



# Introduction to GEIA-STD-0007 Logistics Product Data

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**U. S. Army**  
**Logistics Support Activity (LOGSA)**

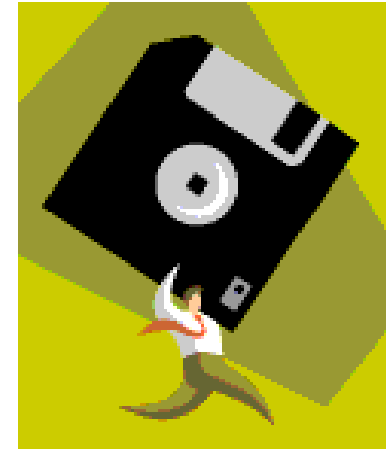
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Oct 2006

# Outline

- Introduction – Why GEIA-STD-0007?
- Content
- Supportability Analysis Relationships
- Supportability Products/ Contracting
- Relationship to AP239
- Summary/Schedule




# Acquisition Reform

- **OSD Mandate For Change**
  - Dr. Perry's Guidance June 1994
- **DOD Will Rely on Commercial Products and Processes**
- **MIL-STD-1388 STDs Cancelled – 1996**
- **Ten Years Since MIL-STD-1388-2B was Eliminated**
  - What are program offices using?



# LSAR Utilization Survey

## Survey Results Of Army Major Weapon Systems

	Number Of Responses	Number With Logistics Data Delivery Rqmts	Number Using LMI Spec	Number Using LSAR Standard	Number Using LSAR System For Data Delivery
ACAT I	23	19	13	5	19
ACAT II	14	10	4	4	6
<b>TOTAL</b>	<b>37</b>	<b>29</b>	<b>17</b>	<b>9</b>	<b>25</b>

**Note: 25 of 29 (86%) Contractors Provided data in 1388/LSAR format!**

# Where are we Going?

- **Fact: Re-establishing MIL-STD-1388, Will NOT happen!**



- **Direction → Industry Standards**

- **Utilizing the Defense Acquisition Life Cycle Framework**
  - Effectively Replacing MIL-STD-1388-1A LSA Processes



- **Working within the Framework of the Government Electronics and Information Technology Association (GEIA)**

- GEIA-STD-0007, Logistics Product Data
- GEIA-HB-0007, Handbook and Guide for Logistics Product Data
- Effectively Replacing MIL-STD-1388-2B, LSAR Data Exchange

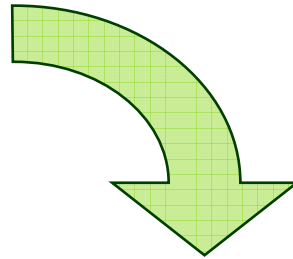


# The "BIG Picture"

DoD Framework

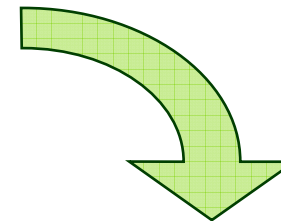
**Supportability  
Analysis**

AP239 Activities



GEIA-STD-0007

**Logistics  
Product Data**



**System Support**

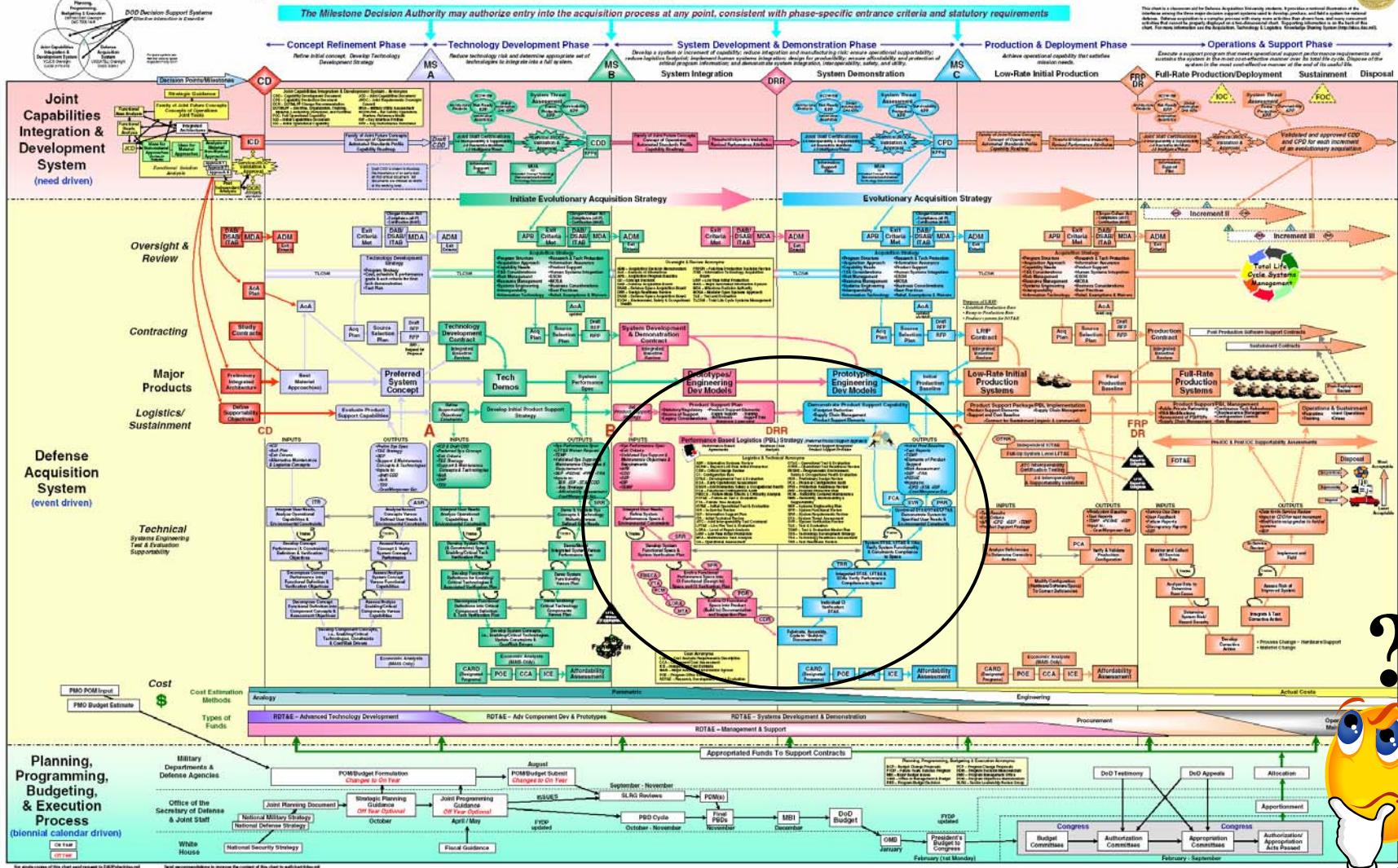
**IETM  
Training  
Provisioning  
Parts Lists  
Etc...**



