

# UNIQUE IDENTIFICATION (UID)



## **Unique Identification (UID) of Tangible Items**

# Overview



# DoD Challenges<sup>1</sup>

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- Almost half of DoD's \$63.3 billion inventory as of September 2001 exceeds war reserve or current operating requirements
- DoD is unable to maintain adequate accountability over material shipped between contractors and DoD
- The services all experience operations and maintenance problems because of a lack of key spare parts, specifically **aviation spares**
- The services are not adequately monitoring, reporting, or getting reimbursement for defective spare parts received from contractors

<sup>1</sup> GAO-03-98 DoD Challenges



# DoD Vision for Item Marking

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- To create a policy establishing a strategic imperative for uniquely identifying tangible items relying to the maximum extent practical on international standards and commercial item markings.
- Uniquely identified (UID) tangible items will facilitate item tracking in DoD business systems and provide reliable and accurate data for management, financial, accountability and asset management purposes.



# Strategic Purpose of UID is to...

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- Integrate item data across government and industry asset management systems, resulting in:
  - Improved data quality and global interoperability
  - Rationalization of systems and infrastructure
- Improve item management and accountability
- Improve asset visibility and life-cycle management through life cycle traceability
- Enable more accurate audit opinions on the property, plant, and equipment and operating materials and supplies portions of financial statements



# DoD's Approach to UID

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- The Department of Defense (DoD) established a joint international/industry/government Integrated Product Team (IPT) to achieve the following goals:
  - Identify the UID data standard and business rules
  - Develop a feasible and rapid implementation strategy
- The IPT consists of four simultaneous efforts:
  - Policy
  - Standards
  - Implementation
  - DFARS Cases

<http://www.acq.osd.mil/uid/>



# What is Unique IDentification (UID)?

**UID is . . .**

**. . . the set of data for tangible assets that is globally unique and unambiguous, ensures data integrity and data quality throughout life, and supports multi-faceted business applications and users.**

**EID**

194532636



**Original Part Number**

1234



**Serial Number**

786950

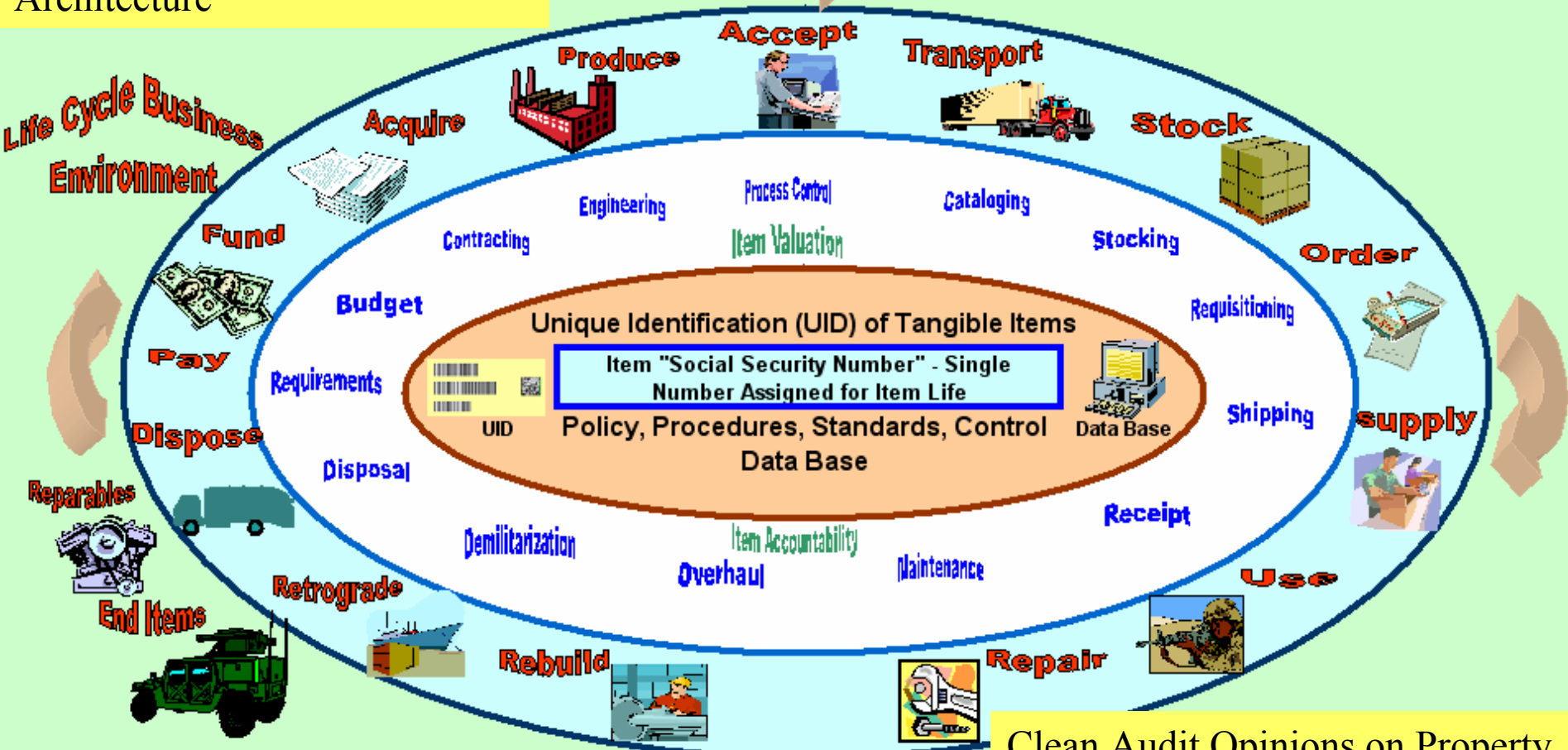




# UID Role - Business Enterprise Architecture

Enhance the Business Enterprise Architecture

Enhance Total Asset Visibility



Clean Audit Opinions on Property, Plant and Equipment & Operating Materials and Supplies



