

Implementing Item Unique Identification (IUID) Into Maintenance and Materiel Readiness Processes

DoD Maintenance Symposium



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Session Objectives

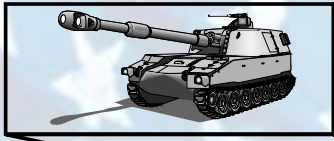
Describe the purpose of IUID within maintenance processes in order to achieve the OSD goal of optimized readiness.

Session presenters will:

- *Discuss the impetus for IUID implementation*
- *Identify and describe the relevant policies and events for implementing IUID into the DoD maintenance environment.*
- *Discuss the “art of the possible” using IUID-enabled SIM*
- *Discuss the military services implementation strategies, successes, and associated challenges*

The DoD Maintenance Enterprise

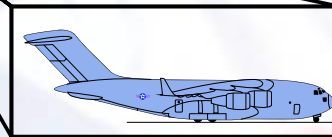
~ 330,000 Vehicles



~800 Strategic Missiles



~ 280 Ships



~ 14,000 Aircraft/Helicopters

- + Communications/Electronics Equipment
- + Support Equipment
- + Other Systems

Maintained by:

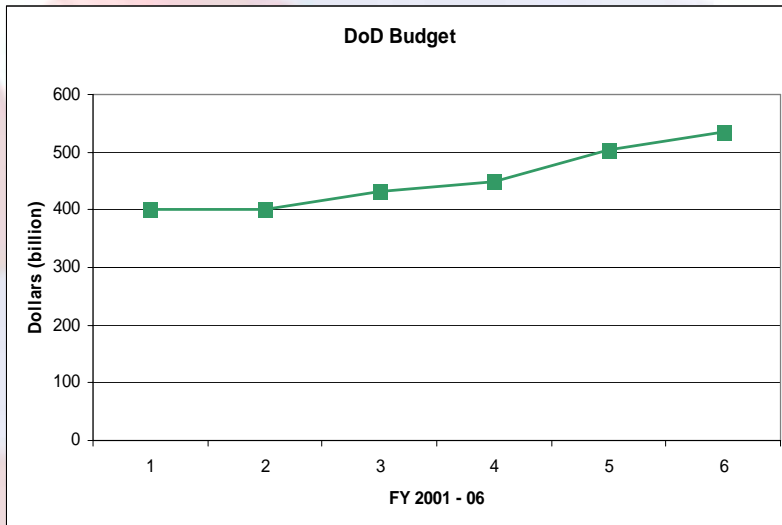
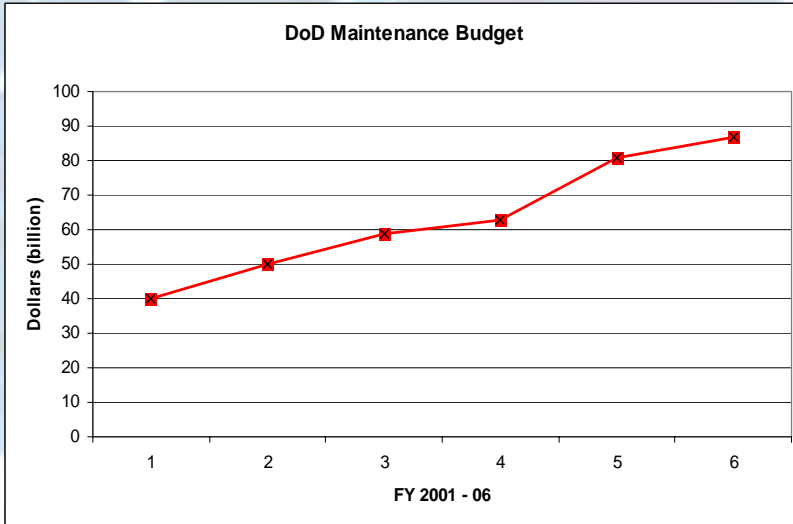
- 654,000 DoD personnel
- Private sector companies

***Maintenance cost:
~ \$81 billion per year***

> 100M Candidate UID Parts

National Defense Inventory is valued at ~ \$345B

DoD Maintenance Cost Trends



Maintenance costs are escalating!

- **\$40** billion in FY-01 to **\$87** billion in FY-06
- **25% increase in maintenance budget from FY-01 to FY-08**
(constant FY 08 dollars)

Maintenance is increasing as a percentage of the total DoD budget!

