Specifications for Interoperability Through Life
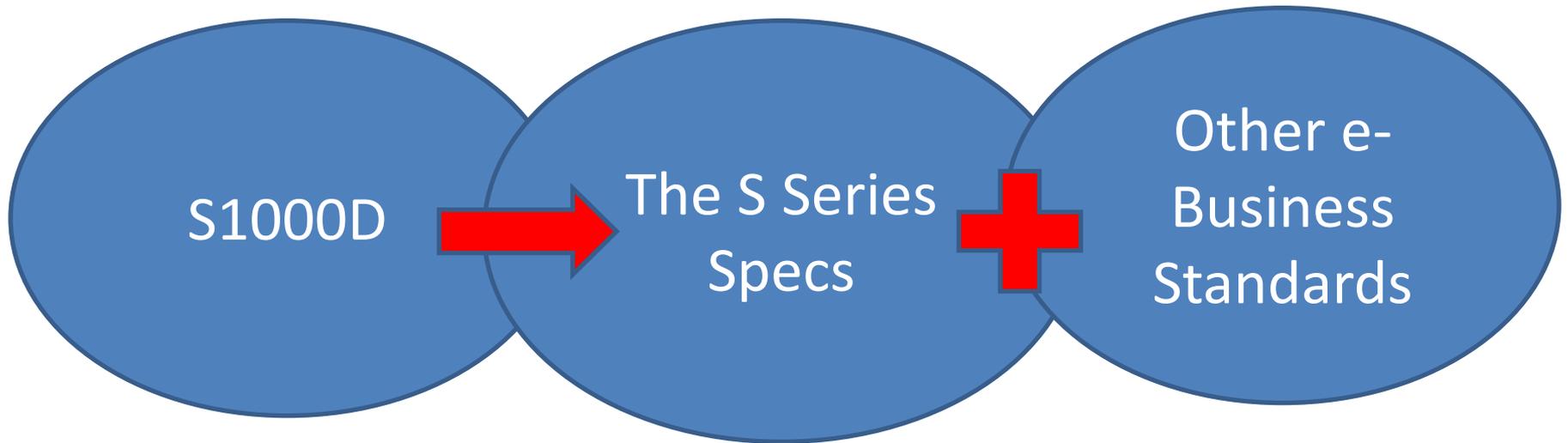
Steve Shepherd
Vice Chairman ASD SSG, ASD PSG and AIA ASD ILS Spec Group