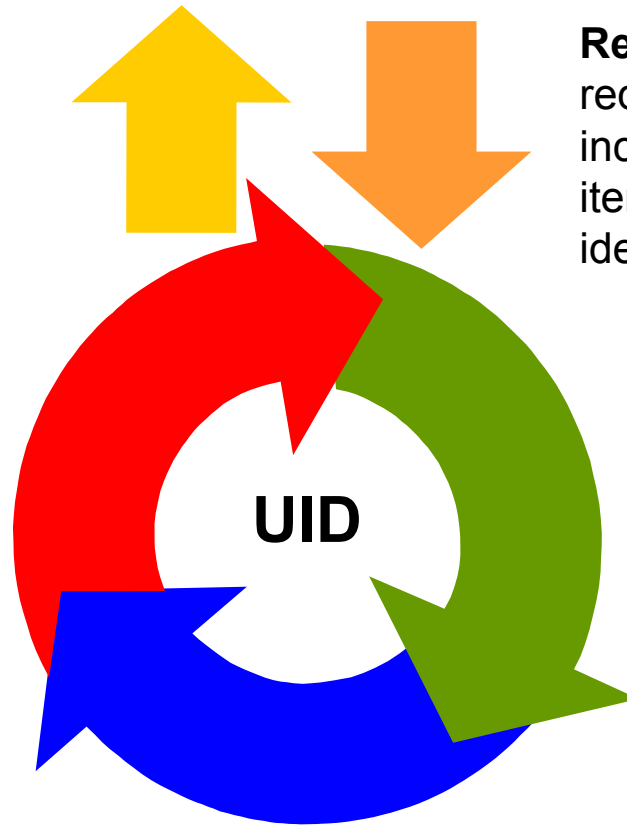


# What is the UID Lifecycle?

**Dispose** – DoD records the “termination” of the UID at time of item disposal

**Require** – DoD contracts reflect the requirement for part marks to include UID data elements for all items which require unique identification

**Use** – Functional stakeholders use UID as a primary or alternate key in the AIS to access or update item information based on its UID

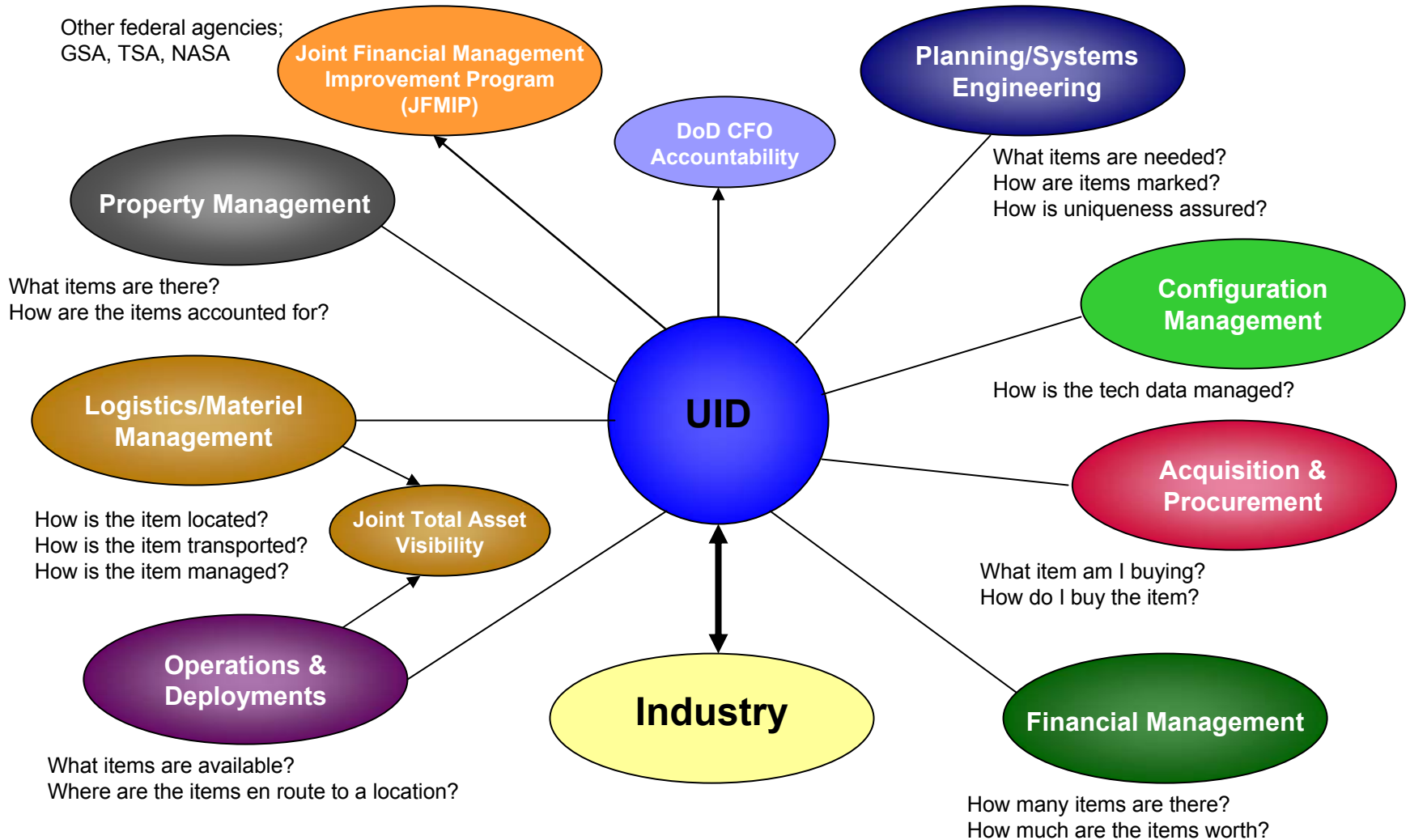


**Create/Generate** – Industry suppliers/manufacturers assign and apply UID data elements and ensure the uniqueness of the component data elements

