

IUID/SIM Implementation within the DoD Maintenance Enterprise

2008 MX Symposium



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DoD Maintenance Enterprise



~ 34,000 Vehicles



~ 800 Strategic Missiles

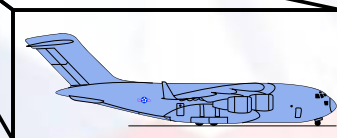


Maintained by:

- 650,000 DoD personnel
- Private sector companies



~ 280 Ships



~ 14,000 Aircraft/Helicopters

**Maintenance cost:
~ \$84 billion per year**

- + ~336,000 Tactical Vehicles
- + Communications/Electronics Equipment
- + Support Equipment
- + Other Systems

> 100M Candidate UID Parts

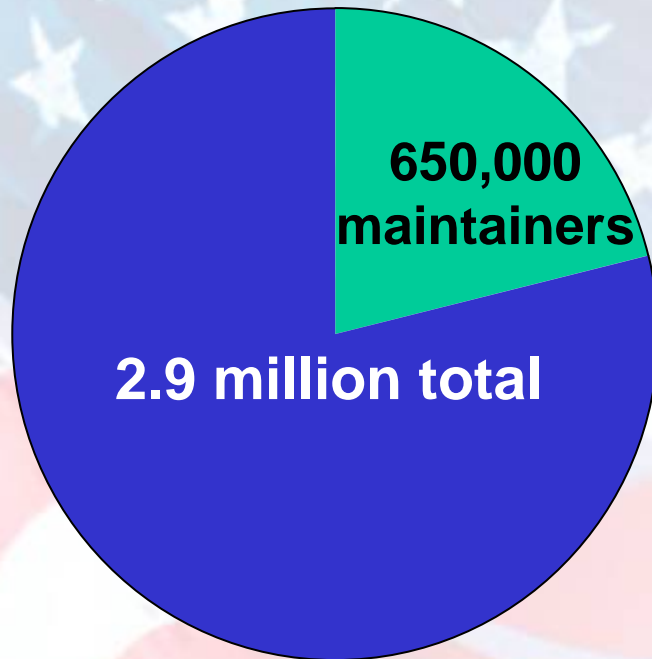
National Defense Inventory is valued at ~ \$345B



Maintenance Personnel & Budget

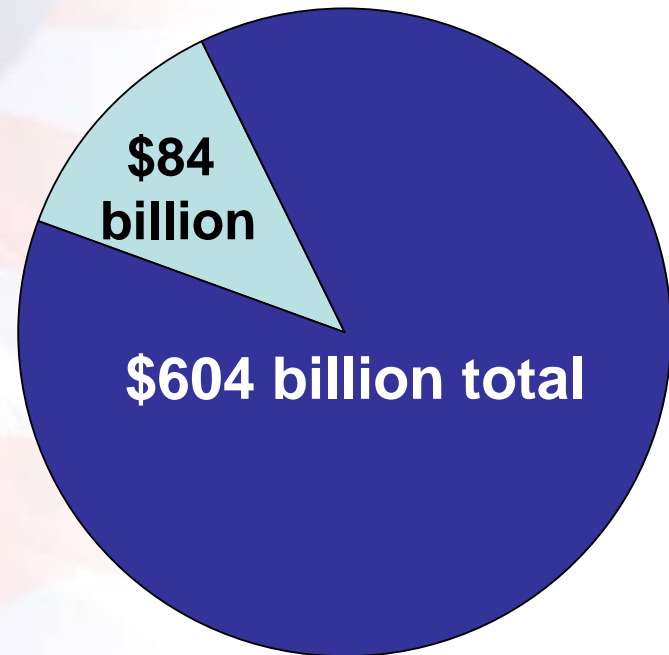


DoD Personnel



23% maintainers

DoD Budget



14% spent on maintenance

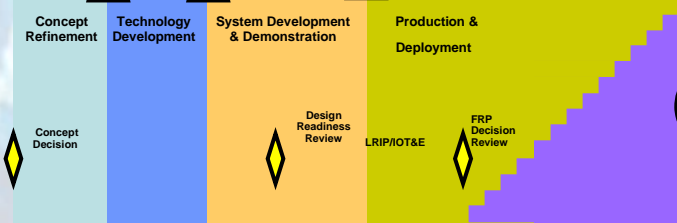
Sources: FY2007–FY2011 President's Budget and LMI analysis of Defense Manpower Data Center FY2007 data