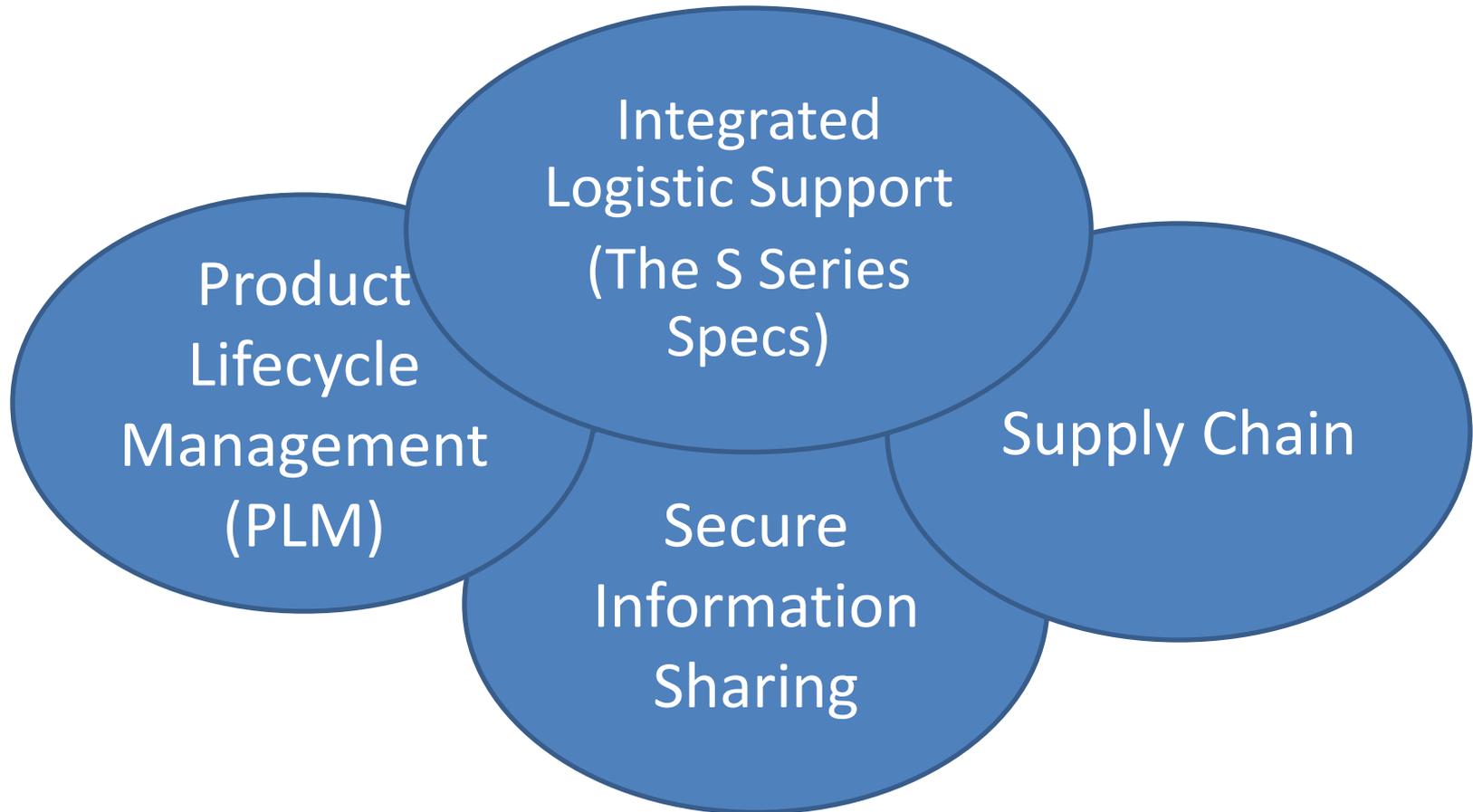**S-Series Specification Day 2013**
Vienna, 2013-09-19

Completing the Picture….

S1000D ➡ The S Series Specs ➕ Other e-Business Standards

….. for a complete e-business capability

Vision: All players of the global aerospace value network will be able to share data securely through the life of the products and services.

Scope – 4 Business Domains

Integrated Logistic Support (The S Series Specs)

Product Lifecycle Management (PLM)

Supply Chain

Secure Information Sharing
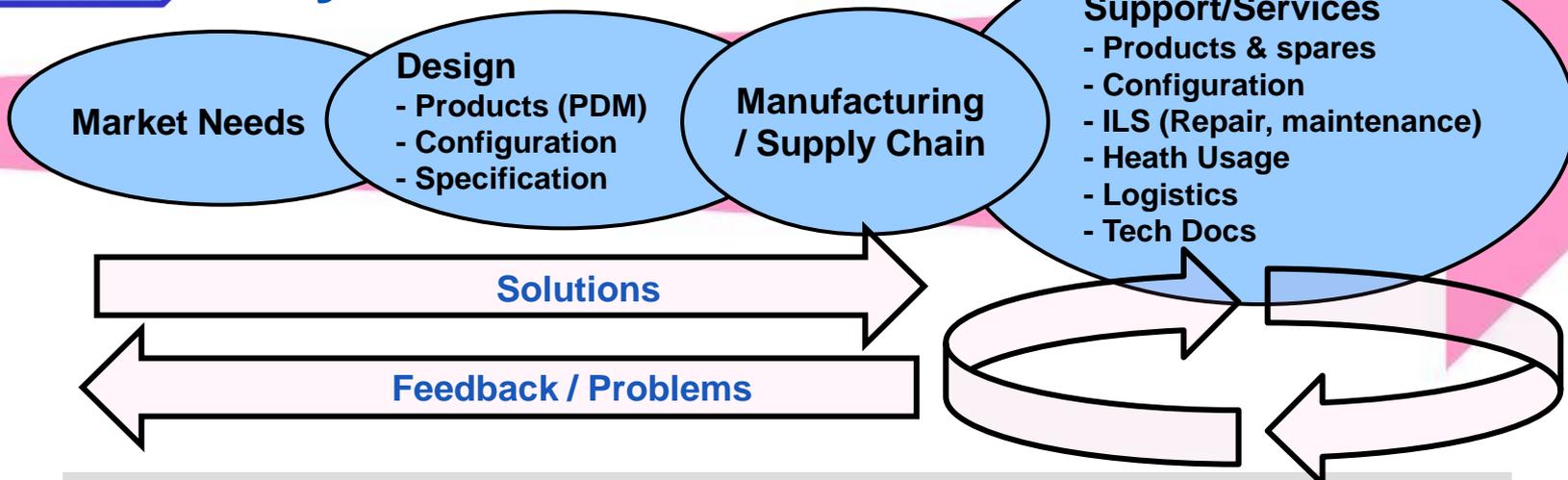
The Challenge of Interoperability