**Capture** – DoD establishes the “birth” record of the UID by capturing the machine/human readable component data elements to create the UID in the AIT/AIS

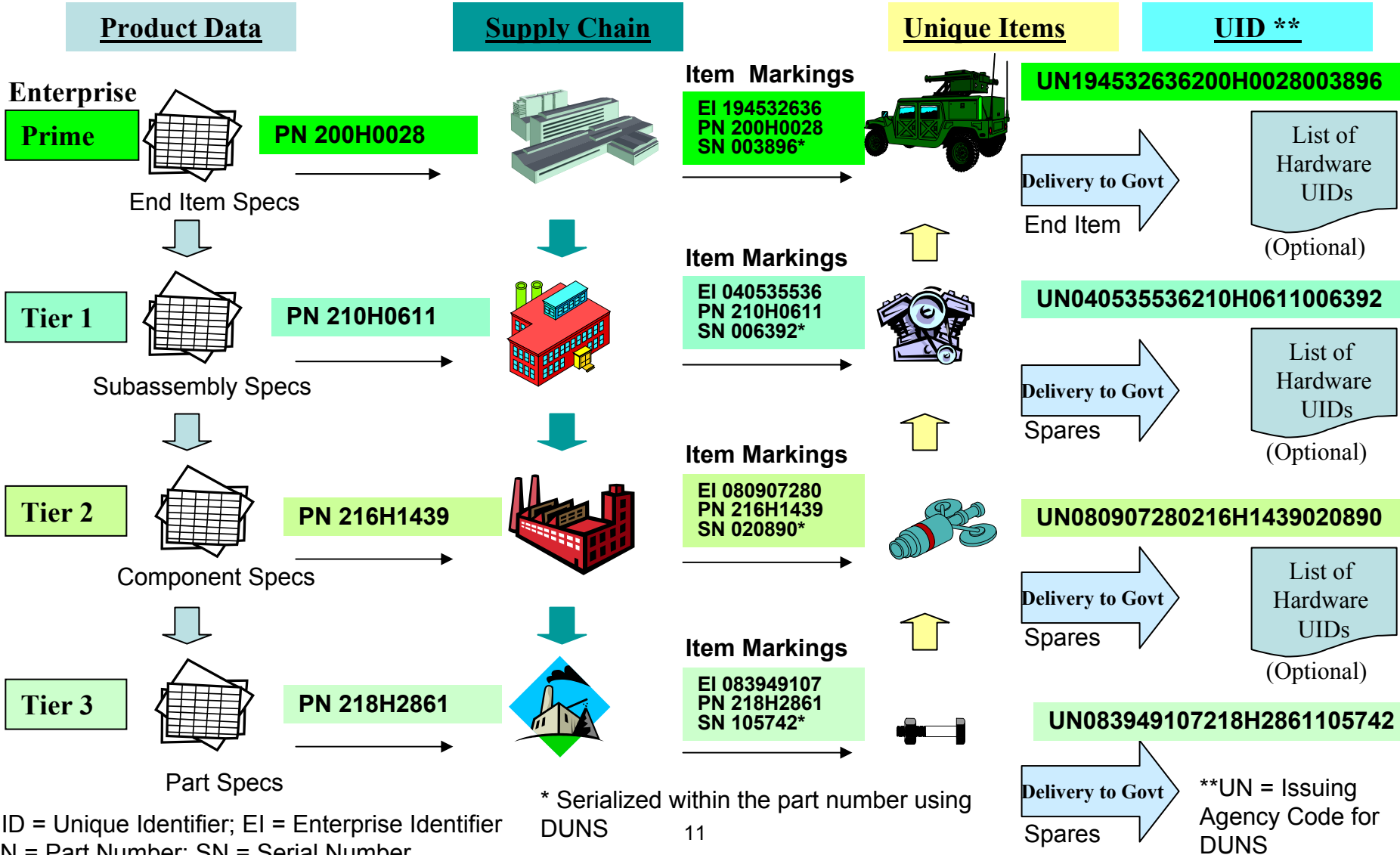


# UID Interfaces





# UID in the Supply Chain



\* Serialized within the part number using DUNS

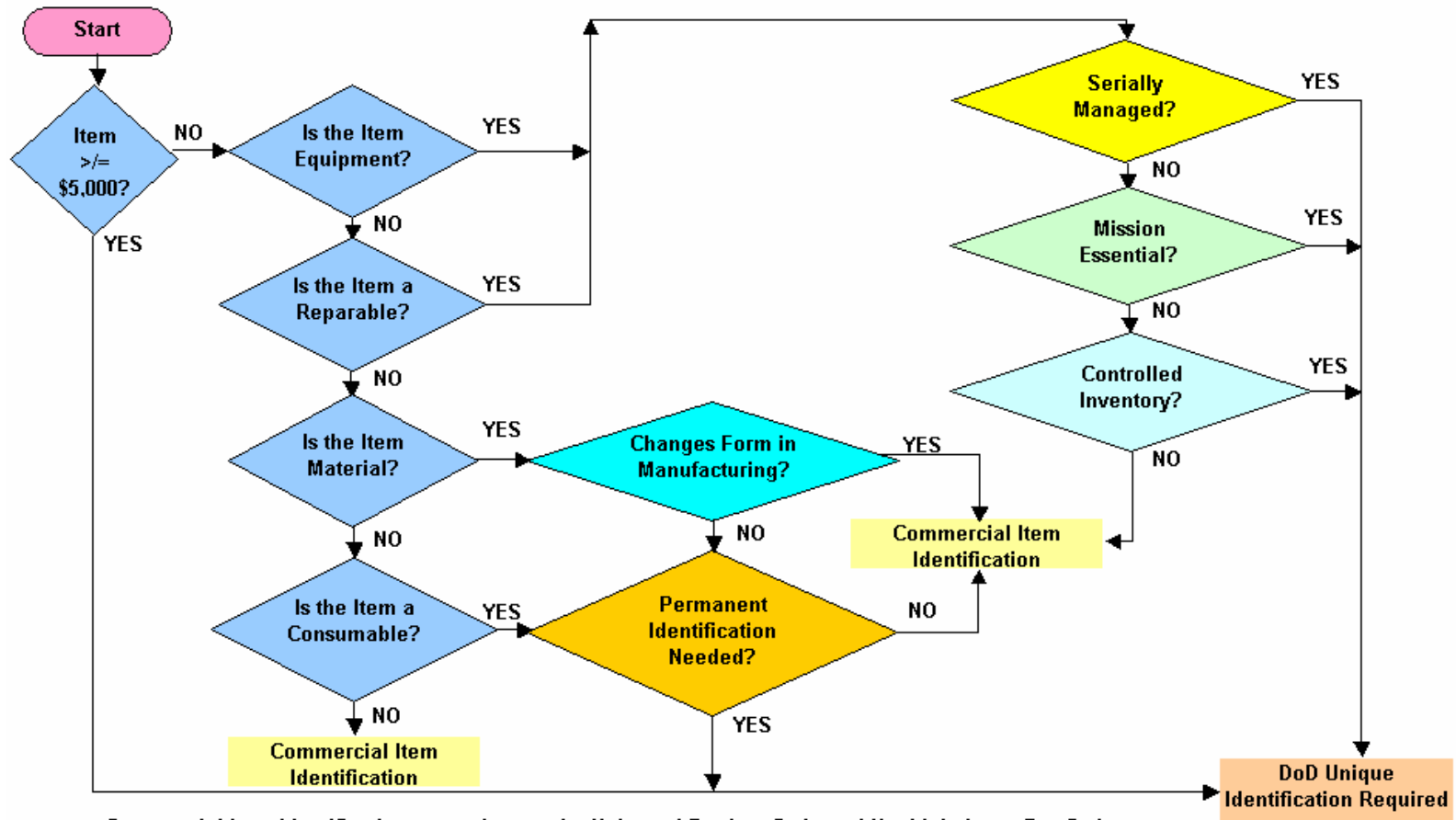
# UID Requirements



# Require the UID



## Which Items Require a Unique Identifier (UID)?



Commercial item identification examples are the Universal Product Code and Health Industry Bar Code



# Require the UID



- All program managers for new equipment, major modifications, and reprocurments of equipment and spares shall begin planning to apply Unique Identification (UID) on tangible items
- UID is a mandatory DoD requirement for all solicitations issued on or after January 1, 2004
- Specific guidance related to UID requirements can be found by referring to the following sources:
  - DFARS (under revision to include UID)
  - DoD Guide to Unique Identification of Tangible Items
  - Coordinated Policy Guidance
  - [www.acq.osd.mil/uid](http://www.acq.osd.mil/uid)



# Create and Generate the UID



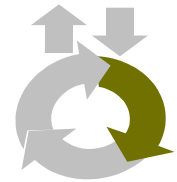
The components that make up the UID are identified in the table below. Each enterprise has two options for creating the UID.

	UID Construct #1	UID Construct #2
Based on current enterprise configurations	If items are serialized within the Enterprise	If items are serialized within Part Number
UID is derived by concatenating the data elements IN ORDER:	Issuing Agency Code* Enterprise ID Serial Number	Issuing Agency Code* Enterprise ID Original Part Number Serial Number
Data Identified on Assets Not Part of the UID (Separate Identifier)	Current Part Number	Current Part Number

