S1000D – A tutorial

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The agenda

- What is S1000D?
- Who is responsible for it?
- Where does it come from?
- Where does it fit in?
- What does it look like?
- What are the key properties of S1000D?
- Why should people use it?
- How is S1000D maintained?
- www.s1000d.org

Source: TPSMG and EPWG members

International specification for technical publications

utilizing a common source database

Source: TPSMG and EPWG members

S1000D ...

- Is a technical publication (data) specification for standardized documentation of any civil or military vehicle or equipment
  - air/land/sea
- Lays out a process for production, maintenance and presentation of technical publications in a life-cycle perspective
- Provides a principle concept for structuring of complex information regarding a “Product”

Source: TPSMG and EPWG members

S1000D ...

- Provides a generic concept for quality assurance of publications in a life-cycle perspective
- Defines a standardized transfer format for interchange of information between any parties
- Provides a standardized layout for page oriented publications
- Provides a set the basic principles for standardized presentation of IETPs

Source: TPSMG and EPWG members

S1000D ...

- Is globally recognized and used
- Is the specification you consult to make sure your technical documentation
  - is properly structured
  - is properly configuration controlled

  and
  - that the information can be viewed and shared by anyone concerned

Source: TPSMG and EPWG members

Who is responsible for S1000D?

- The specification is maintained in cooperation between three parties
  - ASD
    AeroSpace and Defence Industries Association of Europe
  - AIA
    Aerospace Industries Association
  - ATA
    Air Transport Association of America

Source: TPSMG and EPWG members

Who is ASD?

- ASD is an European organization
  - The **AeroSpace and Defence Industries Association of Europe**, ASD, represents the European industries in common issues, with the goal of increasing the competitiveness in the sector
- Most EU (European Union) countries are represented
  - Belgium, Denmark, UK, Finland, France, The Netherlands, Ireland, Italy, Portugal, Spain, Sweden, Germany, Austria, Czech Republic, …
- Produces standards and specifications (among other things), eg
  - ASD STE - Simplified Technical English. Dictionaries and writing rules.
  - ASD S2000M for materiel administration
  - S1000D for Technical Publications

Source: TPSMG and EPWG members

Who is AIA?

- AIA is an American organization
  - The **Aerospace Industries Association**, AIA, represents the US aerospace industries in common issues, with the goal of increasing the competitiveness in the sector.
- AIA corresponds to ASD
  - Members, eg Boeing, Lockheed Martin, General Dynamics …
- Participate in the development of standards and specifications (among other things), eg
  - ASD STE - Simplified Technical English
  - S1000D for Technical Publications
  - iSpec2200 (”owned” by ATA)

Source: TPSMG and EPWG members

Who is ATA?

- ATA is an transcontinental “user” organization
  - The **Air Transport Association of America**, ATA, is a cooperation forum for the civil US air transport operators and industries in common issues
  - Includes a number of non-US interests, incl some global operators
  - The goal is to increase the competitiveness in the sector

- Develops and maintains of standards and specifications for civil aerospace purposes, eg
  - ASD STE - Simplified Technical English
  - iSpec2200 - corresponds to S1000D (former ATA 100)
  - Spec 2000 - corresponds to ASD S2000M (parts management)
  - Now participating in S1000D development as “one of three”

Source: TPSMG and EPWG members

Where does it come from?
History of S1000D

1984

- Seven ASD countries and MoD customers started the development of an international Specification for Technical Publications to harmonise all their national and international specs into a "Western" specification based on ATA Spec 100.

