e-Standards: a Strategic Asset across the Value Chain

ILS – Integrated Logistic Support

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Definition of ILS  (ASD PSG - Product Support Group)

The management and technical process which plans and directs the identification and development of requirements and logistics support for technical products, with the goal of creating systems that last longer and require less support, in a timely, cost-effective, ethical, environmentally friendly and safe manner throughout the operational life cycle of the system.

(Note also definition in NATO ALP 10)
Back in anno 1993 a NATO Acquisition logistics workshop was held.

The outcome of three intense weeks was a main business processes.

This process will be the framework for the ASD/AIA Suite of ILS Specifications and this presentation.
Original NATO acquisition logistics main business processes

- Logistic Support Analysis activities
- Provisioning
- Order administration
- Technical publications
- Scheduled maintenance analysis activities
- Design of systems and support equipment

This process chart is proudly presented by the Heritage Council of Retired ILS Managers.
Logistic Support Analysis activities

Order administration

Technical publications

IETM, other media

Provisioning data

Logs mat and data

Source: Cassidian· Saab
"First generation“

of

International ILS specifications

developed back in the last millennium
ASD Simplified Technical English

Simplified Technical English

International specification for technical publications utilizing a common source database

International specification for material management
Acquisition logistics main business processes

Operational and maintenance data feedback

Logistic Support Analysis activities

Order administration

Technical publications

IETM, other media

Provisioning data

IP Data Subsets

S2000M

S1000D

Operational data

LSA data

Task data

Provisioning data

Logs mat and data

Design of systems and support equipment

Operational data

Scheduled maintenance analysis activities

Design data

Design data

Design data

Source: Cassidian-Saab
A specification for generation, maintenance and distribution of Technical publications in digital format using a Common Source Data Base (CSDB)

- Supports all features of page-oriented and interactive electronic technical publications
- Used in all major multinational NATO programs
- Will be used for TU204/TU214, Boeing 787, Airbus 350, MRJ70/90, Comac C919, …
- Maintained by a collaborative, international organization with military, civil and industrial participation under the umbrella of the ASD – AIA – ATA (The S1000D Steering Committee)
• Initiated by European industry and defence customers Jan 1985
• First Issue – June 1989

• American industry (AIA) and US DoD joined in 2001
• Civil aviation (ATA) joined in 2005
• Now a common international specification developed by ASD, AIA and ATA including their customers
• Distributed in electronic format (pdf) (free of charge)
First generation ILS specifications

ASD Simplified Technical English

International specification for technical publications utilizing a common source database

International specification for material management
**S2000M – Material management**

**Defines the Materiel Management processes and procedures** to be used in support of any military product

**Describes the business relationship** between Industry and Customer by providing the

- process flow
- relevant transactions
- data elements used for the Materiel management

First issue 1988

Maintained by an team with military and industrial participation under the umbrella of the ASD
• Current Issue 4.0 is based on edifact-messages
• Mostly used in NATO-projects (UK, GE, FR, SP, IT, …)
• The administration of the specification is done by NAMSA (Luxembourg)
• Current team will continue to prepare S2000M Issue 5.0 (Q 2011: 4) [The final version of the "classic" S2000M]
S2000M Information flow

**INPUT**

Vendor input
PDM/bill of material
Drawings
LORA/maint concept

**PROCESS**

- Materiel Planning
  (Chap 1 - MP)
- Procurement Planning
  (Chap 2 - PP)
- Order Administration
  Delivery
  (Chap 3 - OA)
- Invoicing
  (Chap 4 - INV)

**OUTPUT**

- IPL (breakdown structure in disassembly order / valid parts)
- Price lists
- Quotations
- Price conditions
- Delivery
- Invoice / Payment

Source: Cassidian
A task team (PLCSTT) has started to

- get **harmonization between S1000D, S2000M and S3000L** (LSA/LSAR) in terms of an integrated data model
  - Compared all data elements contained in Chapter 1 messages in version 4.0 with the data as defined for PLCS. Conflicts being solved
- create **PLCS data exchange specifications** required to exchange data from/to S2000M - S3000L - S1000D
  - DEX1A&D to be up-hotted
  - DEX6A&D-Provisioning may be needed
- create **interface specifications** to support the implementation of the data exchange specifications
- convert the S2000M Chapter 1 messages into PLCS-XML
“Third generation“
of
International ILS Specifications

seeing daylight in the early days of the new millennium

All co-developed between ASD and AIA
Third generation ILS Specifications

International procedure specification for Logistics Support Analysis

International procedure handbook for the development of scheduled maintenance programs

International specification for operational and maintenance feedback
Acquisition logistics main business processes

Operational and maintenance data feedback

Design of systems and support equipment

Operational data

S3000L

Logistic Support Analysis activities

LSA data

Task data

Provisioning

Provisioning data

IP Data Subsets

Order administration

Logs mat and data

S2000M

In service use

IETM, other media

Scheduled maintenance analysis activities

Technical publications

Source: Cassidian- Saab
To develop and publish an **International procedure handbook** for LSA Logistics Support Analysis within the Aerospace and Defense community

- to give guidelines **how to establish a proper LSA process** with special regard to the **involvement of the customer**
- to describe **the LSA business process** from the conceptual project phase to the recommendation when to start with the production of the logistic deliverables
- to give guidelines **how to create a suitable system breakdown** and **how to select the potential LSA candidates**
- to give an overview of **potential technical/logistic analysis activities** and how the **results can be documented** within a logistics (LSAR) database
- to give guidelines how to document **maintenance or operational tasks** and the **corresponding resources**
Third generation ILS Specifications

- International procedure specification for Logistics Support Analysis
- International procedure handbook for the development of scheduled maintenance programs
- International specification for operational and maintenance feedback
Acquisition logistics main business processes

Operational and maintenance data feedback

- Logistic Support Analysis activities
- Technical publications
- Provisioning data
- Design data
- Logs mat and data
- Order administration
- Provisioning
- Operational data
- Design data
- S3000L
- Task data
- LSA data
- S2000M
- IP Data Subsets
- S4000M
- S1000D
- Schedule maintenance analysis activities
- In service use

Source: Cassidian-Saab
To develop and publish an International procedural handbook for the performance of the scheduled maintenance analysis within the Aerospace and Defense community.