\*The Issuing Agency Code (IAC) represents the registration authority that issued the enterprise identifier (e.g., Dun and Bradstreet, EAN.UCC). The IAC can be derived from the data qualifier for the enterprise identifier and does not need to be marked on the item.



# Create and Generate the UID



- Data qualifiers (semantics) will define each machine-readable data element marked on the item.
- The data qualifier associated with the serial number will identify which UID construct is used to build the UID.

Semantics Translation Between Data Identifiers (DI), Application Identifiers (AI), and Text Element Identifiers (TEI)<sup>1</sup>

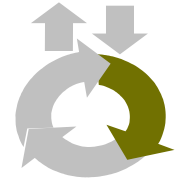
	DI	AI	TEI
Enterprise ID			
CAGE/NCAGE	17V		CAG
DUNS	12V		DUN
EAN.UCC			EUC
Serial No. w/in Enterprise Identifier	18S	8004	SER
Serial No. w/in Original Part No.	S	21	SEQ
Original Part No.	1P	01	PNO
Current Part No.	30P	240	PNR

<sup>1</sup> Blank boxes indicate the need for updates to the standards.






# Create and Generate the UID




## BUSINESS RULES

- The UID shall be derived from its discrete component data elements. The UID is not required to be marked on the item as a separate data element.<sup>1</sup>

UID Construct #1<sup>2</sup>

<b>EID</b>	<b>12V194532636</b>	
<b>Serial No.</b>	<b>18S786950</b>	

UID Construct #2<sup>2</sup>

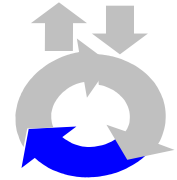
<b>EID</b>	<b>12V194532636</b>	
<b>Orig. Part No.</b>	<b>1P1234</b>	
<b>Serial No.</b>	<b>18S786950</b>	

<sup>1</sup>If the enterprise chooses to mark the UID as a discrete data element on the item, the component data elements must also be marked on the item as discrete data elements, in addition to the UID.

<sup>2</sup>This example uses MH10.8.2 Data Identifiers.