Material Readiness Life Cycle Framework



Operations & Support



Pre-Systems Acquisition

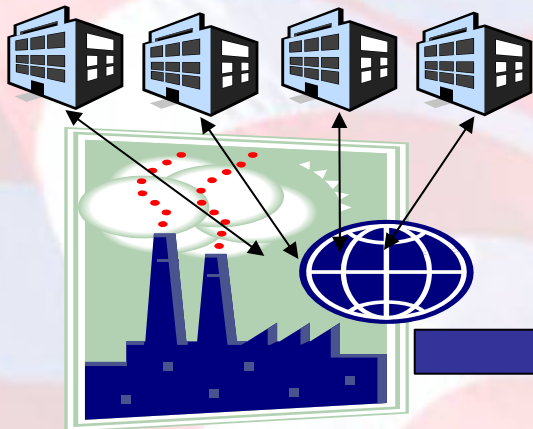
Systems Acquisition

Acquisition

Sustainment

65-80% of the Life Cycle Cost

Multiple Sources of Supply



Transformation



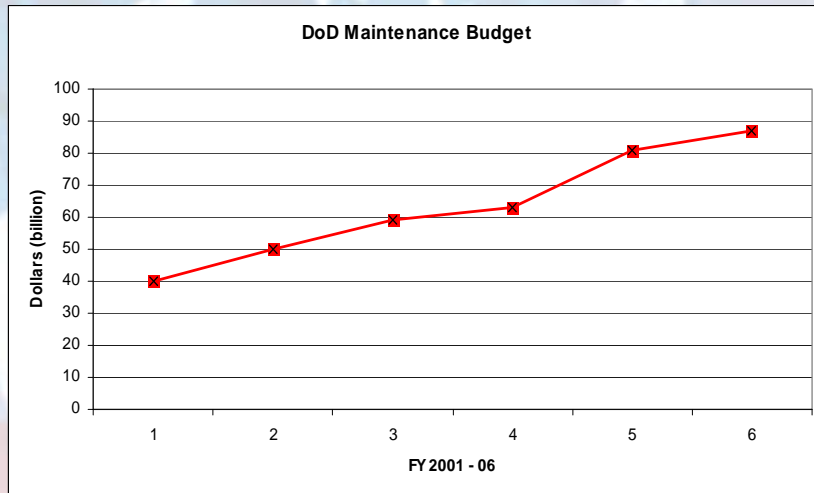
Sustaining the System

Ready Safe Assets with 24/7 Availability

- Reliability & Maintainability
- Affordable Weapon Systems
- Obsolescence/Tech Refresh
- Reduced Footprint
- Logistics Chain Reliability
- Logistics Chain Effectiveness
- Logistics Chain Cycle Time
- Retrograde Management
- Production Flexibility
- Supply Chain Agility



DoD Maintenance Trends



Maintenance costs are escalating:

- \$40 billion in FY-01 to \$84 billion in FY-07
- **25% increase in maintenance budget from FY-00 to FY-08**
(constant FY 08 dollars)



Maintenance Needs to Transform!