- **14%** in FY-03 to **16 %** in FY-06

Materiel Readiness Life Cycle Framework



**Sustainment is
65 - 80%
of the Life Cycle Cost**

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”**
- **Total Life Cycle System Management (TLCSM)**
 - **Sustain Optimal Materiel Condition & Reliability**
 - **Sustain Optimal Support Cost & Cycle Time**

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

UID is a DoD Strategic Imperative

UID is strategically critical to:

- Always know what property the DoD owns
 - Definitely know what it is
- Always be able to account for it
 - Know **where** it is
 - Know **who** has custody of it
 - Know **who** is accountable for it
 - Know **how** it has been **used & maintained**
 - Know what it cost
 - Know its current value

UID PROGRAM

SIM

- And use this information to:
 - Enable capability-based **readiness**
 - Support planning, forecasting, and budgeting
 - Identify gaps in capabilities
 - **Improve reliability** and warranty management
 - Streamline logistics processes
 - **Reduce cycle time**

SIM as a Requirement

Based on DoD Directive 4151.18 stating the use of SIM (para 3.2.5)

Dec 2006, DODI 4151.19 *Serialized Item Management (SIM) for Materiel Maintenance is issued*

- 1.1. **Identify** populations of select items (parts, components, and end items).
- 1.2. **Mark** all items in each population with a unique item identifier (UII).
- 1.3. **Generate, collect, and analyze** maintenance, logistics, and usage data about each specific item.

IUID-enabled Serialized Item Management (SIM)

DoD Maintenance Symposium



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SIM: Managing Unique Attributes

- Essentially SIM is the ability to characterize uniquely identified items by their specific and unique attributes for the purposes of improving/optimizing materiel readiness.
- Attributes can be any quantifiable measure of performance, time, space, composition, environment, pedigree, cost, or any other definable data such as historical, contractual, and ownership information associations.