# Capture the UID



- For activities after initial delivery, in support of the product life cycle, any entity that collects data about the item must be capable of associating the data with the UID in accordance with the program requirements.
- Using the **syntax** and the **semantics** translation table on the prior slide, software that resides either in the AIT device or the AIS can translate between the three approved, interoperable formats

## Formats:

TEI:

(Format has to be assigned by SC 31, all 2-digit numbers used or reserved)

[><sup>R</sup><sub>S</sub> **DD**<sup>G</sup><sub>S</sub> **DUN**194532636<sup>G</sup><sub>S</sub> **PNO**1234<sup>G</sup><sub>S</sub> **SEQ**786950<sup>E</sup><sub>O</sub><sub>T</sub>

EAN.UCC: Application Identifiers

[><sup>R</sup><sub>S</sub> **05**<sup>G</sup><sub>S</sub> **TBD**194532636<sup>G</sup><sub>S</sub> **01**1234<sup>G</sup><sub>S</sub> **21**786950<sup>E</sup><sub>O</sub><sub>T</sub>

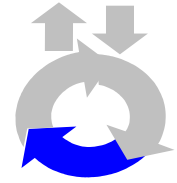
MH 10.8.2: Data Identifiers

[><sup>R</sup><sub>S</sub> **06**<sup>G</sup><sub>S</sub> **12V**194532636<sup>G</sup><sub>S</sub> **1P**1234<sup>G</sup><sub>S</sub> **S**786950<sup>E</sup><sub>O</sub><sub>T</sub>





# Capture the UID



## BUSINESS RULES

- When constructing the UID:
  - Spaces will be deleted
  - Special characters will be deleted from the enterprise identifier
  - Special characters will not be deleted from the part number or serial number

UID Construct #1<sup>1</sup>

<b>EID</b>	<b>12V194532636</b>	
<b>Serial No.</b>	<b>18S786950</b>	

<b>UID Construct #1</b>		
<b>UN194532636786950</b>		
IAC	EID	Serial No.

UID Construct #2<sup>1</sup>

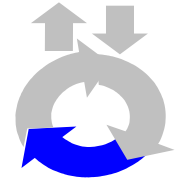
<b>EID</b>	<b>12V194532636</b>	
<b>Orig. Part No.</b>	<b>1P1234</b>	
<b>Serial No.</b>	<b>18S786950</b>	
<b>Current Part No. 30P5678</b>		

<b>UID Construct #2</b>			
<b>UN1945326361234786950</b>			
IAC	EID	Orig. Part No.	Serial No.

<sup>1</sup> This example uses MH10.8.2 Data Identifiers.




# Capture the UID



## BUSINESS RULES

- In a database, once the UID is derived, it shall not be parsed to determine the original elements<sup>1</sup>

EID	12V194532636
Orig. Part No.	1P1234 
Serial No.	18S786950
Current Part No.	30P5678

Record ID	UID (Constructed with a Business Rule)	EID	Orig. Part No.	Serial No.	Current Part No.	“Other Data”...
	UN1945326361234786950	194532636	1234	786950	5678	→ → →

**Incremental**

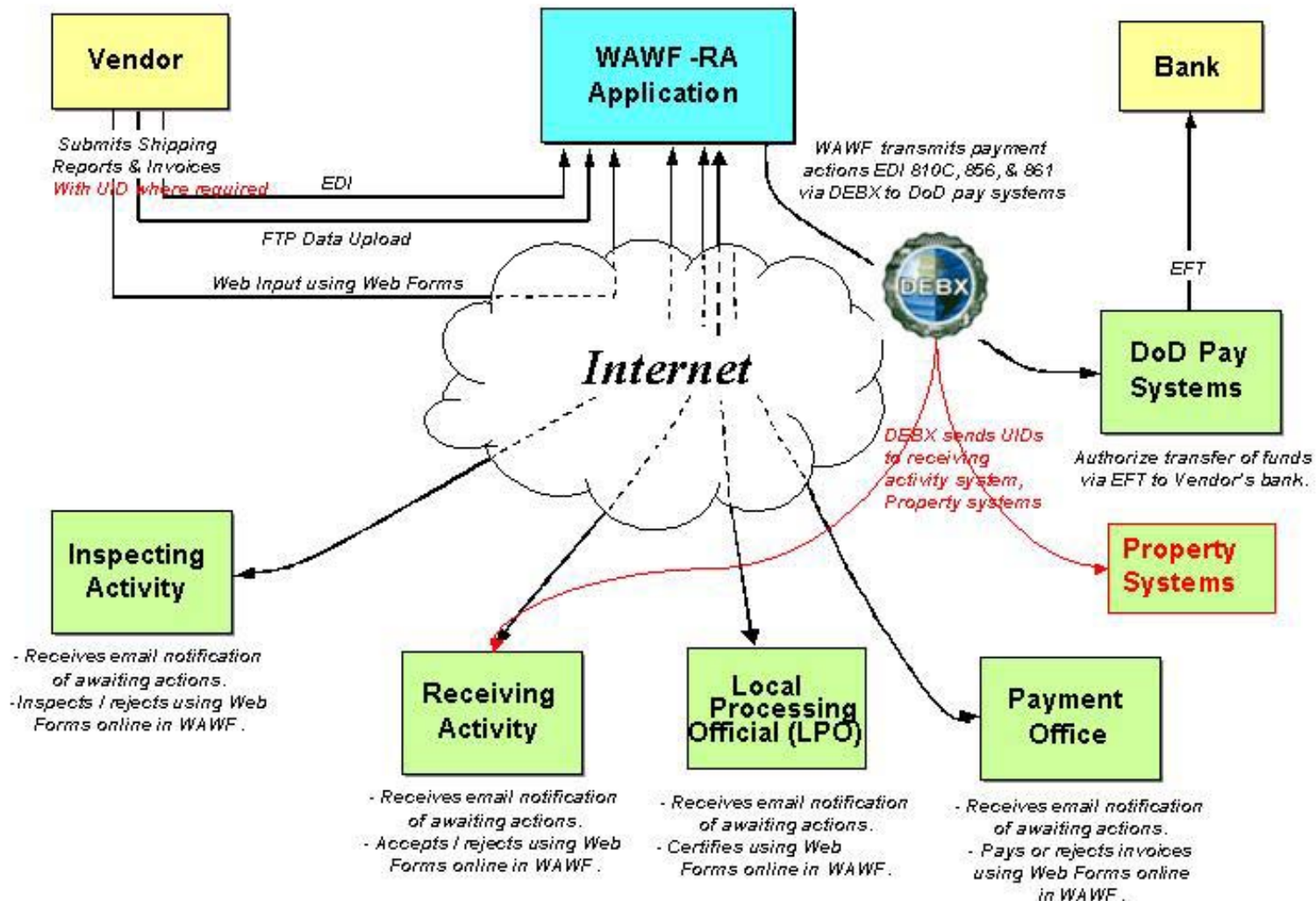
**Never Changes**  
**(mandatory for audit)**