OSD Strategy:

- **Promote End-to-End (E2E) Materiel Readiness Value Chain Perspective across DoD**
 - **Balance Safety, Reliability, Maintenance and Supply Distribution activities to achieve optimal materiel readiness at best cost.**
 - **Optimize “TIME-ON-WING” and “TURN AROUND TIME”**

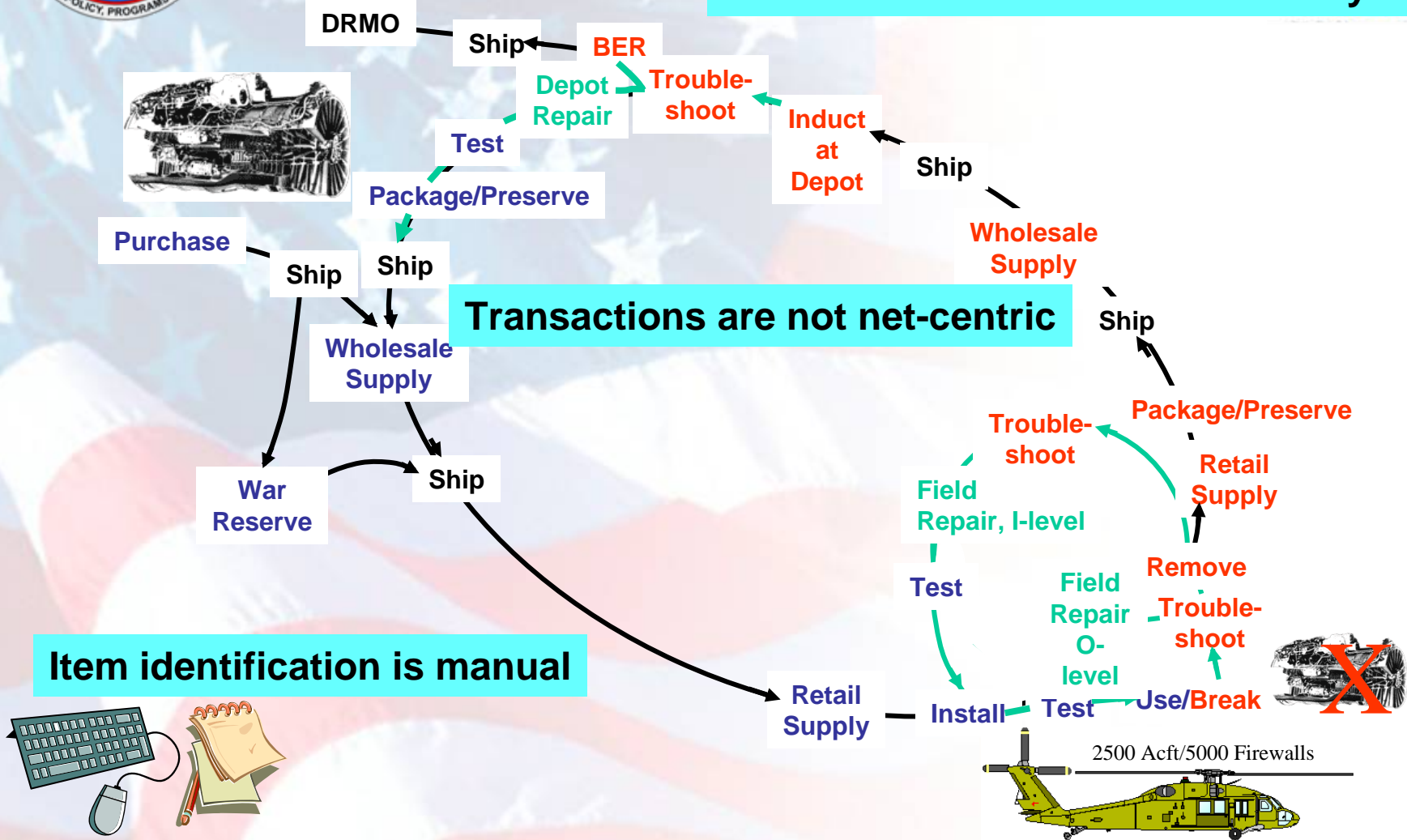
- **TLCISM**
 - **Sustain Optimal Materiel Condition & Reliability**
 - **Sustain Optimal Support Cost & Cycle Time**

$$\mathbf{I + T = M}$$

Property Transfer Dynamics



Items have to be identified at every step



Transactions are not net-centric

Item identification is manual



“Prime Movers”