Where does it come from?
History of S1000D

1989

- First release signed

Source: TPSMG and EPWG members

Where does it come from?
History of S1000D

2008

- MoU between ASD, AIA and ATA signed

AIR TRANSPORT ASSOCIATION

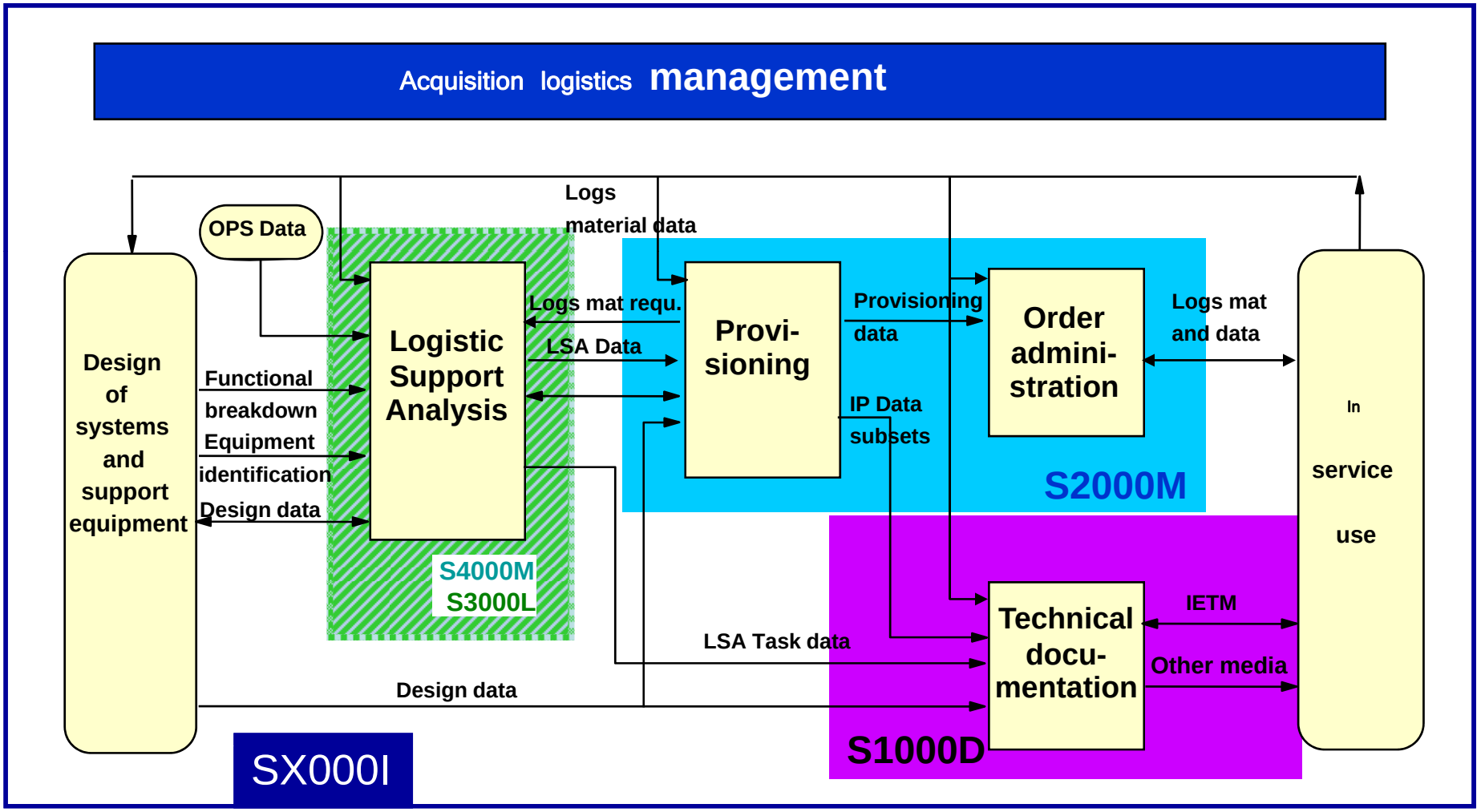
Memorandum of Understanding
between
AeroSpace and Defence Industries Association of Europe (ASD),
The Aerospace Industries Association of America, Inc. (AIA) and
Air Transport Association of America, Inc. (ATA)

OBJECTIVE

In order to promote common, interoperable, international technical publication data in the aerospace and defense industries and to make optimal use of the resources available, ASD, AIA and ATA agree to work in concert on the joint further development and maintenance of the S1000D International Specification for Technical Publications ("S1000D"), as originally developed by the Technical Publication Specification

Source: TPSMG and EPWG members

Acquisition logistics main business processes Where does S1000D fit in?



Source: TPSMG and EPWG members

What does it look like?

The specification contains 9 chapters and many subchaps

- Chap 1 Introduction to the specification
- Chap 2 Documentation process
- Chap 3 Information generation
- Chap 4 Information management
- Chap 5 Information sets and publications
- Chap 6 Information presentation/use
- Chap 7 Information processing
- Chap 8 Standard numbering systems, information codes and learn codes
- Chap 9 Terms and data dictionary

Source: TPSMG and EPWG members

What does it look like?