Design

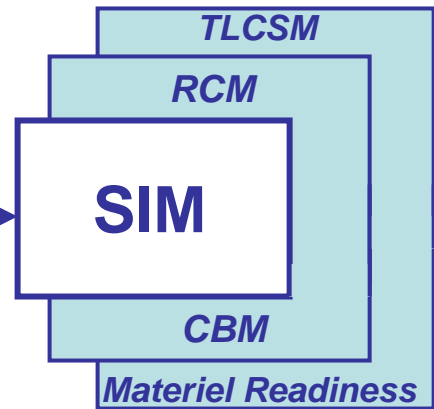
Manufacturing

Procurement

Maintenance

Other relevant logistics functions

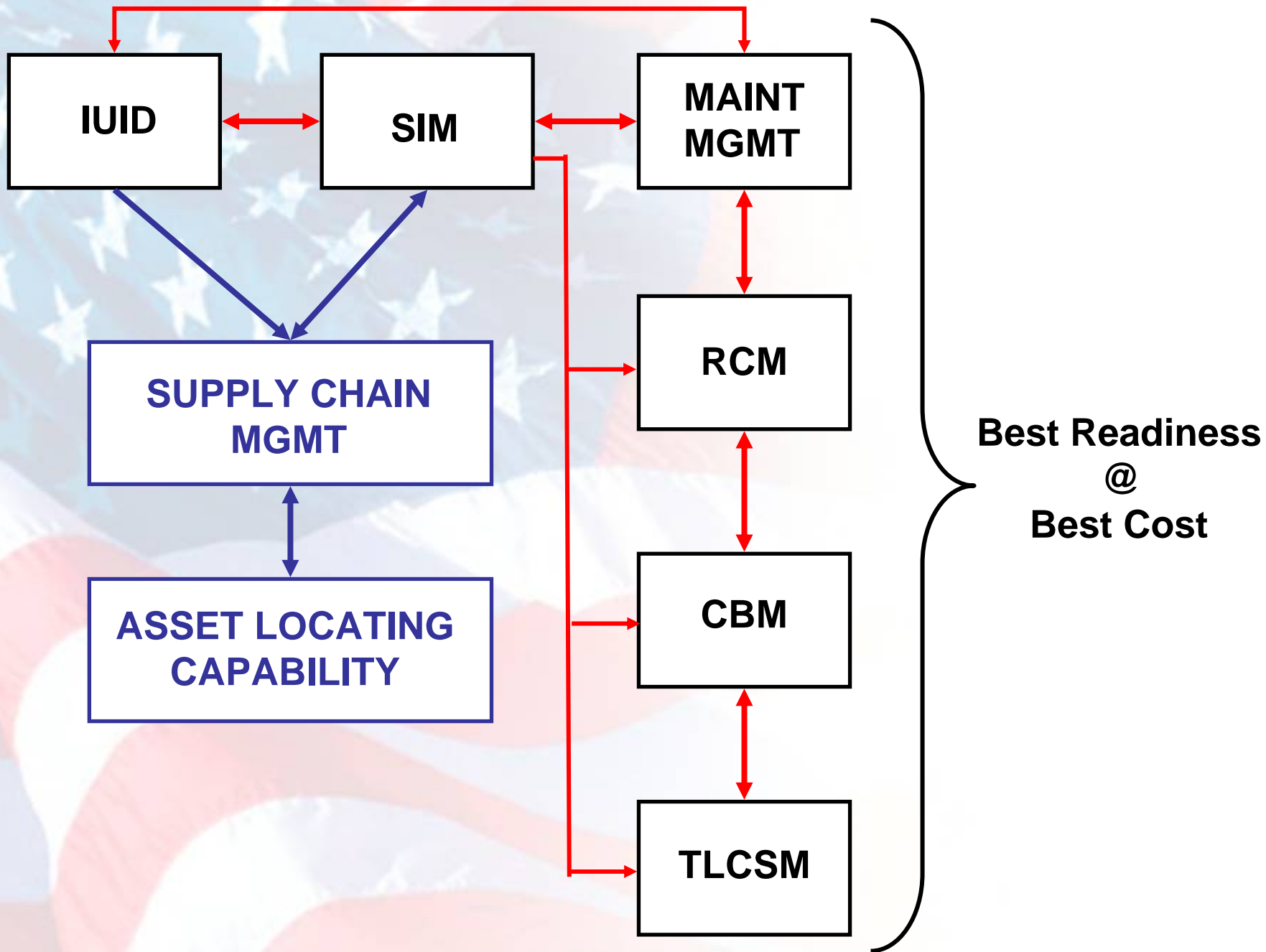
ATTRIBUTES



**Readiness,
Reliability,
Safety**

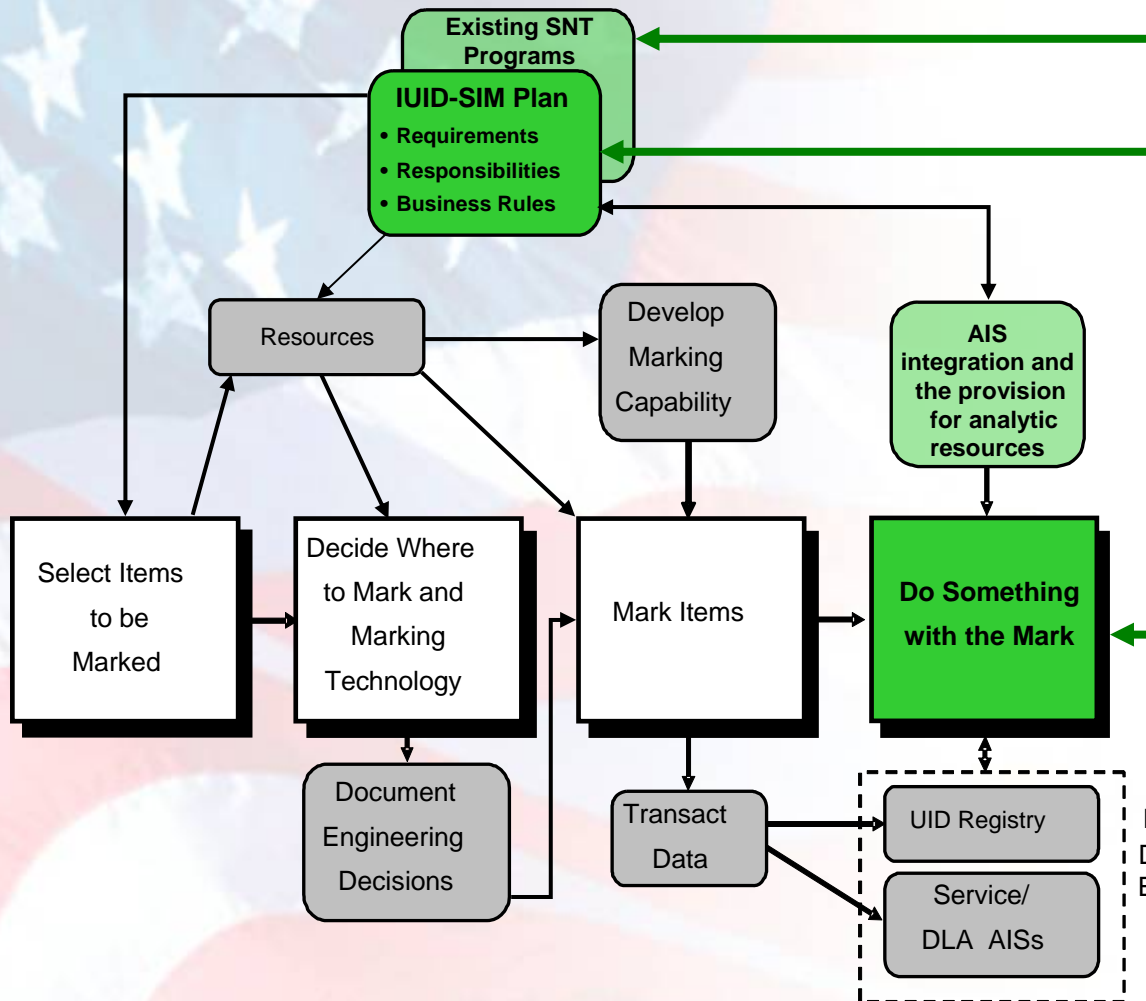


**Ownership
Cost**



Revised Implementation Pathway

DO SOMETHING WITH THE DATA!