Integrated Policy:

- DoDI 5000.2 - Life Cycle Acquisition/Support
- DoDI 4151.19 - Serialized Item Management
- DoDD 8320.03 - Unique Identification (UID) Standards for a Net-Centric Department of Defense
- DoDI 8320.04– IUID for Tangible Personal Property
- DAG/Supportability Guide/SEP/RAM

Requirements: CJCS 3170.01F)

- JROC approved sustainment KPP – Availability
 - 2 KSAs – Life Cycle Cost, Reliability

Governance/Oversight:

- DAB, DAES, MESC, GAO, BTA-IRB, IUID Scorecard



Begin via existing SNT systems



Current serial numbered tracked item quantities (~)

- > 3.8 million items for Army aviation
- > 7 million NAVAIR
- 1.2 million DDG-51 class (potential end state 21.7 million)
- 12.2 million items for USAF
- > 144K Strategic weapon systems (submarine based)

24.3 million

UIT (small arms, sensitive items) not included



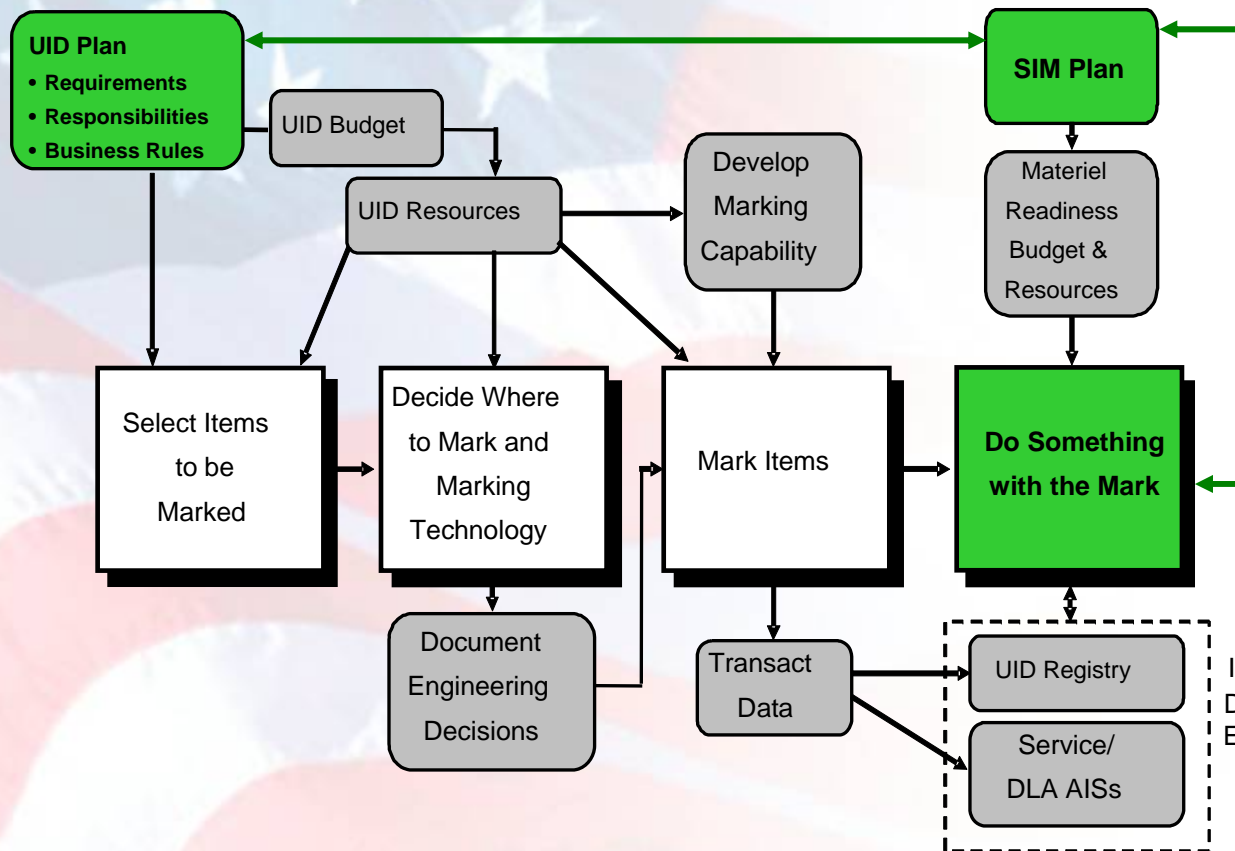
The Need to Transform SNT

- **Current Service SNT programs have recognized the need to increase the number of components to be tracked and the criticality of AIS transformation.**