- e-Business interoperability between organisations and re-use of solutions across projects is imperative to the elimination of wasted costs and to improve data quality
- Many standards and initiatives have the potential to satisfy part of:
  - The overall requirement for interoperability:
    - Between companies, business partners and through the supply network
    - Between functions in an organisation
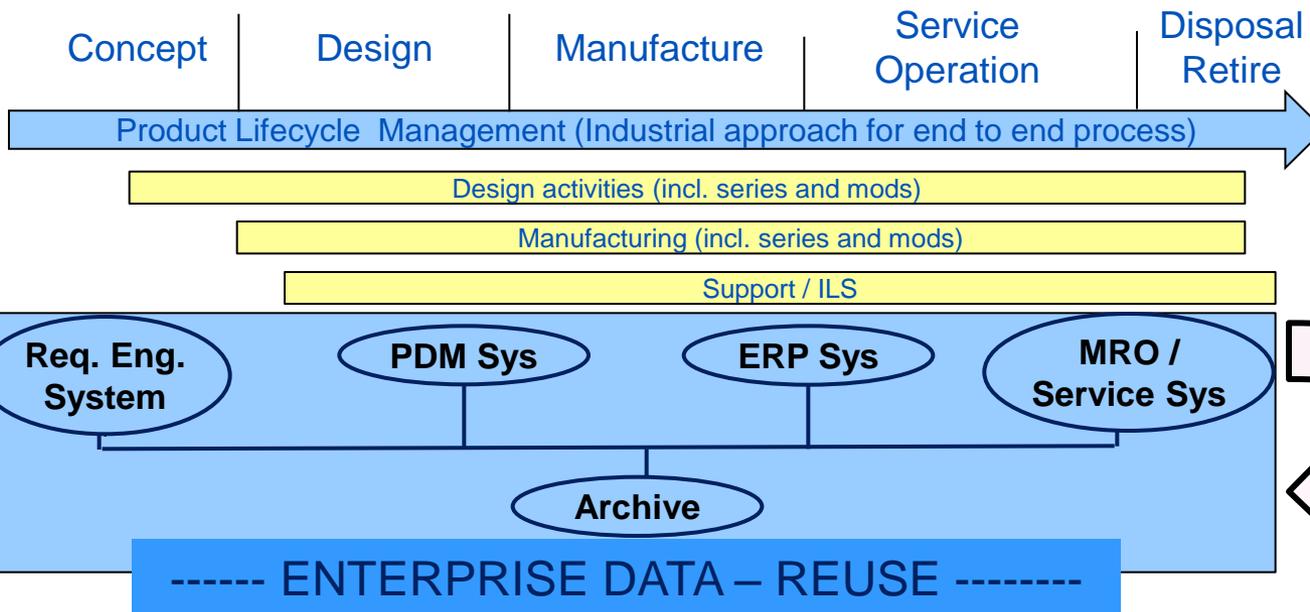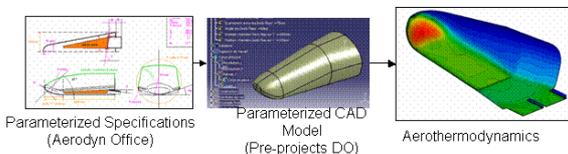   - Between application systems

Data Explosion Through The Life Cycle

Market Needs

Design
- Products (PDM)
- Configuration
- Specification

Manufacturing / Supply Chain

Support/Services
- Products & spares
- Configuration
- ILS (Repair, maintenance)
- Heath Usage
- Logistics
- Tech Docs

Solutions

Feedback / Problems

As needed > as designed > as manufactured > as delivered > as maintained

Concept	Design	Manufacture	Service Operation	Disposal Retire

Product Lifecycle Management (Industrial approach for end to end process)