Machine Readable Code (MRC)

Item Unique Identification (IUID)

Strategic Asset Visibility & Accountability

Serialized item Management (SIM)

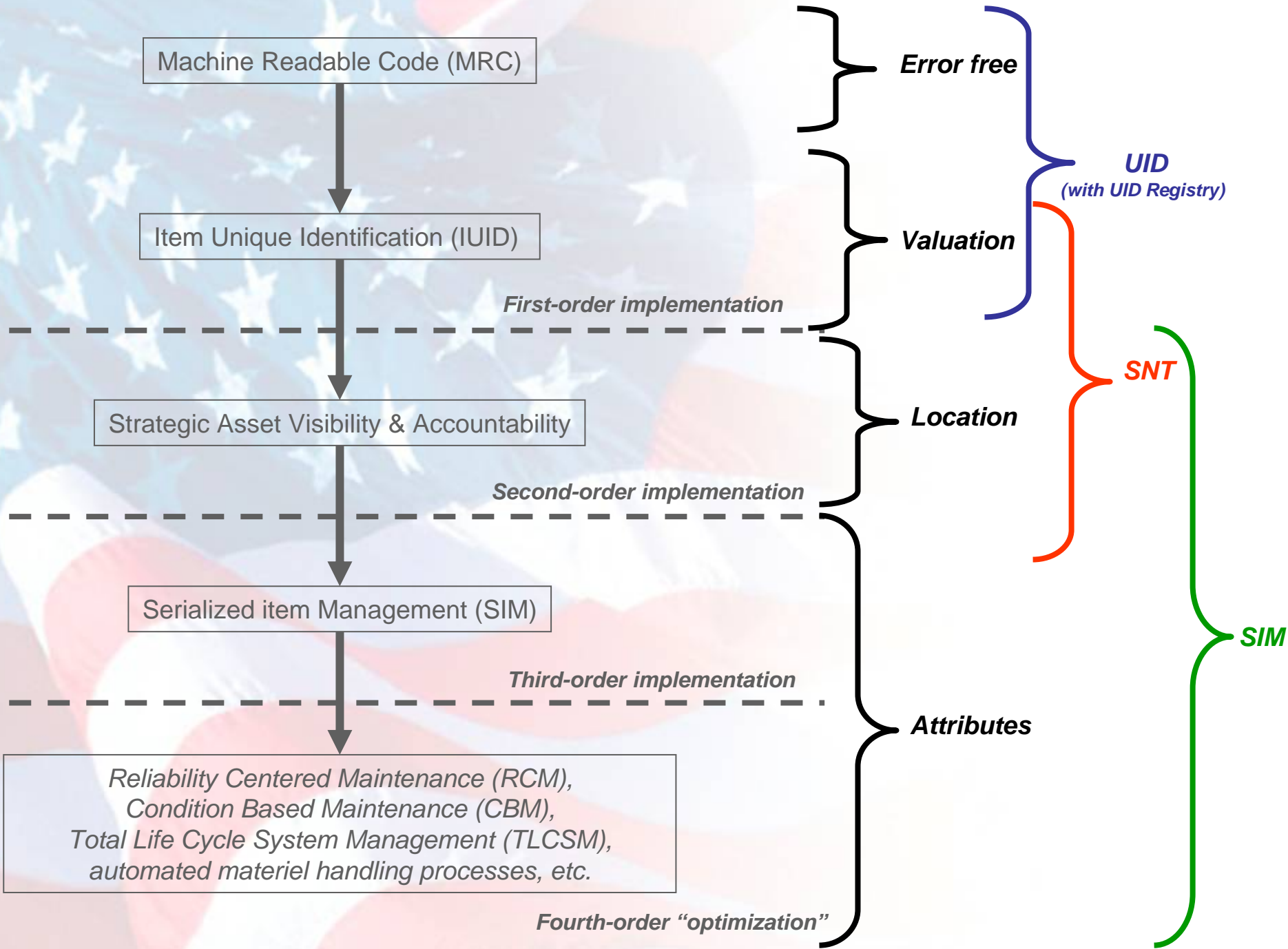
*Reliability Centered Maintenance (RCM),
Condition Based Maintenance (CBM),
Total Life Cycle System Management (TLCSM),
automated materiel handling processes, etc.*