# DOD Life Cycle Management Framework

ver. 5.2, August 2005

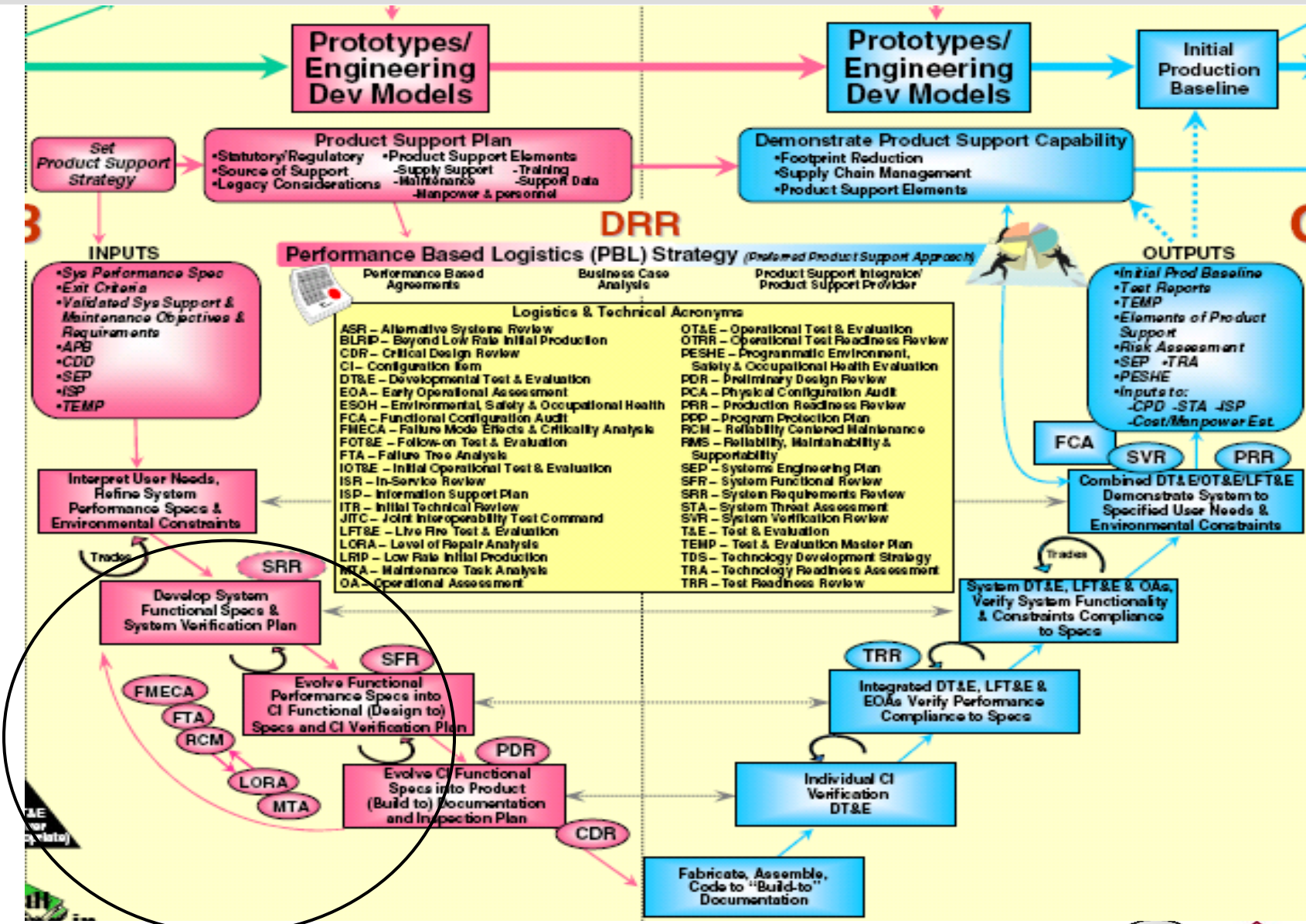
## Integrated Defense Acquisition, Technology, & Logistics Life Cycle Management Framework