Design activities (incl. series and mods)

Manufacturing (incl. series and mods)

Support / ILS

Req. Eng. System   **PDM Sys**   **ERP Sys**   **MRO / Service Sys**

Archive

------ ENTERPRISE DATA – REUSE --------

Some Aero & Defence challenges

Concept Development → Design, manufacture & Assembly → Validation & Certification → Operations

« Full virtual concept » deployed with System contractors and with Disciplines

Parameterized Specifications (Aerodyn Office)

Parameterized CAD Model (Pre-projects DO)

Aerothermodynamics

« Full 3D configured DMU» deployed with component and sub-assembly Suppliers

« Full virtual rigs » deployed with Testing Labs and Certification authorities

Acquire — Shape — Inject and Load — Stimulate — Deliver
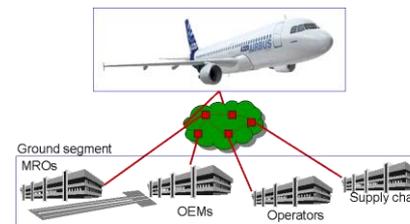
« Full virtual A/C enabled services » deployed with Operators and MROs

Ground segment
MROs
OEMs
Operators
Supply chain

How to organise collaboration around these artefacts?
How to reach collaboration industrial performance?

➡ **Standards!**

The ASD Strategic Standardisation Group (SSG)

The European Aerospace, Space and Defence companies response to the challenge of e-Business standardisation:

- Identify a coherent set of e-Business Standards to reduce overall cost and complexity

- Drive the identification, development, maintenance, **interoperability** and exploitation of a set of coherent e-Business standards

- Managed across 4 Enterprise e-Business Domains:

  - Design and Collaboration

  - Integrated Logistics Support

  - Supply Chain

  - Security (Secure Information Sharing)

The ASD Strategic Standardization Group (SSG)

The ASD SSG does not aim to create new eBusiness standards but to **support effective governance at European level of International and European standards**:

- Identifying a set of standards to use or to develop in order to cover the full spectrum of needs for eBusiness;
- Proposing and applying governance tools at strategic and technical level (e.g. radar screen)
- Developing a network of experts
- Developing liaisons with all relevant standardisation organisations
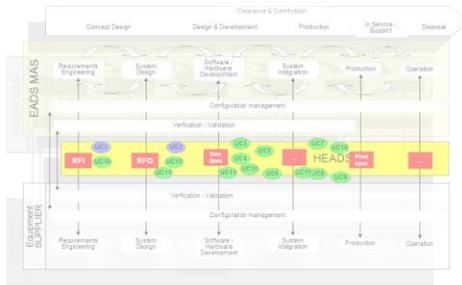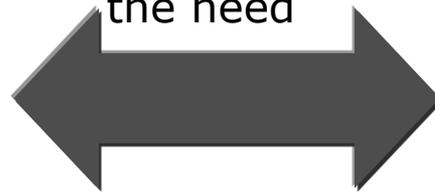 - *Including an MoU with AIA…..*