**Can Change**

<sup>1</sup> This example uses MH10.8.2 Data Identifiers.

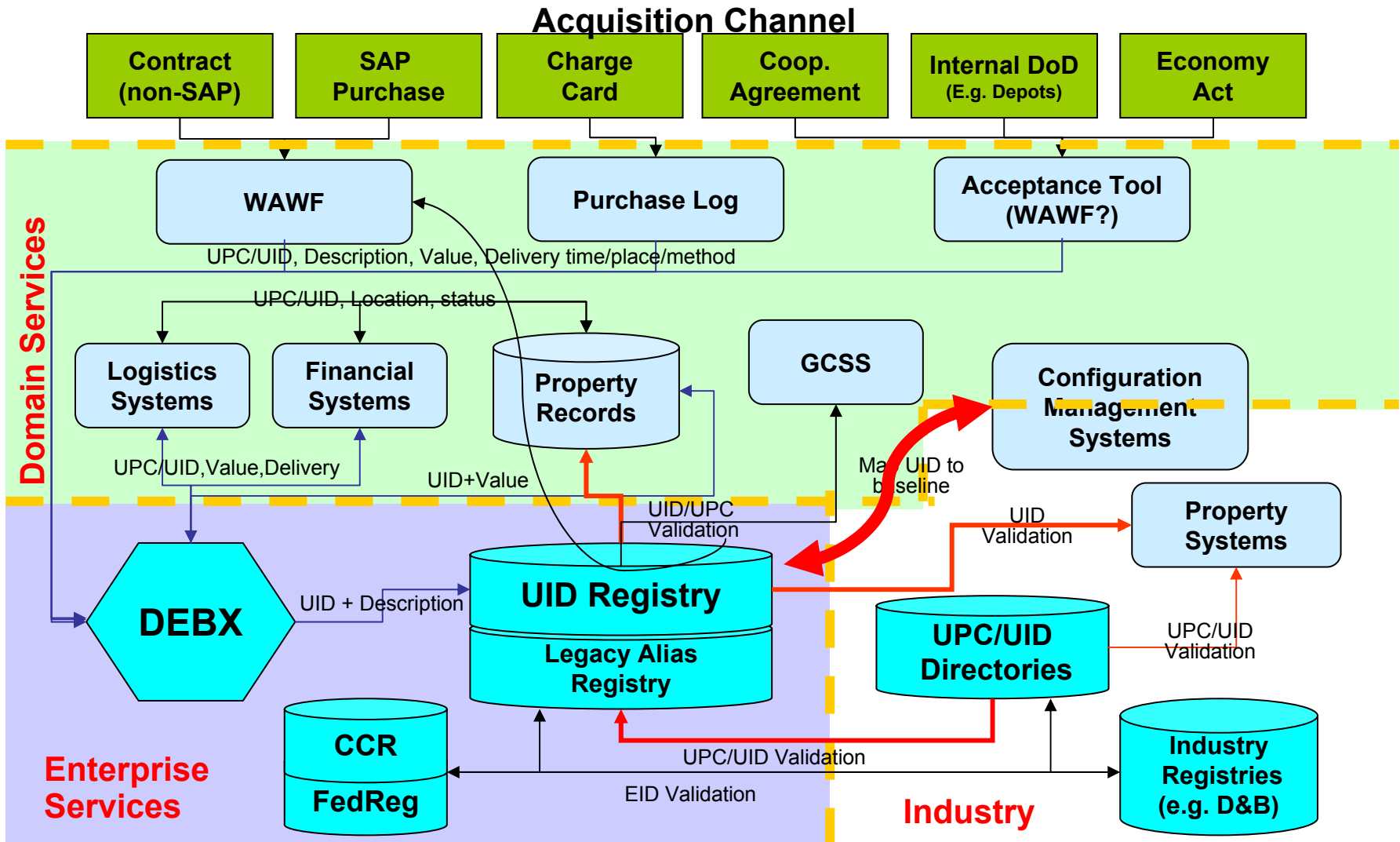


# Capturing and Initiating UID Use





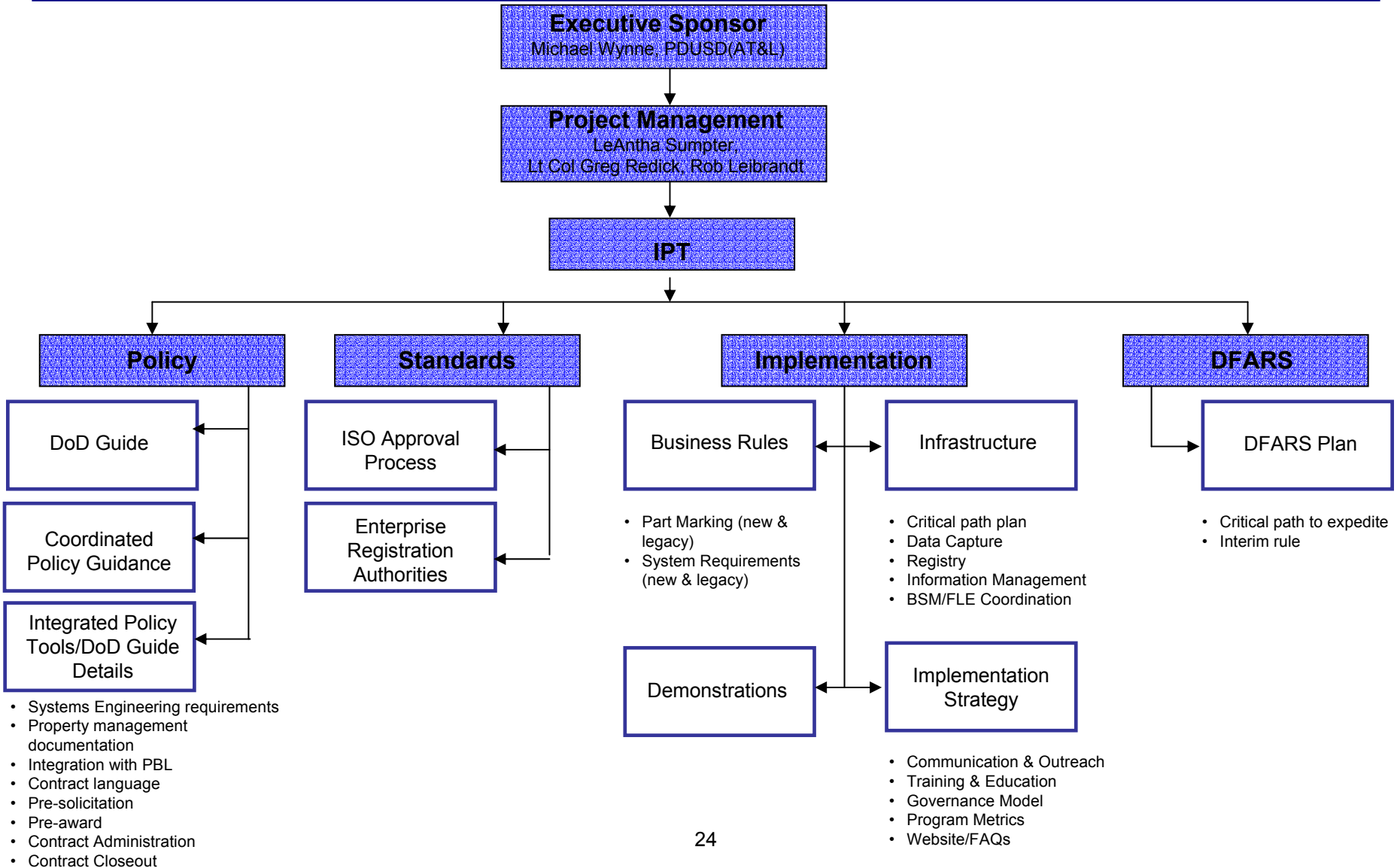
# Use the UID



# UID Organization & Efforts-to-Date



# Current Organizational Structure







# Contact Information

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For further information or questions, please contact:

- Ms. LeAntha Sumpter at [LeAntha.Sumpter@osd.mil](mailto:LeAntha.Sumpter@osd.mil) or at (703) 681-7564
- Mr. Robert Leibrandt at [Robert.Leibrandt@osd.mil](mailto:Robert.Leibrandt@osd.mil) or at (703) 695-1099

*Note:* For inquiries regarding the standards effort, please contact Lt Col Gregory Redick at [gregory.redick@dcma.mil](mailto:gregory.redick@dcma.mil)



# Potential Impact Summary



# DoD/Industry Identified Impacts



	System	Impact
1.	ECS: Electronic Contracting System	<ul style="list-style-type: none"><li>◆ Additional Field to Allow UID Input</li><li>◆ Enable Billing with UID Called Out</li></ul>
2.	Configuration Management System	<ul style="list-style-type: none"><li>◆ General Process Changes; Effectivity Management</li><li>◆ Database Field for UID or Expanded SN</li></ul>
3.	Incoming Receiving/Quality System	<ul style="list-style-type: none"><li>◆ Need to Clarify where/if SN/UID is Captured in these Systems</li></ul>
4.	MRP Systems	<ul style="list-style-type: none"><li>◆ Requires Further Investigation</li><li>◆ Site Implementation May be Capturing S/N within MRP</li><li>◆ Could Require Database Field Addition and New Screen Views</li></ul>