 - USAF SNT BCA - Feb 04
 - SNT Program Analysis Feb 2003
- **CH-47 transition from current practices to UID enabled SIM**
 - 2410 currently supports approximately 280 items
 - TLCSM analysis identified approximately 1100 UID items to be tracked
 - Current management system cannot support this four fold increase in component visibility
- **SNT programs are based on paper paradigms.**
 - Need to exploit technology implementations
 - Needs to become the driver of integrated enterprise materiel readiness and availability processes.



Implementation Pathway

DO SOMETHING WITH THE DATA!



SIM is the Target!

Design

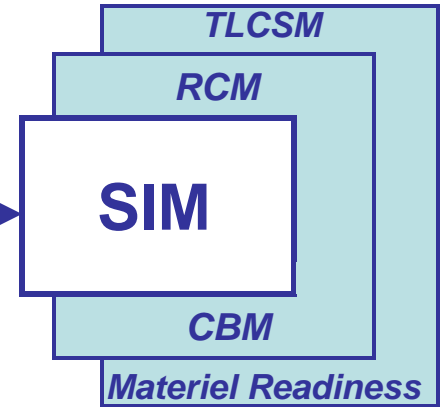
Manufacturing

Procurement

Maintenance

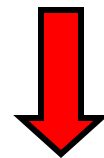
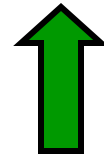
Logistics

ATTRIBUTES



Readiness,
Reliability,
Safety

Ownership
Cost



Machine Readable Code (MRC)



Item Unique Identification (IUID)



Strategic Asset Visibility & Accountability



Serialized item Management (SIM)