Drive for co-ordination and coherence…
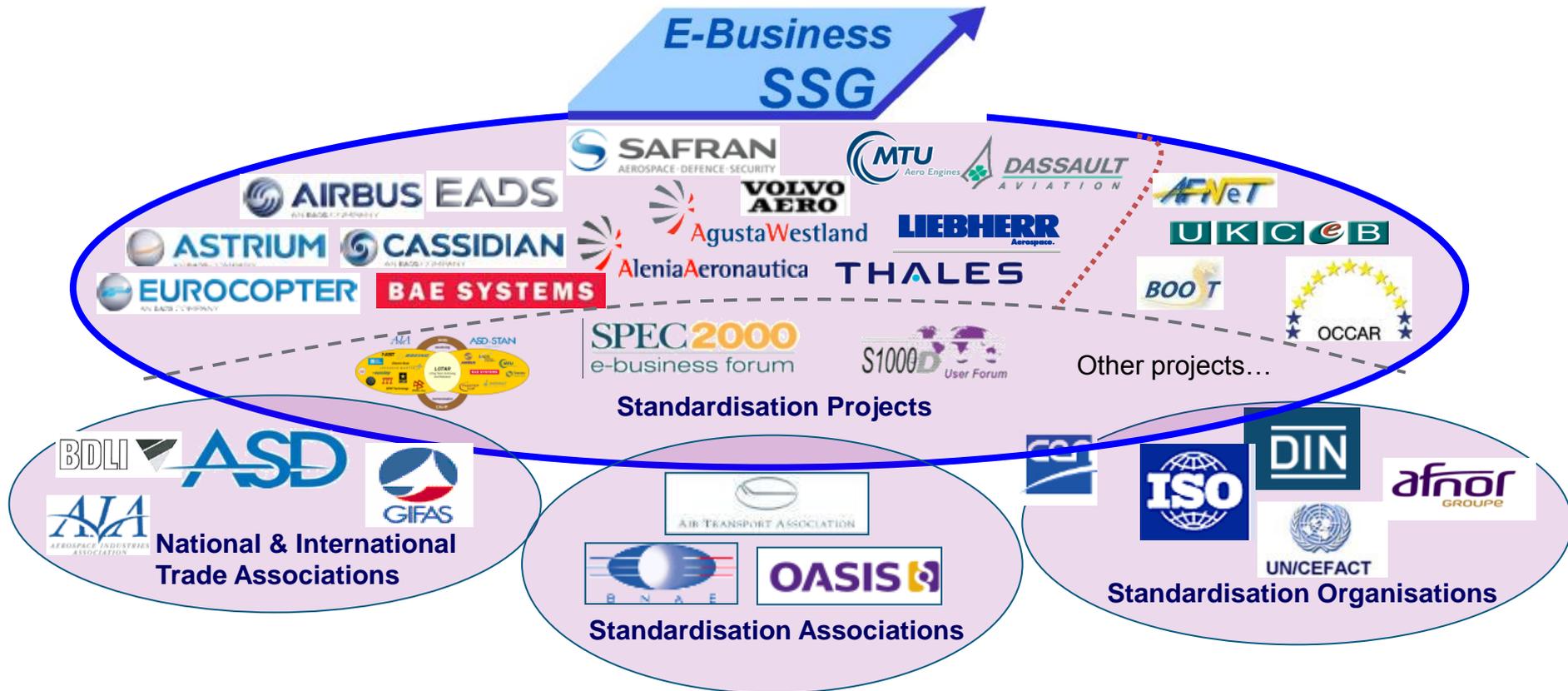
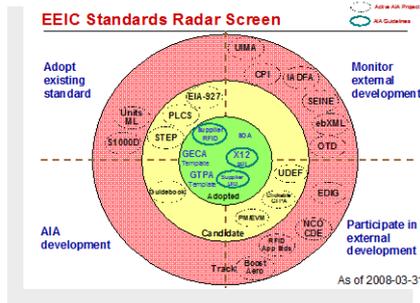# Interoperability framework: organizing the tools to master business requirements and consistency
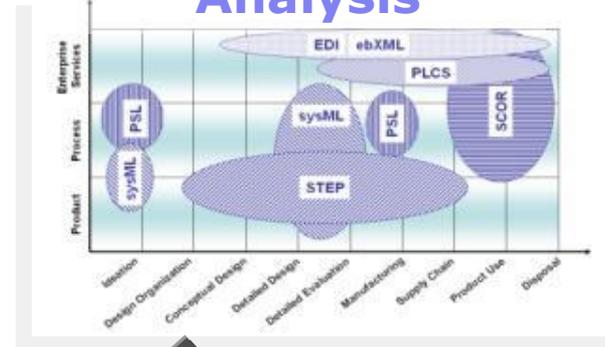

Business Scenario & Use Cases

Life Cycle Gap Analysis

Identify & describe the need

Radar Screen

Address the need

Roadmap
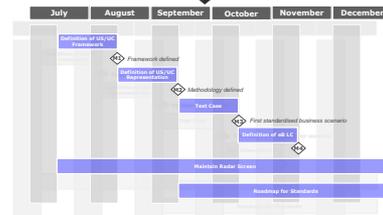
Develop standards & policies

"Radar screen" (V1.6 awaiting SSG confirmation)