- Traditional add-on’s to cover military products
- Lesson’s learned from current Program add-on’s
- New features/processes
  - optimize traditional processes
  - to consider new hazards, to cover new materials (composite structures)
  - to cope with ecological and legal aspects
  - etc

The processes shall be tailorable to enable user’s to adopt them according to specific requirements.
• Analysis process shall be more easy to understand and more easy to be realized by users in comparison to current specifications

• Give more examples in comparison to current specifications (eg for interval rating sheets)

• Include enhanced zonal analysis (gaps in current specs)

• Handle prerequisites for analysis, including parameters such as operation in unpaved runways, deployments, definition of different environmental conditions (maritime patrol, desert..)

• Applicable to all types of complex technical aerospace and defence products

• Better support to create and minimize a project specific Policy & Procedure Handbooks (PPH)
Third generation ILS Specifications

International procedure specification for Logistics Support Analysis

International procedure handbook for the development of scheduled maintenance programs

International specification for operational and maintenance feedback
Acquisition logistics main business processes

Operational and maintenance data feedback

S5000F

Order administration

Provisioning

LSA data

Provisioning data

Logs mat and data

S2000M

IETM, other media

Technical publications

S1000D

In service use

Operational data

Design data

Scheduled maintenance analysis activities

S4000M

Design data

Design data

Design data

Design data

Logistic Support Analysis activities

S3000L

Source: Cassidian-Saab
The task

To develop and publish an Application handbook for the performance of Operational and maintenance data feedback within the Aerospace and Defense community

- to include guidelines and rules for information exchange
- to enable online interfaces to the suite of the ASD/AIA S-Series specs
- Being an integrated part of the Suite of ILS Specifications
- to take into account the activity model given by ISO 10303-239 PLCS and to support data exchange by PLCS Data Exchange Specifications/DEX
- to be tailorable and include guidelines for tailoring
Current outline

- Introduction
- General requirements

Data feedback chapters
- Maintenance data
- RAMCT
- Maintenance analysis
- Safety analysis
- Integrated fleet mgt
- Platform health and usage
- PBL Support
- Life cycle cost
- Warranty
- Obsolescence
- Product configuration
- Operational data

Interface to other S-Series specs
- S1000D
- S2000M
- S3000L
- S4000M

Supporting "documents"
- Data exchanges
- Definitions/Abbreviations
- Data elements list
"Next generation" international ILS specifications

- Data exchange and interface specifications

New processes
The backbone of the ILS model

ISO 10303-239 PLCS - Product Life Cycle Support

- is an ISO STEP standard
- it ties together design data with product support data and facilitate the creation and maintenance of a complete set of product, operational and maintenance data during the total lifetime of the product
A DEX is a way of dividing up the PLCS information model into sections suited for a particular business process.

A DEX provides a subset of the PLCS information model and usage guidance.

A DEX can be used to contract against or for setting conformance.
Operational and maintenance data feedback

Logistic Support Analysis activities

Order administration

Technical publications

Provisioning

Logs mat and data

IP Data Subsets

In-service use

Design of systems and support equipment

Operational data

Scheduled maintenance analysis activities

License plates and data

Task data

S5000F

S2000M

S3000L

S4000M

S1000D

Source: Saab - Cassidian
More DEXes

Operational and maintenance data feedback

Design of systems and support equipment

S4000M

Logistic Support Analysis activities

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Task data

Technical publications

S1000D

Source: Saab - Cassidian
Aerospace and defense business DEX

- DEX1A&D: exchange of product breakdown for support
- DEX2A&D: exchange of fault states (planned)
- DEX3A&D: exchange of a task specification
- DEX5A&D: exchange of maintenance plan data (maybe)
- DEX7A&D: exchange of operational feedback data (maybe)
- DEX9A&D: exchange of work package reports (maybe)
- DEX11A&D: exchange of operational and maintenance feedback data (planned)
The S-Series specifications
The happy family

S1000D  S2000M  S3000L  S4000M  S5000F  S1003X
DEX1A&D  DEX2A&D  DEX3A&D  DEX4A&D

SX0001  S6000T  S9000D
The ILS Spec Handbook  "Training/TNA"  The data dictionary
Application Handbook for Integrated Logistic Support Management

The purpose of the ILS handbook is to:

- Explain the mission, vision, goals and objectives for the suite of ILS specifications
- Provide a framework that documents the global ILS process and interactions; process, data and data exchange…
- Explain how the ILS specs interface with other standardisation domains: engineering, manufacturing, supply chain, collaboration, security…
- Provide concrete guidance on how to satisfy specific business requirements using an appropriate selection of defined components including Use Cases

Kick off in June 2011, 1st Work Group Meeting in September 2011
way ahead, next steps

- Strengthen the cooperation - worldwide
- Promote the ASD/AIA Suite of ILS Specification; e. g. in User Forums.
- Continue the development and maintenance of the ASD/AIA Suite of ILS Specification.
- Determine missing elements within the Suite of ILS Specifications.
- Support the implementation of the Suite of ASD/AIA ILS Specifications.