October 2006



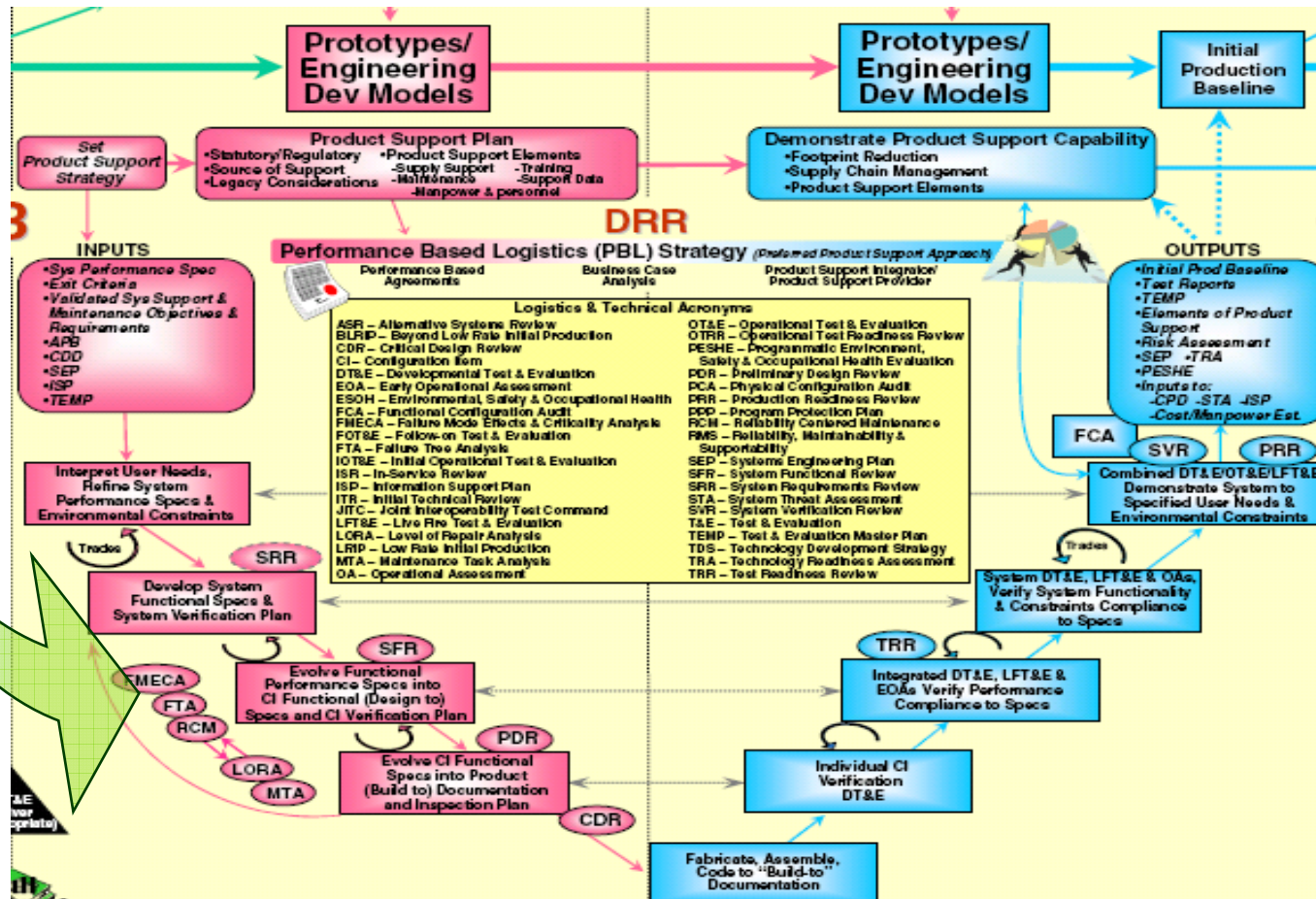
# DOD Life Cycle Management Framework



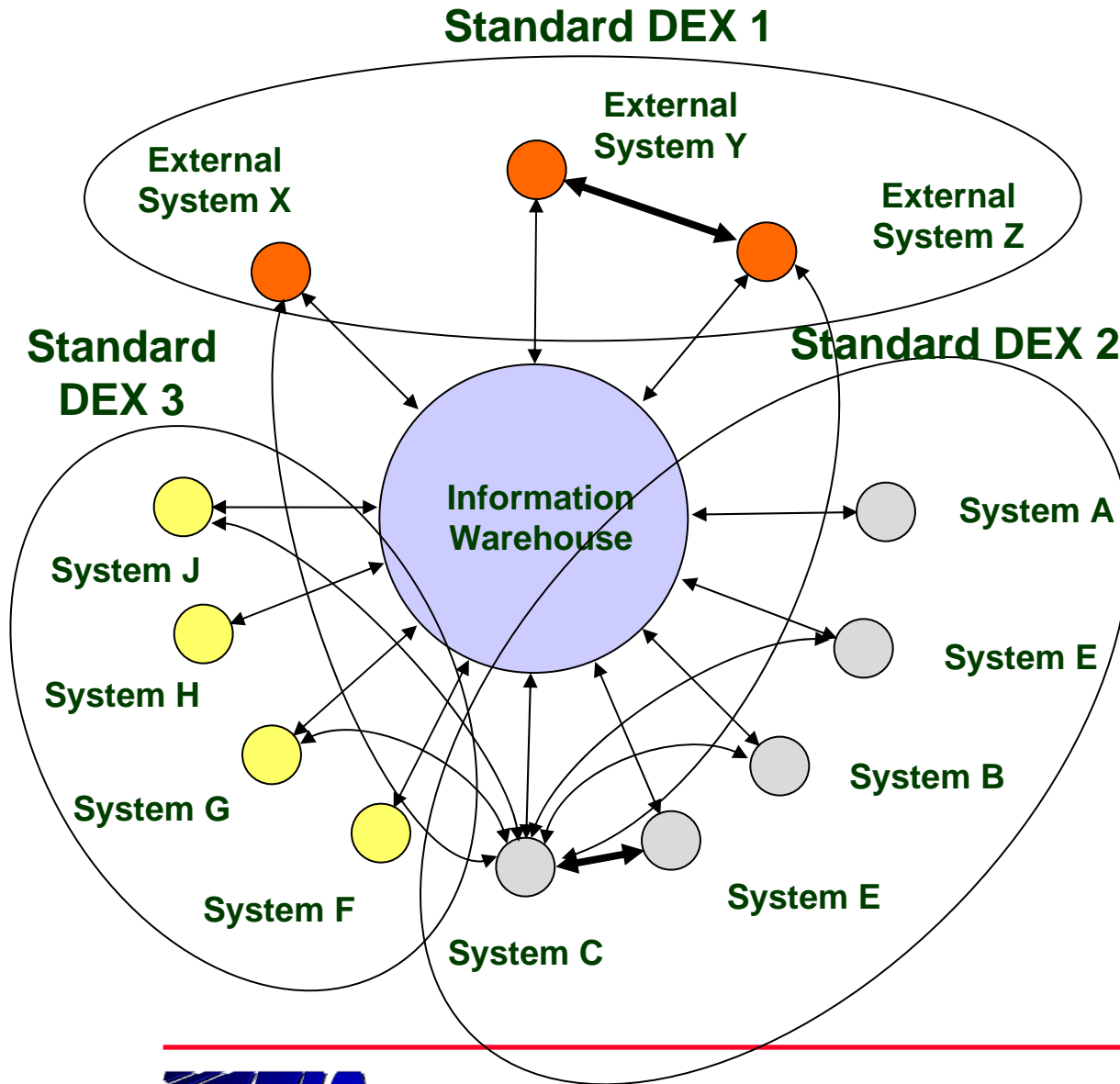


# GEIA-STD-0007

- Define Logistics Product Data Generated During Design of a System, End Item, or Product
- Define Data Exchange Mechanisms



# Exchange Mechanisms



- **Central Exchange**  