Track

Candidate

Adopted

Available external standards

Monitor external development

ASD development

Participate in external development

Legend:
- STEP
- ASD S-Series
- TSCP
- 3D visualisation
- LOTAR

Blips in Track/Candidate/Adopted/Monitor rings:
OAGIS 9, RFID App Stds, FMI, VEC KBL, SysML, PLCS DEXs, SO 55000, TSCP, Modelica, VDA CAE Services, STEP, STEP AP210, STEP AP233, STEP AP212, SAML, STEP AP235, TSCP ILH v1, TSCP TF, STEP AP209, ISO 22745, BPMN, TSCP IdFv1, ISO 8000, ebXML, STEP AP239, STEP AP203, PRC/U3D, XPDL, STEP AP214, TSCP SEv1, 3D Visualisation, SPEC2000, SCORM, ISO 14306 JT V1, COLLADA, STE100, S1000D, S2000M, TDP message, Boost Aero, SX000i, S5000F, S3000L, MoSSEC, S4000M, EN9300-1xx, STEP AP 242, S9000D, EN9300-3xx, EN9300-2xx, EN9300-4xx, ISO 14306 JT V2, EN9300 LOTAR

- yy Blip available
- yy Blip in preparation
- → Current ASD SSG actions

Version: V1.5

ASD E-Business SSG

Typical 'blip' S1000D Specification for Technical Publications

Abstract

- The International specification for technical publications utilizing a common source database, commonly known as S1000D, has been produced to establish standards for the documentation of any civil or military vehicle or equipment. It is based on international standards such as SGML/XML and CGM for production and use of electronic documentation.

- In addition, it defines a Common Source Data Base (CSDB) to provide source information for compilation of the publications and for use in electronic logistics information systems to deliver modules of information direct to the user.

- More recently, it has been linked to the PLCS development, which enables the compilation of technical documentation direct from the current product structure, and to SCORM, for training materials

Click the icon below to view the details.

S1000D

Back to the Radar

Last revised: 2011-10-10

Visit us at http://www.asd-ssg.org

Parent organisations

ASD www.asd-europe.org
ASD-STAN www.asd-stan.org

New!!
AIA and ASD just signed an MoU on eBusiness standards, covering joint activities between ASD SSG and AIA
[More information](#)

Web Content Display

What is on this portal

- [Welcome](#)
- [Terms of Reference](#)
- [Members](#)
- [Work Groups](#)
  - [Industry Requirements](#)
  - [PLM Interoperability](#)
  - [Integrated Lgistics Support](#)
  - [Hub collaboration](#)
  - [SCM Standards Policy](#)
  - [Communication](#)
  - [Coordinating with AIA](#)
- [Projects](#)
  - [BoostAero](#)
  - [ILS suite of specifications](#)
  - [LOTAR](#)
  - [STEP AP242](#)
  - [TDP Message](#)
  - [TSCP](#)
- [Radar Chart](#)
- [Publications](#)
- [Planning](#)
- [Contacts](#)

About ASD Strategic Standardization Group

The ASD Strategic Standardization Group (SSG)

Overview

The Strategic Standardization Group (SSG) was setup in October 2008 by a group of European manufacturers, A& D associations and military govenmental agency in order to share efforts of development of common A&D e-Business standards and associated harmonized European policies for operational use.

Both are understood today as two strategic levers of competitiveness for all the A&D manufactures and their supply chains (New role of the Original Equipment Manufacturer as System Integrator, and product & process Information Integrator).

The ASD SSG does not aim to create new eBusiness standards but to **support effective governance at European level of International and European standards**:

1. Identifying set of standards to use or to develop in order to cover the full spectrum of needs for eBusiness;
2. Proposing and applying governance tools at strategic and technical level (e.g. radar screen, interoperability framework, assessment process)
3. Developing a network of experts
4. Developing liaisons with all relevant standardization organizations

Collaboration with AIA (U.-S.)
The ASD SSG has established a collaboration with the American Aerospace Industries Association (AIA) and ASD SSG re-use several of the methods initiated by the AIA Electronic Enterprise Integration Committee (EEIC), (like the Radar Chart representation).
We encourage you to visit their site at:
http://www.aia-aerospace.org/resource_center/ebusiness/

5/23/2012

Through-Lifecycle Interoperability

SSG Intent:

- Develop a coherent set of specifications that are interoperable with specifications within its own domain as well as other speculations from other domains:

- To minimize project dependency by defining clear guidance and by avoiding inclusion of project and national specific rules and constructs

- To ensure commonality between related specifications to support the re-use across projects

- To establish a well-defined data transfer mechanism between the different disciplines based on PLCS.

- To cover all aspects of business interface activities over the entire life cycle of a product.