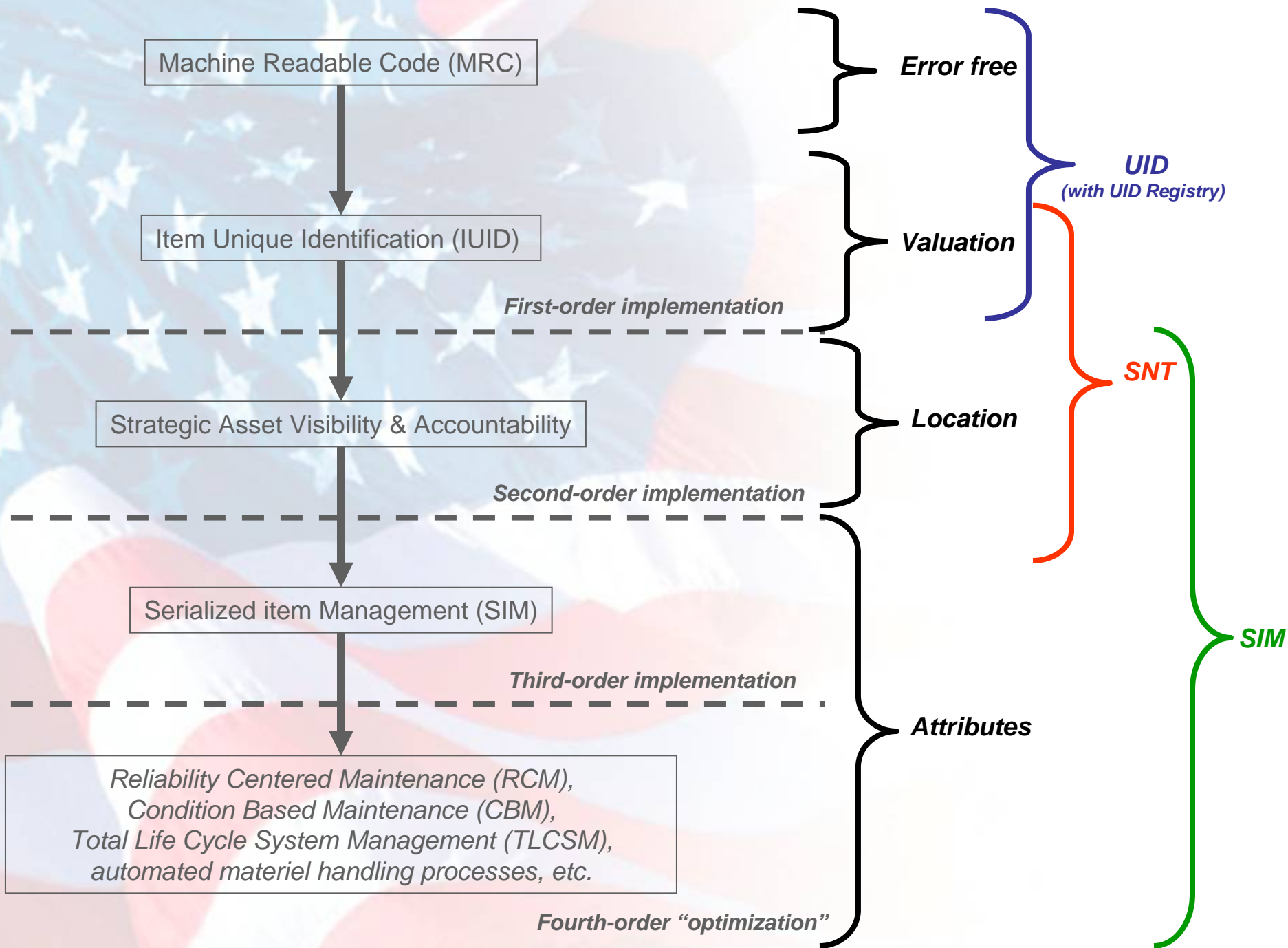
*Reliability Centered Maintenance (RCM),
Condition Based Maintenance (CBM),
Total Life Cycle System Management (TLCSM),
automated materiel handling processes, etc.*