Federated database, must establish exchange agreements with each "Partner".

- **Point to Point**  
Simple exchange, must establish exchange agreements and Protocols with each Partner

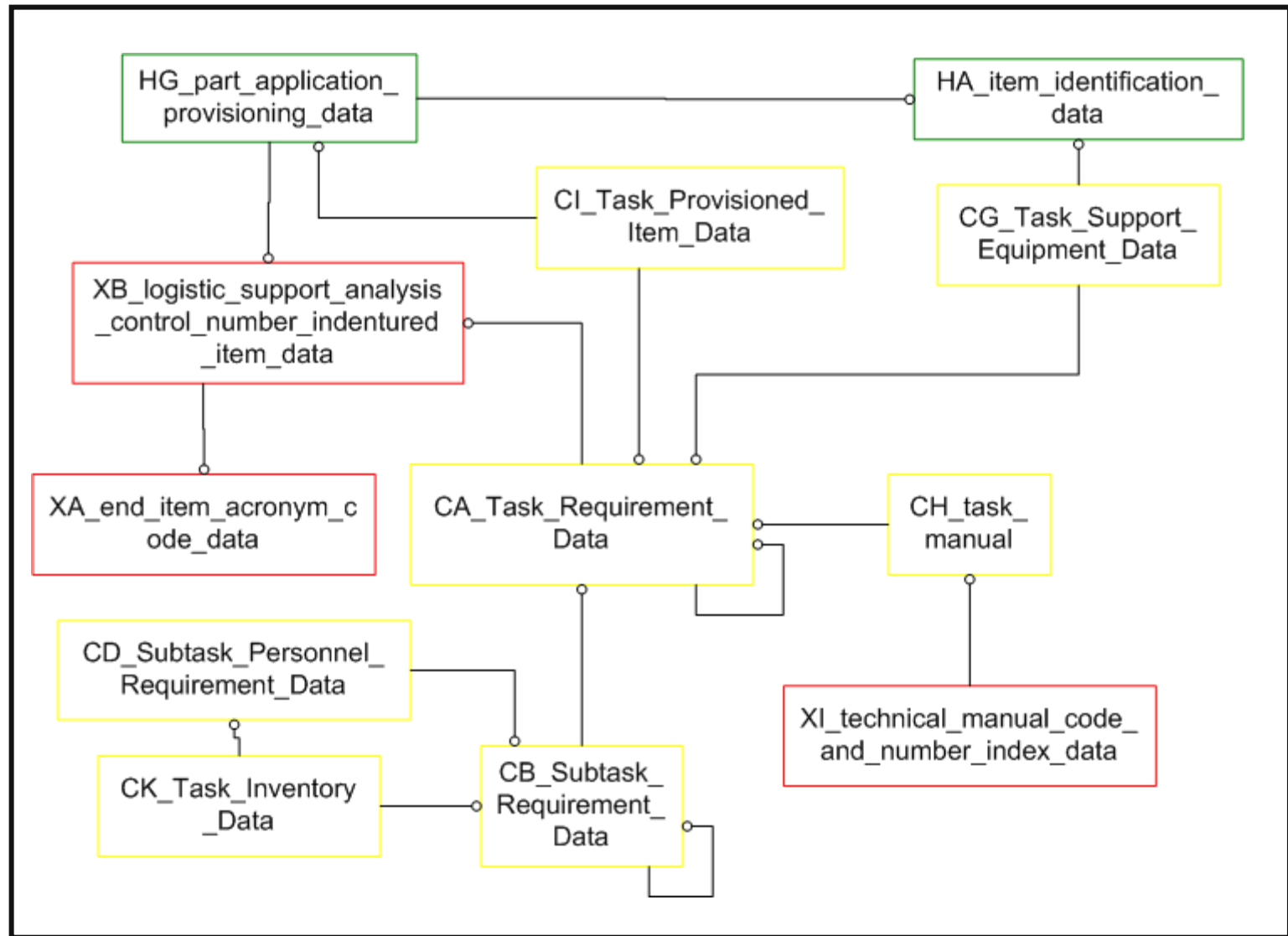
- **Closely Tied**  
Related exchange, typically similar data and structure

