThresholdDefinition	eventThresholdNumberOfEventOccurences	x	
Security Classification	SecurityClass	securityClass	x	
Organization Assignment	OrganizationAssignment	organizationAssignmentRole	x	
Document	S1000DDataModule	dataModuleCode	x	
	S1000DPublicationModule	publicationModuleCode		x
	ExternalDocument	documentIdentifier	x	
	ExternalDocument	documentTitle	x	
	ExternalDocumentIssue	documentIssueIdentifier	x	

UoF	Class	Data element	M	C
Product and Project	Project	projectIdentifier	x	
	Organization	organizationIdentifier	x	
	Organization	organizationName	x	
	Contract	contractIdentifier	x	
	Product	productIdentifier	x	
	Product	productName	x	
	ProductVariant	productVariantIdentifier	x	
	ProductVariant	productVariantName	x	
Product Usage Context	MaintenanceLevel	maintenanceLevelIdentifier	x	
	MaintenanceLevel	maintenanceLevelName	x	
	MaintenanceLevel	maintenanceLevelCapabilityDescription		x
	MaintenanceLocation	maintenanceLocationIdentifier	x	
	MaintenanceLocation	maintenanceLocationName	x	
	OperatingLocation	operatingLocationIdentifier		x
	ContractedProductVariantAtOperatingLocation	operatingRequirementAtOperatingLocation		x
Breakdown Structure	Breakdown	breakdownType	x	
	BreakdownRevision	breakdownRevisionIdentifier	x	
	BreakdownElement	breakdownElementIdentifier	x	
	BreakdownElement	breakdownElementName	x	
	BreakdownElement	breakdownElementEssentiality	x	
	BreakdownElementRevision	breakdownElementRevisionIdentifier	x	
	BreakdownElementStructure	quantityOfChildElement	x	
Part Definition	PartAsDesigned	partIdentifier	x	
	PartAsDesigned	partName	x	
	PartAsDesignedPartsListEntry	quantityOfChildElement		x
	PartAsDesignedSupportData	partObsolescenceRiskAssessment		x
	PartAsDesignedControlledItemData	partDemilitarizationClass	x	
	HardwarePartAsDesignedDesignData	hardwarePartOperationsAuthorizedLife	x	
	HardwarePartAsDesignedDesignData	hardwarePartHazardousClass	x	
	HardwarePartAsDesignedDesignData	hardwarePartFitmentRequirement	x	
	HardwarePartAsDesignedDesignData	hardwarePartElectromagneticIncompatible	x	
	HardwarePartAsDesignedDesignData	hardwarePartElectrostaticSensitive	x	
	HardwarePartAsDesignedDesignData	hardwarePartElectromagneticSensitive	x	
	HardwarePartAsDesignedDesignData	hardwarePartMagneticSensitive	x	
	HardwarePartAsDesignedDesignData	hardwarePartRadiationSensitive	x	
	HardwarePartAsDesignedSupportData	hardwarePartLogisticsCategory	x	
	HardwarePartAsDesignedSupportData	hardwarePartRepairability	x	
	HardwarePartAsDesignedSupportData	hardwarePartScrapRate		x
	HardwarePartAsDesignedSupportData	hardwarePartConsumptionRate		x
Breakdown Element Realization	HardwareElement	hardwareElementType	x	
	SoftwareElement	softwareElementType	x	
	HardwareElementRevision	hardwareElementStructuralIndicator S4000P	x	
	HardwareElementRevision	hardwareElementFunctionalReplaceability	x	
	HardwareElementRevision	hardwareElementFunctional-ReplaceabilityStrategy	x	
Breakdown Aggregated Element	AggregatedElement	aggregatedElementType	x	
LSA Candidate	LSACandidate	LSACandidateIndicator	x	
	ProductServiceLife	productServiceLife		x
	MeanTimeBetweenFailure	meanTimeBetweenFailure	x	
	FailureRate	failureRate	x	
	CorrectionFactor	correctionFactorJustification		x
LSA FMEA	FailureMode	failureModeIdentifier	x	
	FailureMode	failureModeDescription	x	
	FailureMode	failureModeFailureRate	x	
	LSAFailureModeWithDistributionRatio	LSAFailureModeDistributionRatio	x	

Bundeswehr Reports and Data Element List:
Reports on Technical /Logistics Analysis

Report Description:

Based on the system startup with linked part information for each breakdown element, the following information can be stored for each technical /logistic analysis to be considered:

- Is the corresponding analysis carried out for this component?   (yes / no)
- Reference to valid documents
- Creation date
- Status of work progress
- Creator