5.	Serialization Tools/Systems	<ul style="list-style-type: none"><li>◆ New Log Books</li><li>◆ Requires New Process to Concatenate PN and SN and Cage Code into UID</li><li>◆ Requires New Marking Technology Tools/Processes</li></ul>
6.	Quality/Final Inspection	<ul style="list-style-type: none"><li>◆ Field to Accommodate UID Field</li><li>◆ Must Consider MRB Process</li></ul>



# DoD/Industry Identified Impacts



	System	Impact
7.	Shipping/DD250	<ul style="list-style-type: none"> <li>◆ Ability to Create DD250 with:               <ul style="list-style-type: none"> <li>–Costed UID Marked End Item</li> <li>–List of Configuration Control Items with UID's</li> <li>–Ability to Flow UID with Invoice via WAWF</li> </ul> </li> </ul>
8.	Logistics Systems	<ul style="list-style-type: none"> <li>◆ UID Replaces Logistic Control Number (LCN)</li> <li>◆ Add Fields to Support UID in Logistic Database</li> <li>◆ Sort Capabilities in Logistics Databases</li> </ul>
9.	Enterprise Property Management/Asset Management	<ul style="list-style-type: none"> <li>◆ Need to Evaluate Potential Impacts</li> <li>◆ Establish UID Database Field</li> </ul>
10.	Electronic Capital Expenditure Request (CER)	<ul style="list-style-type: none"> <li>◆ Modify Systems to Accommodate Contract Appropriation Request (CAR)</li> </ul>
11.	Cost Accumulation System	<ul style="list-style-type: none"> <li>◆ Need to Investigate Process/System Impacts of UID</li> <li>◆ Ability to Accumulate Cost at UID Level... Including Burdens/Fee               <ul style="list-style-type: none"> <li>–Pro Rate Share of Fee</li> <li>–Auditable to GAAP/Fed Financial Acct Boards</li> </ul> </li> </ul>