# GEIA-STD-0007 Content

- **Functional Area Entities/Attributes**
  - Cross Functional Requirements
  - Operations and Maintenance
  - Reliability Requirements and Analysis
  - Task Analysis
  - Skill and Training
  - Support Equipment
  - Unit Under Test
  - Facility
  - Transportability
  - Provisioning and Cataloging Requirements
- **Data Types Dictionary**
- **XML Schema for Logistics Product Data**
  - Update/Change Process
- **XML Schemas for Transaction Sets**
  - Provisioning & Style Sheet
  - Packaging & Style Sheet
  - Task Analysis
- **LCN, ALC, UOC Assignment Guidance**



# GEIA-STD-0007 Data Model Example



# GEIA-STD-0007 Data Element Dictionary Example

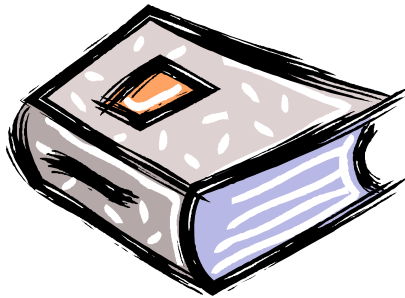
ELEMENT TYPE	TYPE	MAX LENGTH	DEFINITION
achieved_availability_Type	decimal (0-2)N[(0-6)N]	9	<p>The probability that, when used under stated conditions in an ideal support environment, a system will operate satisfactorily at any time. This differs from Inherent Availability only in its inclusion of consideration for preventive action. <math>A_a</math> excludes supply downtime and administrative downtime. The measurement bases for MTBM and M must be consistent when calculating <math>A_a</math>. <math>A_a</math> may be expressed by the following formula:</p> $A_a = \frac{MTBM}{MTBM + M}$ <p>where</p> $MTBM = \left( \frac{1}{MTBF} + \frac{1}{MTBM-ND} + \frac{1}{MTBPM} \right)^{-1}$ $M = \frac{\sum_{i=1}^N (ET_i) (TF_i)}{N}$ <p>M = Mean active maintenance downtime (where corrective and preventive actions are considered) <math>ET_i</math> = Elapsed time for task i  <math>TF_i</math> = Task frequency for task i            N = Total number of tasks performed            Note: The measurement bases for MTBF, MTBM-ND, and MTBPM must be consistent when calculating the MTBM parameter.</p>

# GEIA-STD-0007 XML Schema Example

```
<?xml version="1.0" encoding="UTF-8" ?>
<!-- xmlns:geia is needed by xpath in key/keyref as xpath does not work with default namespace -->
_ <xs:schema
_   xmlns:geia="http://www.geia_STD_0007.com/2006/schema"
_   xmlns:lsartypes="http://www.geia_STD_0007.com/2006/types"
_   xmlns:xs="http://www.w3.org/2001/XMLSchema"
_   targetNamespace="http://www.geia_STD_0007.com/2006/schema"
_   elementFormDefault="qualified" attributeFormDefault="unqualified">
_   <xs:import
_     namespace="http://www.geia_STD_0007.com/2006/types"
_     schemaLocation="GEIA_STD_0007_Types.xsd" />
_   <xs:complexType name="XA_end_item_acronym_code_data_type">
_     <xs:all>
_       <xs:element name="end_item_acronym_code"
_         type="lsartypes:end_item_acronym_code_Type" />
_       <xs:element name="logistic_support_analysis_control_number_structure"
_         type="lsartypes:logistic_support_analysis_control_number_structure_Type" minOccurs="0" />
_       <xs:element name="administrative_lead_time"
_         type="lsartypes:administrative_lead_time_Type" minOccurs="0" />
_       <xs:element name="contract_team_delay_time"
_         type="lsartypes:contract_team_delay_time_Type" minOccurs="0" />
_       <xs:element name="contract_number"
_         type="lsartypes:contract_number_Type" minOccurs="0" />
_       <xs:element name="cost_per_reorder_action"
_         type="lsartypes:cost_per_reorder_action_Type" minOccurs="0" />
_     </xs:all>
_   </xs:complexType>
_ </xs:schema>
```

# GEIA-HB-0007 Handbook

- **GEIA-HB-0007 (The Handbook!)**



# GEIA-HB-0007 Outline

- Overview of how (e.g. what analysis) and when Logistics Product Data is generated during the development process (AP239 and DOD Lifecycle Models)
- Description of the Logistics Product Data Entities and Attributes (When Required, Sources, Indenture Level Relationships, Primary Use)
- Contracting for Logistics Product Data
- Appendices
  - Sample Relational Tables
  - Test Data Set
  - LCN, ALC and UOC Guidance to Include Relationship to S1000D SNS
  - Data Cross Reference List (0007, DEF STAN 00 60, MIL-STD-1388-2B)
- Publish Dec 06





# Supportability Analysis Process

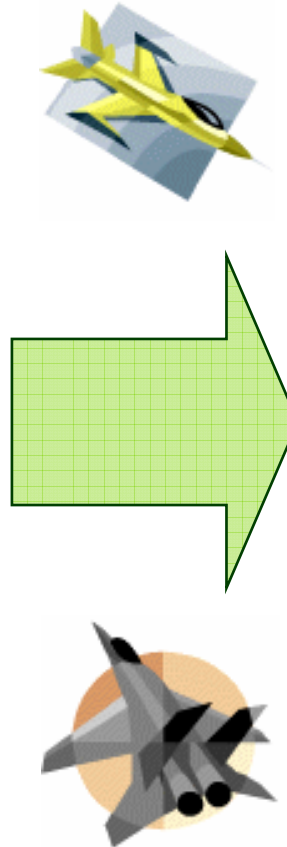
## Concept Refinement Phase/Generate Support Solution