Required Data Elements

UoF Product and Project	
organizationIdentifier	Manufacturing Code
organizationName	Manufacturer Name
productIdentifier	Product experts
productName	Product name
productVariantIdentifier	Product variant Code
productVariantName	Product Variant
UoF Breakdown Structure	
breakdownType	Breakdown candidate Expert
breakdownRevisionIdentifier	Revision expert product disruption
breakdownElementIdentifier	Breakdown element class
breakdownElementName	Breakdown element designation
breakdownElementEssentiality	Breakdown element coding
breakdownElementRevisionIdentifier	Breakdown element variant
quantityOfChildElement	Number of children per assembly
UoF Part Definition	
partIdentifier	Part or material expert
partName	Part /Material
UoF Breakdown Aggregated Element	
aggregatedElementType	Outbreak element type
UoF LSA Candidate	
LSACandidateIndicator	Analysis candidate expert
UoF LSA Candidate Analysis Activity	
candidateItemAnalysisActivityIndicator	Analysis type
candidateItemAnalysisActivityRationale	Analysis selection experts
candidateItemAnalysisActivityStatus	Analysis status, status information
candidateItemAnalysisActivityDate	Analysis Creation Date
UoF Security Classification	
securityClass	Security classification
UoF Document class model	
documentIdentifier	Reference to analysis documents, regulations
RMLU additional elements	
	Analysis creators

Bundeswehr Reports and Data Element List:
Reports on Measures Overview/Tools Overview

Report Description:

List of all measures with required tools

The report can be requested in two forms:

- Accumulated at the level of the action, detailed with required tools at the level of the sub-measures. (MA07A – Illustrated here)

- For each sub-measure the necessary tools are listed separately. (MA07B – Not Illustrated)

Required Data Elements

UoF Product and Project	
organizationIdentifier	Manufacturing code
organizationName	Manufacturer name
productIdentifier	Product experts
productName	Product name
productVariantName	Product Variant
UoF Breakdown Structure	
breakdownType	Breakdown candidate Expert
breakdownRevisionIdentifier	Revision expert product disruption
breakdownElementIdentifier	Breakdown element class
breakdownElementName	Breakdown element designation
breakdownElementEssentiality	Breakdown element coding
breakdownElementRevisionIdentifier	Breakdown element variant
quantityOfChildElement	Number of children per assembly
UoF Part Definition	
partIdentifier	Part or materiel expert
partName	Part/Materiel
UoF LSA Candidate	
LSACandidateIndicator	Analysis candidate expert
UoF LSA Candidate Analysis Activity	
candidateItemAnalysisActivityIndicator	Analysis type
candidateItemAnalysisActivityRationale	Analysis selection experts
candidateItemAnalysisActivityStatus	Analysis status, status information
UoF Task	
taskIdentifier	Action expert
packagedTask	Forms a group of individual measures
taskRevisionIdentifier	Revision expert for a measure
taskName	Measures designation
informationCode	Action code
taskPersonnelSafetyCriticality	Safety and warning instructions
taskProductIntegrityCriticality	Criticality of the measure
taskOperabilityImpact	Operational impact of the action
warningCautionNoteIdentifier	Warnings and Caution Expert
warningCautionNoteDescription	Warnings and Caution Description
warningCautionNoteType	Warnings and Caution Category
subtaskAcceptanceParameterDescription	Status information
subtaskAcceptanceParameterValue	Status type
UoF Task Resources	
taskMaterialResourceQuantity	Material quantity, unit of measure, tool quantity per measure/sub-measure
taskMaterialResourceCategory	(Special) tool category, (special) tool connoisseur, special tool requirement note, (special) tool name
UoF Task Usage (Part 1)	
taskFrequency	Frequency of action
UoF Document class model	
dataModuleCode	Expert Technical Documentation
documentIdentifier	Reference to analysis documents, regulations
dataModuleIssueNumber	Expert Edition Technical documentation

Contracting Best Practices for S-Series ILS Specifications

- **Optimize Cost Benefits:**
  - Maximize Data Reuse
    - Utilize multiple S-Series ILS specifications
    - Integrate engineering source data with S-Series ILS specification Common Data Model
  - Use integrated tool suite
  - Invoke S-Series ILS specifications for a new program
  - Perform life cycle cost-benefit analysis for migrating a legacy program
  - Select data elements specific to program requirements
- **Strengthen S-Series ILS Specification Compatibility:**
  - Use latest versions of the specifications
    - Select best version for specific program, not because you have the tools or skills for another version
  - Contract at the ILS level (not at the individual specification level)

Summary

- Role of SX000i in Contracting
- Guidance Documents for Contracting
- Tailoring of S-Series ILS Specifications
- Usage of S-Series ILS specifications with non- S-Series specifications
- Migration of Data from Legacy Programs
- RFP Requirements and Deliverables
- S-Series Specification Data Elements
- S3000L Reports for the Bundeswehr
- S-Series ILS Specification Contracting Best Practices

Thank you
for your attention!

Questions?