Chapters have similar structures

- General
  – scope and limitations
- Chapter matter
  – describes the matter the chapter concerns
- Business rules decisions
  – summarizes the decisions required
- Markup examples
  – provides examples of markup in connection to the chapter matter

Source: TPSMG and EPWG members

Key properties and components of S1000D - Standards based

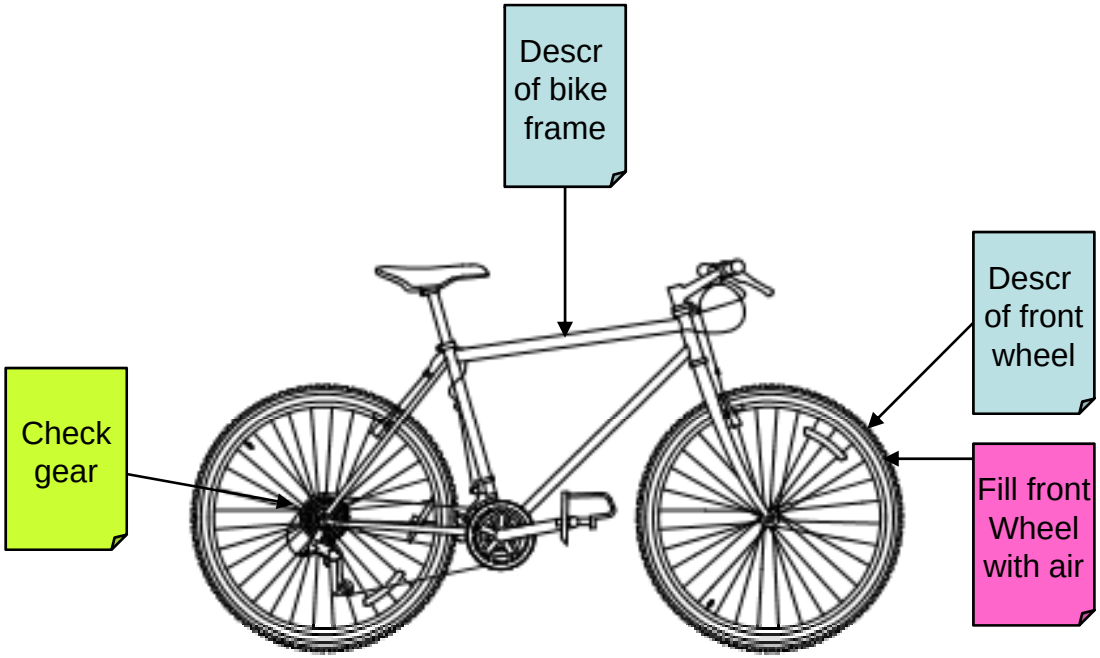
S1000D is based on international standards

- ISO – codes, info formats, etc
- W3C – web related standards (xml, xsl, …)
- ATA – graphics

Source: TPSMG and EPWG members

Key properties and components of S1000D - The data module concept

- Data module - DM
  - A stand alone information unit conveying a particular type of information about some specific part of Product



Source: TPSMG and EPWG members

Key properties and components of S1000D - The data module concept

- Data module - DM
  - Identification based on the *Data Module Code* - DMC
    - A 17- thru 37-character code to identify a data module and to facilitate storing and retrieving them from a CSDB

BICYCLEAAAAAAA-AAAA-D 00-00-0000 00AAA -040A -A

Front wheel — Description

  - Produced in XML according to specific Schemas, and in such a form that it could be stored in and retrieved from a Common Source DataBase by the data module code as the identifier

Source: TPSMG and EPWG members

Key properties and components of S1000D - The data module concept

- Standard Numbering System - SNS
  - A coding designed to standardize the arrangement of the technical information for the Product