### DOD Life Cycle Framework Analyses

- Perform Use Study
- Perform Comparative Analysis
- Identify Standardization Opportunities
- Functional Requirements Analysis
- Define Supportability Factors

### AP239, Product Life Cycle Support Activities

- Define Support Context
  - Life & Usage Profile
  - Available Resources
- Establish Requirements
  - Elicit Stakeholder Needs
  - Define Support Requirements



### GEIA-STD-0007

- X Entities – Cross Functional Requirements
- A Entities – Operations & Maintenance Requirements

# Supportability Analysis Process

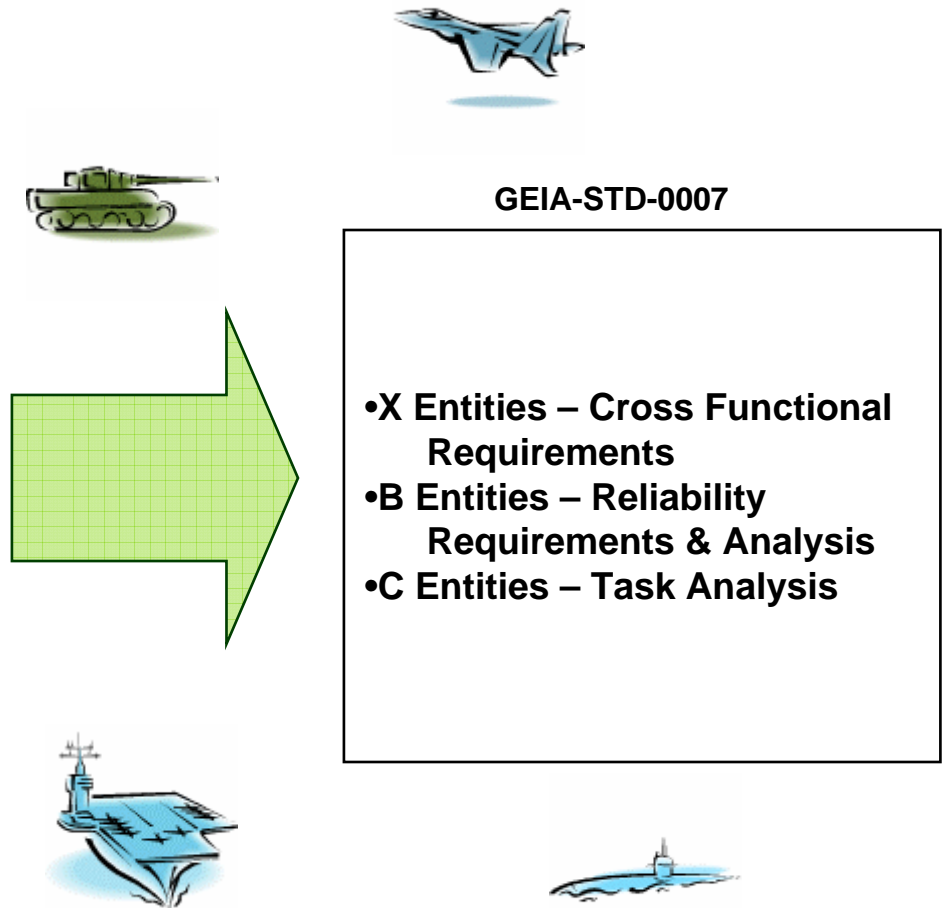
## Technology Development Phase/Generate Support Solution

### DOD Life Cycle Framework Analyses

- Update Comparative Analysis
- Identify Standardization Requirements
- Define Functional Requirements
- Conduct Tradeoff Analysis
- Conduct Sensitivity Analysis
- Conduct Limited Task Analysis

### AP239, Product Life Cycle Support Activities

- Define Support Solution
  - Establish Support Drivers
  - Task Analysis - Potential Tasks
- Predict Support Performance & Resource Use



# Supportability Analysis Process

## System Development & Demonstration Phase/Generate Support Solution

### DOD Life Cycle Framework Analyses

- Define Functional Requirements
- FMECA
- Failure Tree Analysis
- RCM
- Task Analysis
- LORA
- Supportability Testing

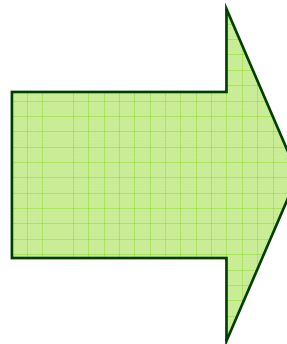
### AP239, Product Life Cycle Support Activities

- Predict Support Performance & Resource Use
- Task Analysis
- Define Support Solution
  - Support Policy
  - Support Plan
  - Task Procedures
  - Assemble Solution
- Assess Support Performance



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- X Entities – Cross Functional Requirements
- B Entities – Reliability Requirements & Analysis
- C Entities – Task Analysis
- E Entities – Support Equipment
- U Entities – Unit Under Test
- F Entities – Facilities
- G Entities – Skills & Training
- H Entities – Provisioning & Cataloging



# Supportability Analysis Process

## Production & Deployment Phase/Commission Support Solution

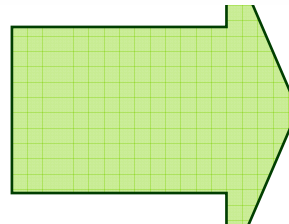
### DOD Life Cycle Framework Analyses

- Supportability Testing
- Provisioning
- Provisioning Screening (Cataloging)
- Early Fielding Analysis