# Potential Impact - Examples



Creating any given UID requires interfaces with two or more systems:

- The enterprise ID comes from the program/contract management system – ERP, PDM or other
  - Do multiple enterprise ID assigning agencies (DLA, DUNS, and EAN/UCC) exist within a single manufacturing location?
  - Do we track the assigning agency for COTS parts?
- The permanent part number comes from the drawing and engineering bill of material – managed by the PDM system
  - CM change management related processes will require analysis to determine impact
  - Once manufactured, the part number remains fixed for a given part
- The part serial tracking number comes from the ERP system

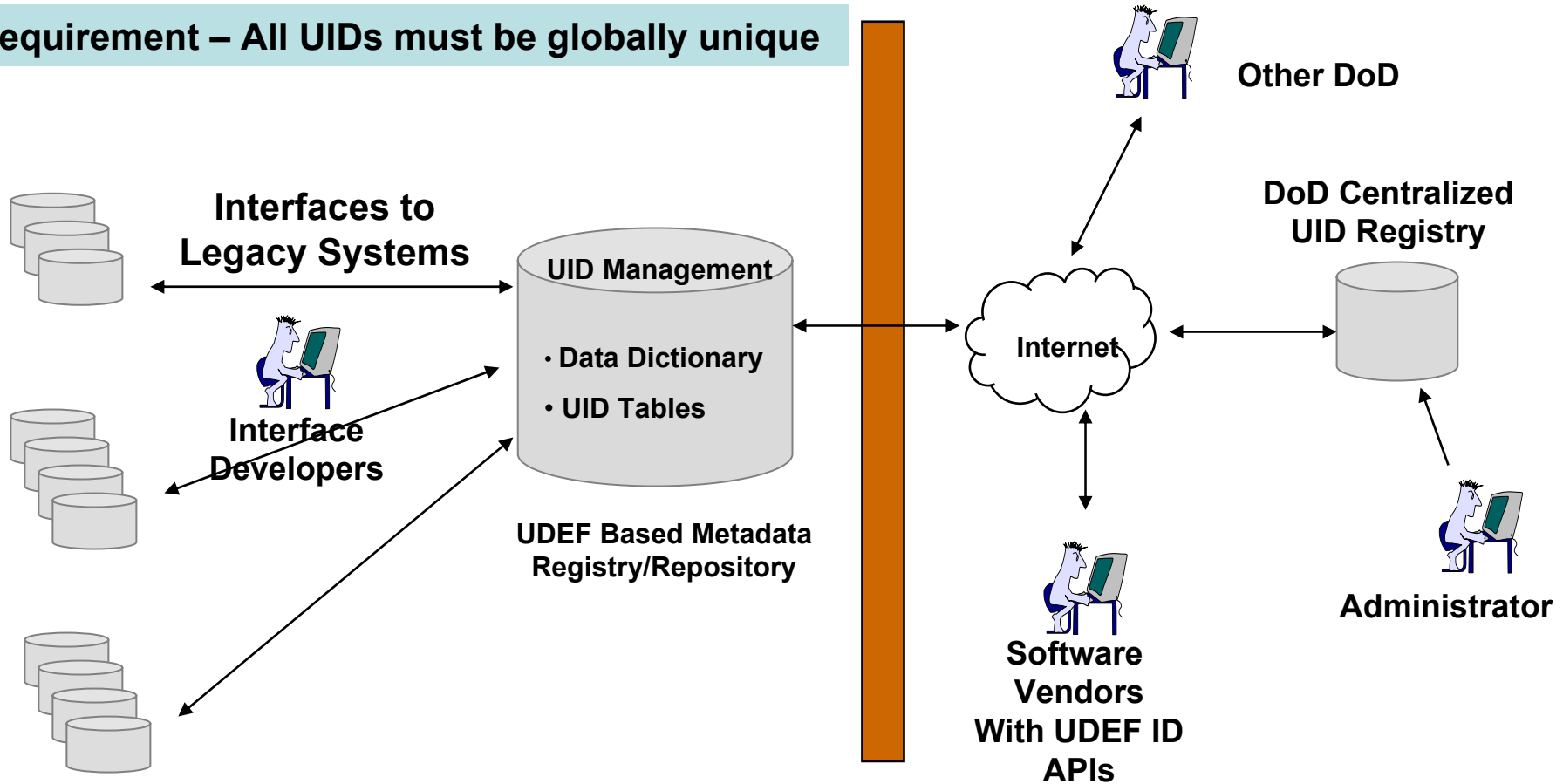
Which system manages the set of UIDs and associated item costs and will assure each UID is unique within each enterprise ID?



# The Problem at 50,000 Feet



Requirement – All UIDs must be globally unique



Who Builds and Maintains the Centralized UID Management System



# UDEP's Potential Role



**The UDEF can potentially reduce implementation costs:**

- **UDEP IDs contain additional metadata pertinent to the UID. For example:**
  - **Manufacturer Enterprise Defense Logistics Agency Assigned Identifier -- ah.3\_6.35.8**
  - **Part Product Identifier -- g.9\_8**
  - **Product Manufacturer Sequential Tracking Identifier -- 9\_4.1.32.8**
  - **Product Globally Unique Identifier -- 9\_54.8**
- **UDEP IDs could leverage the automated compare Web service**
- **UDEP is expected to be an integral part of any centralized metadata management strategy**



# Metadata Management and UDEF