First-order implementation

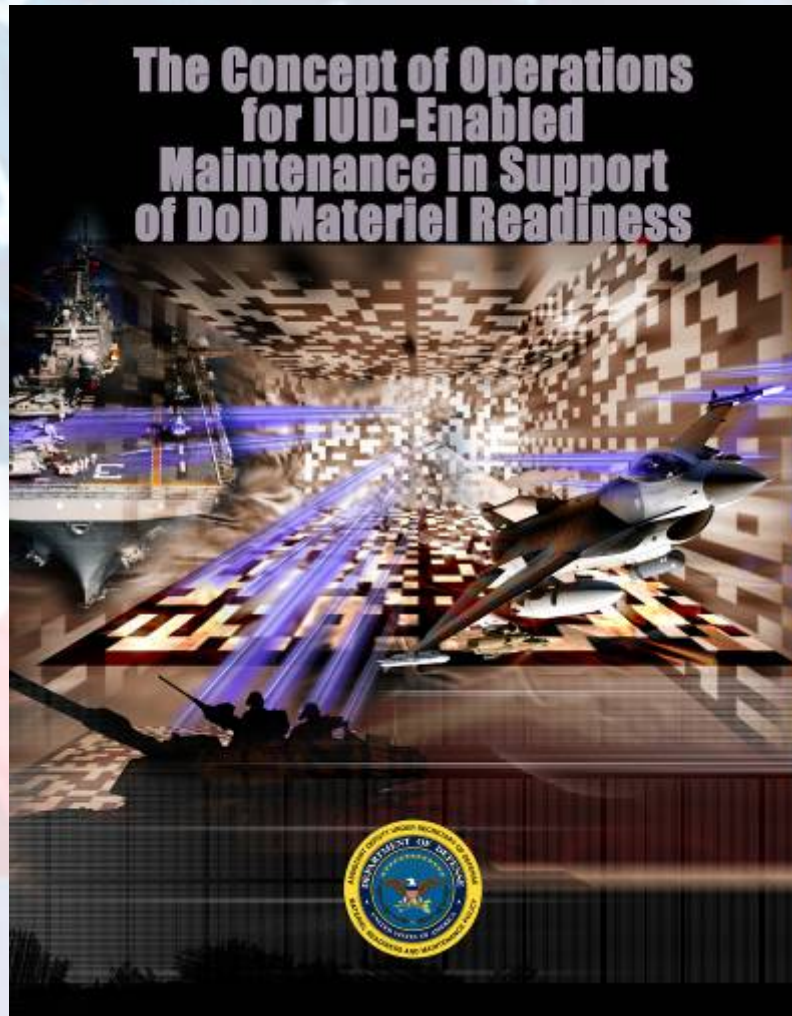
Second-order implementation

Third-order implementation

Fourth-order "optimization"



How can IUID work in “End-to-End” processes?



- ✓ Describes the operational functions and processes of an “end-state” vision for a fully IUID-enabled automated maintenance environment from a users perspective
- ✓ Provides an implementation bridge for the advancement of new information processes between depot, field-level, weapon system, engineering, and item management systems for improved materiel readiness
- ✓ Provides guidance for effective implementation planning

IUID Implementation Planning Template for DoD Maintenance Depots

**Item-Unique Identification
Implementation Planning
Template
for
DoD Maintenance Depots**



November 2006

Prepared by the Office of the Secretary of Defense
Materiel Readiness and Maintenance Policy

Depot FOC is defined by achieving the *outcomes* of a 3 phase approach that establishes:

- 1. Depot IUID processes and associated doctrine.**
- 2. Capability to uniquely identify and mark items using DoD sanctioned serialization schemas and parts marking techniques (plates, labels, DPM)**
- 3. Capability to automatically capture, modify, and query UID data in a local database and to transmit that data to a DoD centralized registry.**

Describes organized steps to plan and successfully execute implementation to achieve outcomes



Results of IUID-enabled SIM



- DoD weapon system sustainment managers will have **dramatically improved insight into the cause-and-effect relationship between resources and readiness.**
- Capitalizing on this insight, weapon system support **decisions will both be more informed and take less time.**
- **Data-driven continuous process improvement (CPI)** initiatives will be institutionalized, enabling the effective management of materiel reliability, materiel repair/replacement cycle time, and materiel sustainment cost **performance-to-plan.**
- Overall **material readiness will be higher**, and overall weapon system **life-cycle cost will be lower.**
- Fully automated maintenance management (**unburdens the maintainer**)

The “Take-aways”

- Service SIM Plans are required
- SIM implementation is dependent upon IUID and an effective strategic asset tracking & locating capability
 - Expand upon IUID Plans and SNT Programs
- Alignment between Command, PMOs, Maintenance, and Supply is required to effectively implement IUID-enabled SIM!



Online Resources

- UID Website
 - <http://www.acq.osd.mil/dpap/uid>
- IUID Toolkit
 - <http://www.iuidtoolkit.com>
 - Four tracks: PMs, Suppliers, Depot, Warfighter
- DAU UID Special Interest Area
 - Within Acquisition Community Connection
https://acc.dau.mil/simplify/ev.php?ID=18058_201&ID2=DO_TOPIC
- MR&MP (Maintenance IUID CONOPS & Depot Implementation Guide/Template)
 - http://www.acq.osd.mil/log/mrmp/UID_maintenance.htm



Questions?