### AP239, Product Life Cycle Support Activities

- Assess Support Performance
- Define Support Solution
- Provisioning



### GEIA-STD-0007

- X Entities – Cross Functional Requirements
- H Entities – Provisioning & Cataloging
- All Other Entities Affected by Testing

# Supportability Analysis Process

## Operation & Support Phase/Provide Support

### DOD Life Cycle Framework Analyses

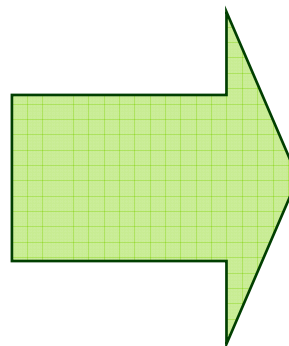
- Materiel Fielding Analysis
- Post Production Support Analysis



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### AP239, Product Life Cycle Support Activities

- Analyze Support Feedback
- Collect Data and Provide Feedback



- All Entities Affected by Data Collection and Feedback

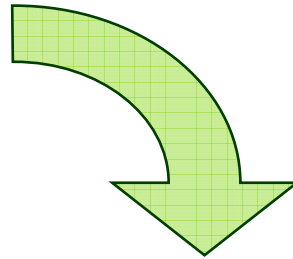


# The "BIG Picture"

DoD Framework

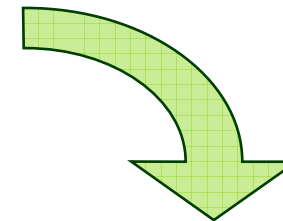
**Supportability  
Analysis**

AP239 Activities



GEIA-STD-0007

**Logistics  
Product Data**



**System Support**

**IETM  
Training  
Provisioning  
Parts Lists  
Etc...**



# Logistics Product Data Uses

## ■ Maintenance Planning

- Maintenance Plan
- Maintenance Allocation Chart
- Preventive Maintenance Checks & Services
- Maintenance Procedures for IETMs (Task Analysis XML Schema)



## ■ Support and Test Equipment

- Support Equipment Recommendation Data
- Calibration Maintenance Requirements Summary
- TMDE Registration



## ■ Supply Support

- Provisioning Technical Documentation Lists (Long Lead, Post Conference, Common, Bulk Items, etc.) (Provisioning XML Schema & Style Sheet)
- Design Change Notice Information
- Cataloging/Screening/Parts Breakout
- Indentured Parts List (for IETMs)



# Logistics Product Data Uses (Continued)

## ■ Manpower, Personnel & Training

- Qualitative & Quantitative Personnel Requirements Information
- Manpower Authorization Criteria
- Task Inventory/Training Task List
- New/Modified Skill/Training Requirements
- Identification of Training Devices



## ■ Packaging, Handling, Storage, and Transportation

- Packaging and Preservation Data (Packaging XML Schema and Style Sheet)
- Transportability Requirements



## ■ Facilities

- New/Modified Facilities Requirements
- Maintenance Tasks Requiring New/Modified Facilities

## ■ Reliability and Maintainability

- Reliability Centered Maintenance Results
- FMECA Results





# Contracting for Logistics Product Data

- Identify the Data Uses and Analyses Needed for Logistics Product Data
- Document Required Data on the Attribute Selection Sheet
- Identify the Appropriate XML Schema for Data Transfer
  - Logistics Product Data
  - Provisioning
  - Packaging
  - Task Analysis
- Use MIL-PRF-49506, Logistics Management Information, DID-ALSS-81529 Citing:
  - Appropriate GEIA-STD-0007 XML Schema
  - Attribute Selection Sheet



# Standards Content

## GEIA-927

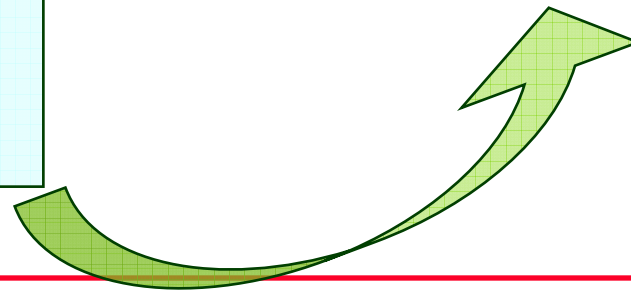
- Multi-Domain Entity Model
  - Lexical
  - Graphical
- Multi-Domain Entity Mapping Tables
- Entity/Attribute Dictionary

## GEIA-STD-0007

- Logistics Product Data Implementation Model
- Data Element Dictionary
- Data Delivery Reqts

## ISO 10303, AP239

- IDEF0 Activity Model – PLCS Process Model
- Entity/Attribute Model for PLCS
  - Lexical
  - Graphical
- Data Exchange Sets
  - Capability Modules
  - Entity Templates
  - Reference Data Library



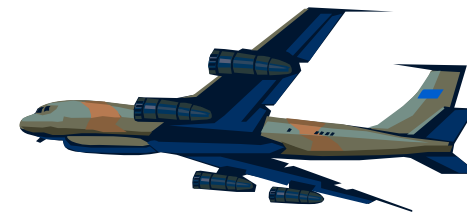
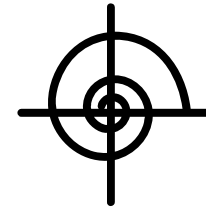
# GEIA-STD-0007 & DEXs

- AP239 DEXs are Developed based upon Business DEXs.
- GEIA-STD-0007 Represents DoD Business DEX.
- LOGSA Objective: Work with the Organization for the Advancement of Structured Information Standards (OASIS) to Incorporate GEIA-STD-0007 Logistics Data into the Appropriate DEX's (1-5) and Create New DEXs where Gaps exist. (1-2 year Timeframe).
- Must Retain Ability for DOD to Contract for Delivery of Structured Logistics Product Data.