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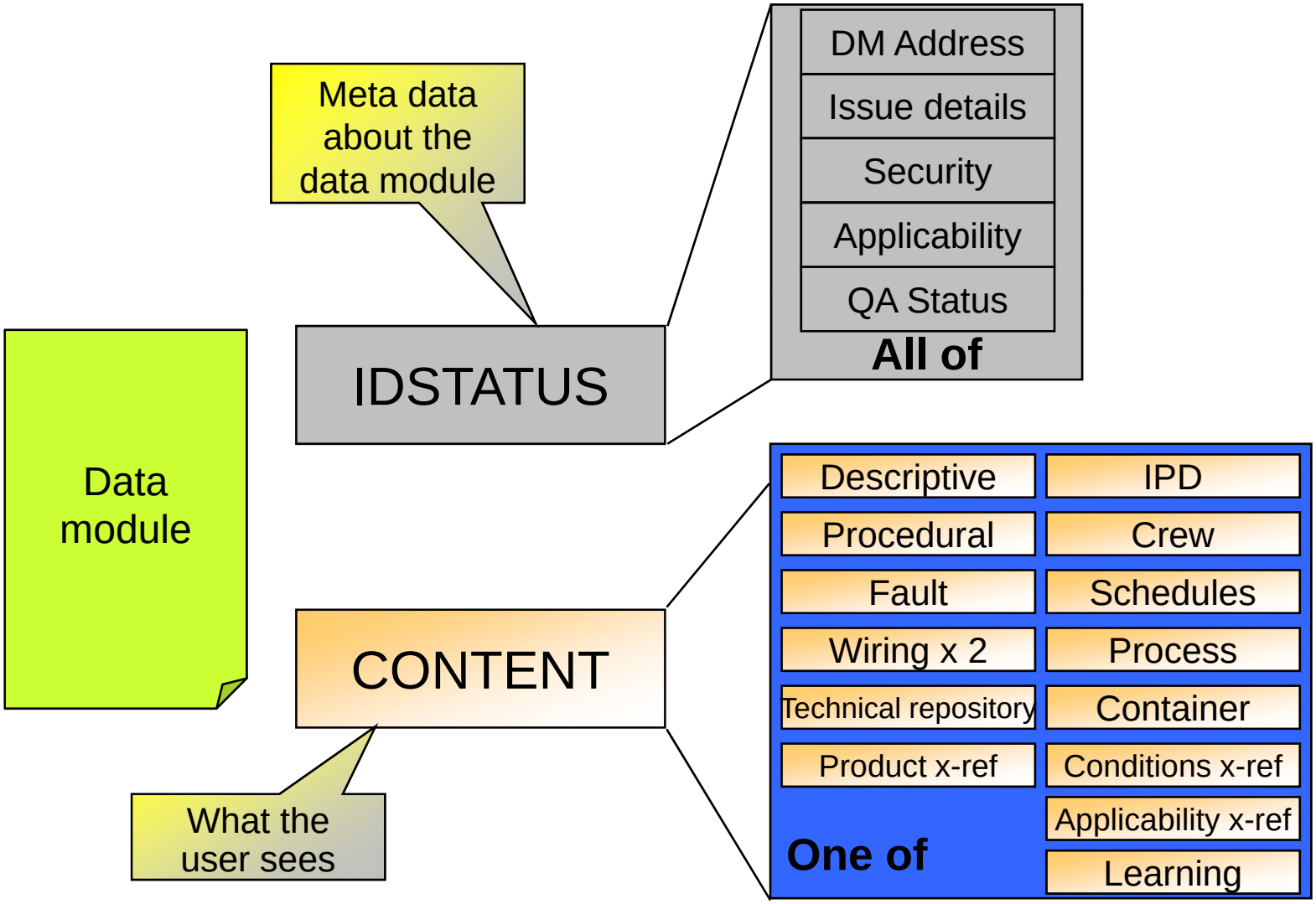
SNS

  - The SNS consists of three groups of characters
    - System (incl an optional material item category)
    - Subsystem/sub-subsystem
    - Assembly
  - The specification provides a set of SNS to projects
  - If needed, a project can develop its own SNS