- To be the contractual baseline for industry and customers

- To be up to date with the technical development and changes

Development and governance of the core suite of STEP standards for PLM interoperability
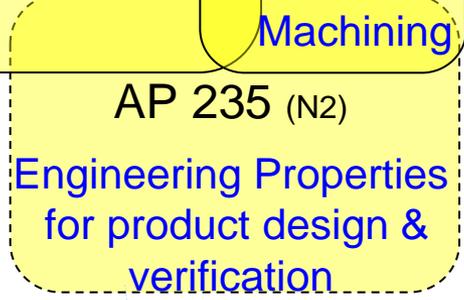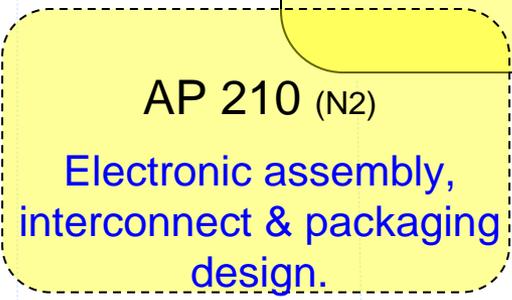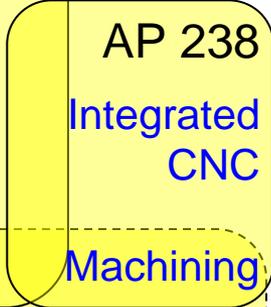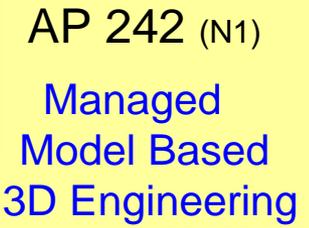
Process & use cases

Concept	Simulation	Definition	Manufacturing	Support

Product Life Cycle

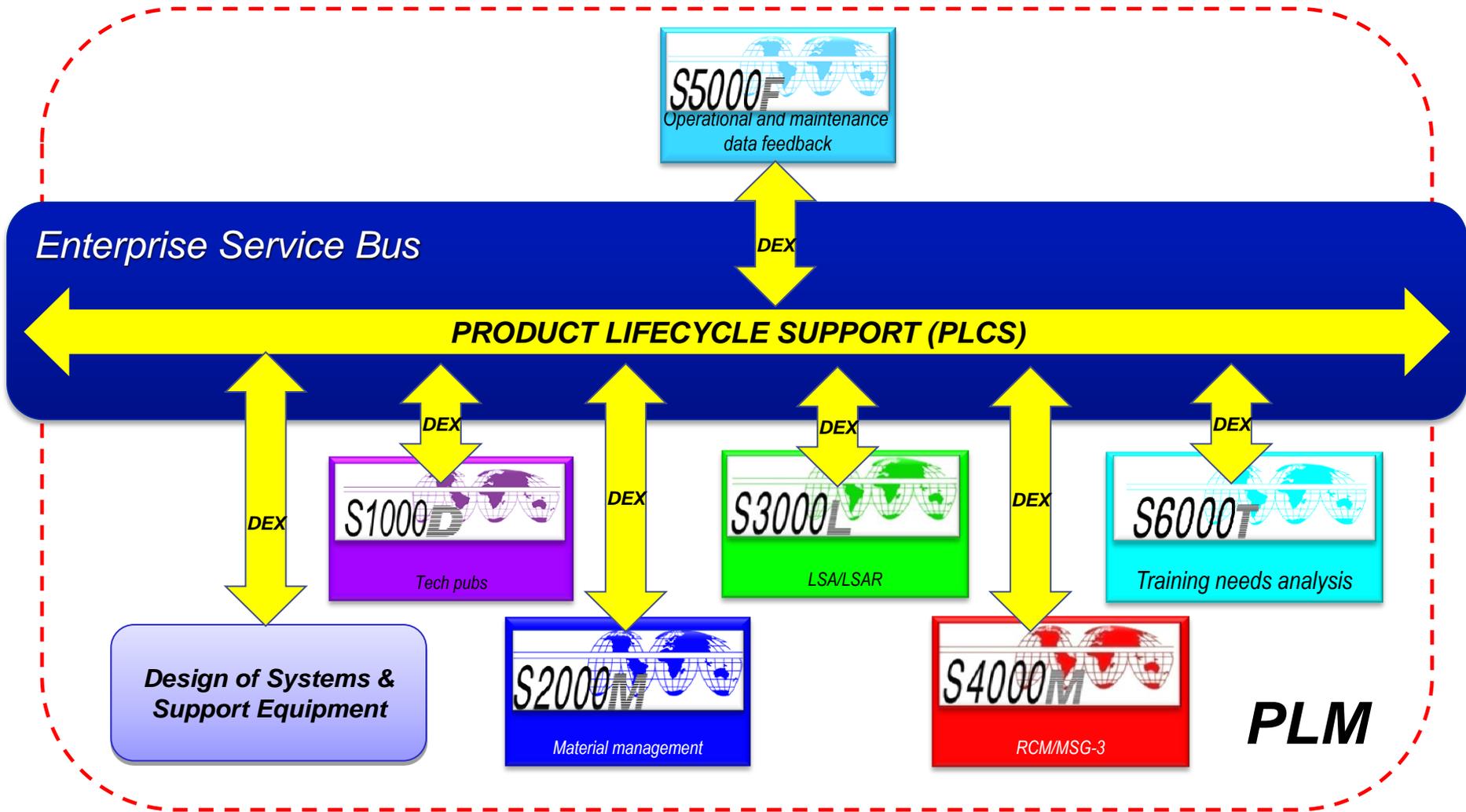Standards for processes and Engineering methods not described