# GEIA-STD-0007 Spiral Development

- S1000D Data Requirements (IETM)
- S2000M Data Requirements (Provisioning)
- S3000L Data Requirements (LSA/LSAR)
- Def-Stan-0060 Data Requirements (UK LSA/LSAR)
- Documents
  - Drawings
  - Illustrations
- Level of Repair Analysis Data
- Improved Task/Subtask Referencing



# GEIA-STD-0007 Summary



- Re-Establishes Industry/DOD Exchange of LSAR Data
- Balloting Completed Sep 06 – Resolving Comments
- Publish – Oct/Nov 06
- Develop/Participate in ISO PLCS DEXs – ongoing
- Develop, Ballot & Publish GEIA-HB-0007 – Dec 06



# Contact Information

- **Jim Colson (US AMC LOGSA)**
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  - 256-955-9928
  
- **GEIA-927 & GEIA-HB-927**
  - [www.geia.org](http://www.geia.org)
  
- **GEIA-STD-0007 (Ballot Version)**
  - Balloted
  - Publish – Oct/Nov 06
  
- **GEIA-HB-0007**
  - Draft Completed
  - Publish – Dec 06



# Backup Slides

# Backup Slides

# International Standards Efforts

- **Organization for the Advancement of Structured Information Standards (OASIS)**
  - International Consortium promoting development of international e-business standards
  - Driving Development of AP239 PLCS Data Exchange Sets (DEX's)
    - » DEX1, Product Breakdown for Support
    - » DEX2, Fault States
    - » DEX3, Task Specification
    - » DEX5, Maintenance Plan
    - » DEX7, Operational Feedback
    - » DEX8, Product as Individual
    - » DEX4/9, Work Package Definition and Report
    - » Others
  - LOGSA is Voting Member



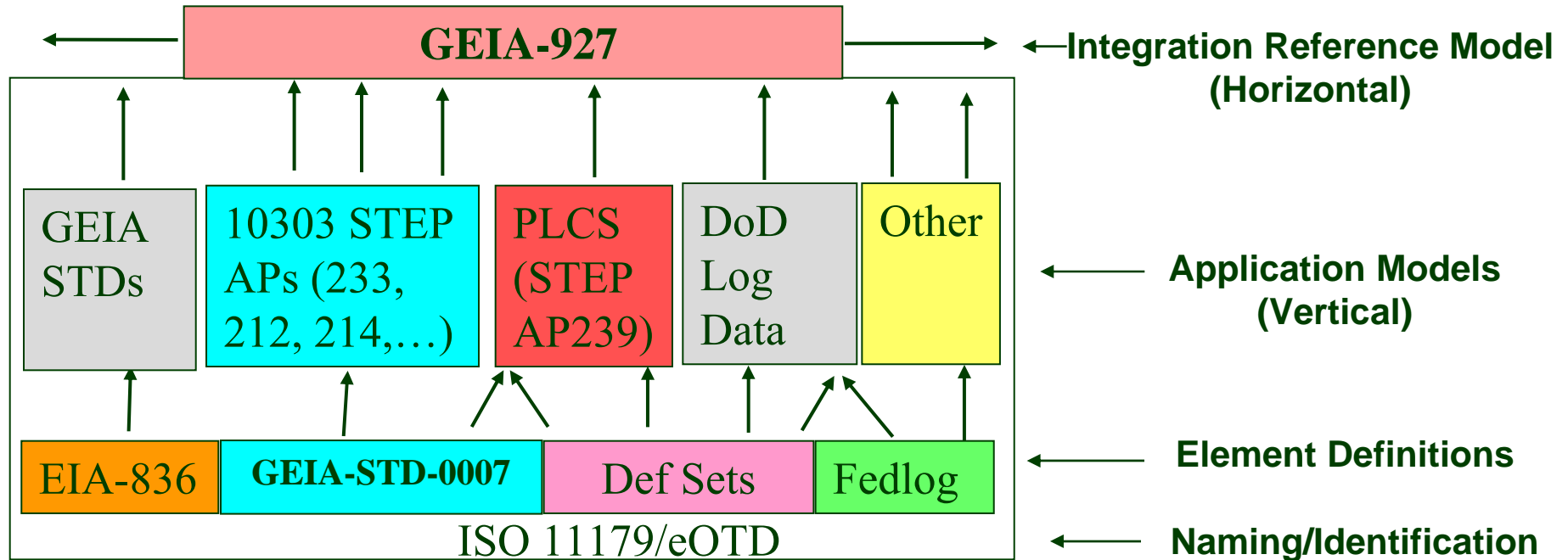
# ASD S3000L

## Application Handbook for the LSA of Defence Products

- **AeroSpace Defense Association (ASD) Sponsored Effort**
- **Companies Committed Resources for Development of Spec**
  - Boeing
  - Dassault Aviation
  - EADS/Airbus
  - BAE
  - Saab Aero
- **Minimal Government participation (Industry Driven)**
  - UK MoD
  - USA LOGSA
- **Content will follow a Task focused approach (FMECA, RCM, Task Analysis, etc.)**
- **Data Requirements will be defined later (early 07)**
  - DEX's (AP239 Approach)
  - GEIA-STD-0007 data model?
- **One Year Effort – 1 Jun 06 Start**
- **Quarterly reviews**
  - Sep – SE
  - Dec – FR
  - Mar – GE
  - Jun – US
- **S4000A (Specific Analysis: RCM, LORA, etc..) TBD.**
- **Complimentary to S1000D (Tech Pubs) and S2000M (Provisioning)**

# Data Standards and Relationships

## Layers of Normalization



A Reference Model that integrates across domains, facilitates the normalization of information. Each functional domain must only validate with 1 reference model and they become harmonized with all other domains.