Source: TPSMG and EPWG members

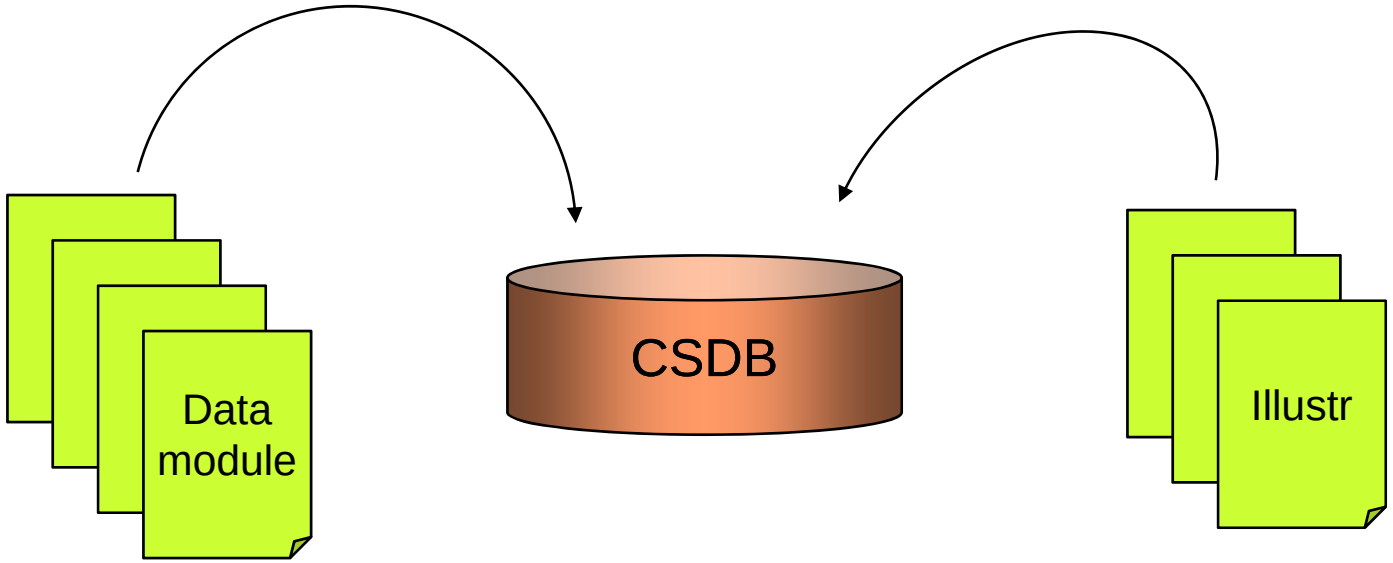
Key properties and components of the S1000D - The data module concept



Source: TPSMG and EPWG members

Key properties and components of S1000D - The Common Source DataBase

- Common Source DataBase - CSDB
  - A virtual store for the objects produced by a project
    - data modules, graphics and multimedia objects
    - publication modules
    - administrative objects, eg the Data Module List - DML



Source: TPSMG and EPWG members

Key properties and components of S1000D - Illustrations/multimedia

- Illustrations and multimedia objects
  - Illustrations in CGM, TIFF, PDF, etc (aligned with ATA GREXCHANGE)
  - Multimedia objects in numerous formats
  - Identified by an *Information Control Number* - ICN
    - A 27- thru 45-character code to identify a graphic or multimedia object and to facilitate storing and retrieving them from a CSDB

Source: TPSMG and EPWG members

Key properties and components of S1000D - The publication

- Publication module - PM
  - Defines the content and structure of a publication by referencing
    - Data modules
      (incl front matter and access illustrations data modules)
    - Publication modules
    - Legacy technical publications
  - Produced in XML according to the PM DTD/Schema
  - Identification based on *Publication Module Code* - PMC
    - A 14- thru 26-character code to identify a publication module and to facilitate storing and retrieving them from a CSDB

Key properties and components of S1000D - The SCORM content package module

- SCORM content package module
  - Organizing information in a CSDB developed and/or selected for a learning product
  - By referencing
    - Data modules (incl front matter and access illustrations data modules)
    - Publication modules
    - Legacy technical publications
  - Produced in XML according to the PM DTD/Schema
  - Identification based on Publication Module Code
    - A 14- thru 26-character code to identify a publication module and to facilitate storing and retrieving them from a CSDB

Source: TPSMG and EPWG members

Key properties and components of S1000D - Business Rules

- Business Rules - BR
  - Rules for implementation are needed since there are choices to make
  - A project or organization must specify the rules applied when S1000D is implemented

- Business Rules Exchange - BREX
  - A method to formally specify and exchange Business Rules between parties with interests in the CSDB content

Source: TPSMG and EPWG members

Why should you use it?
The initial aims were …

- To establish a standard that can be used internationally by a wide variety of organizations – Save costs
- To reduce the need for individual development of such standards by the various organizations and countries – Save costs
- To enhance interoperability of tech data – thus reducing duplication – Save cost
- To support collaborative production and use of information – Interoperability