Information

N1: STEP AP 242: Convergence of AP 203 and AP 214
N2: study not started

Based on PLCS

Suite of AIA - ASD ILS Specs (SX000)

AP 233 Systems Engineering

AP 239 Product Life Cycle Support (PLCS)

AP 209 Multi disciplinary Analysis & design

AP 242 (N1) Managed Model Based 3D Engineering

AP 238 Integrated CNC

Machining

AP 210 (N2) Electronic assembly, interconnect & packaging design.

AP 235 (N2) Engineering Properties for product design & verification
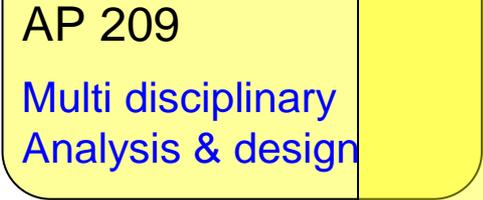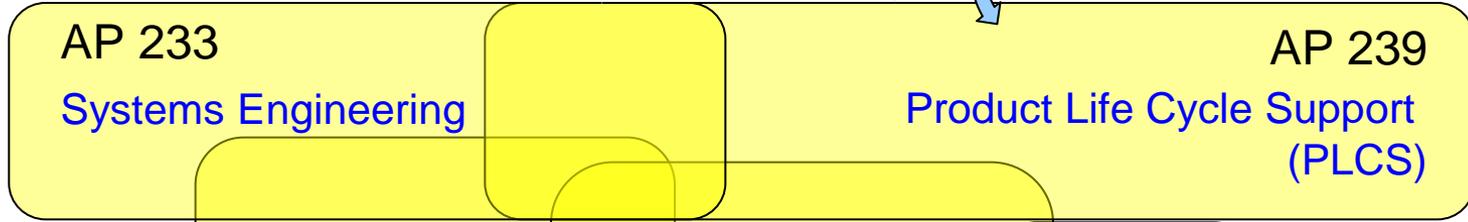
Industry Specifications in PLM

➢ **Product Life-Cycle Management using S-Series.**

Key messages

1   **A consistent set of e-business standards is being identified, assessed, developed and implemented in answer to European Aerospace, Space & Defence Industry business needs**

2   **ASD SSG provides the needed capability:**
- **Consensus at European AeroSpace & Defence industry level**
- **Supported by National Trade Associations**
- **Co-ordinated with US activities**

3   **The set of coherent and consistent standards / specifications have been identified and adoption and exploitation is in progress – The 'Radar Chart'**

4   **Several projects have been launched / completed to fill gaps, eg. Long Term Archiving and Retention (LOTAR), Technical Data Package TDP)**

5   **A Through-Lifecycle Interoperability technical paper is in work**

ASD SSG seeks the widest participation and contributions!

AIA — AEROSPACE INDUSTRIES ASSOCIATION

ILS-Specification-Council council

ASD — AeroSpace and Defence Industries Association of Europe