Source: TPSMG and EPWG members

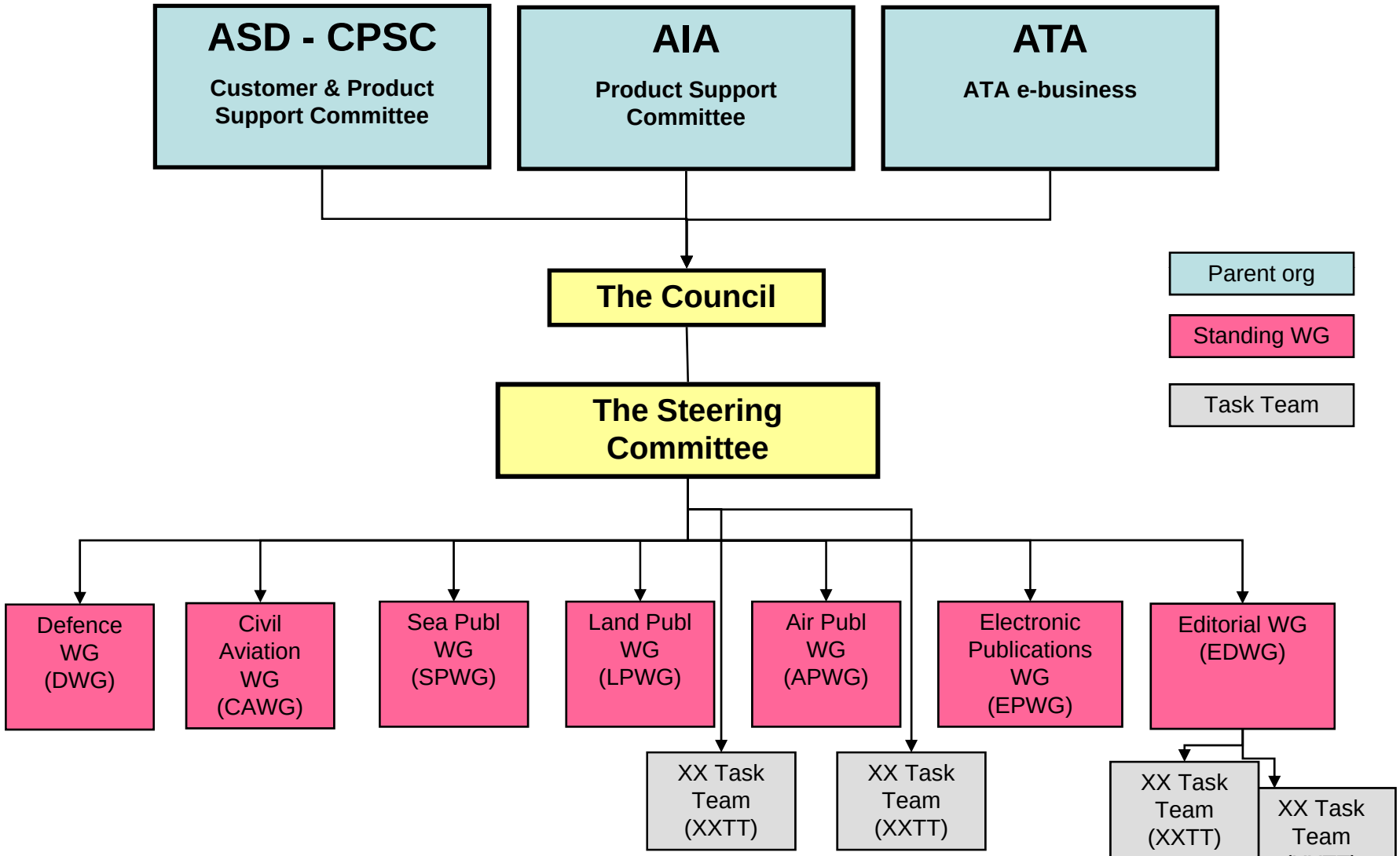
Why should you use it?

- S1000D is internationally accepted concept
  – if you are using S1000D there's always someone to ask
- It has been developed by the industry side and the customer/user side, in close cooperation, to serve both in the best possible way
  – it is most likely that your needs are covered
- It is a proven concept for producing, managing and delivering you technical publications
  – the risk for nasty surprises is very, very limited

Source: TPSMG and EPWG members

Source: TPSMG and EPWG members

How is S1000D maintained?
Workforce structure



Source: TPSMG and EPW

www.s1000d.org

- The official S1000D website
- The whole specification is downloadable from the web. It comprises some
  - 2760 A4 pages
  - ca. 26 Mbytes
- A set of xml schemas representing the different data module types + other objects
- A default BREX data module
- A set of test data (the S1000D Bike set)
- Other useful information and tools, as available

Source: TPSMG and EPWG members

Questions?

Source: TPSMG and EPWG members