First-order implementation

Second-order implementation

Third-order implementation

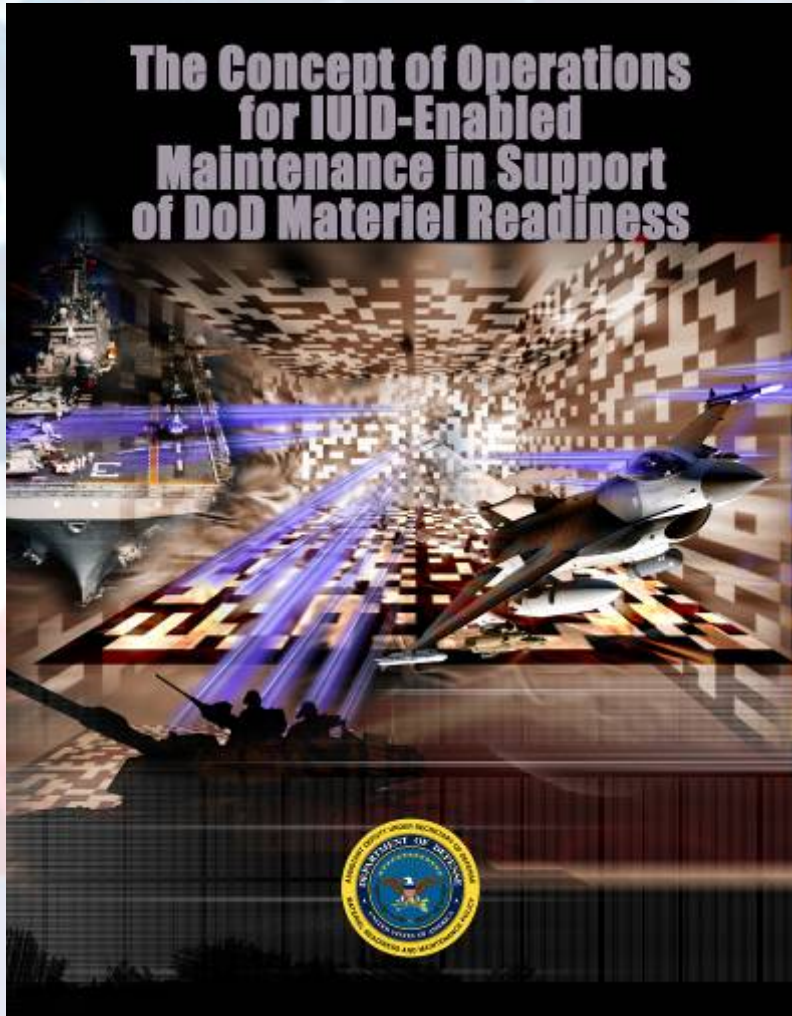
Fourth-order "optimization"



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, increases productivity**)

How can IUID-SIM 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

SIM Implementation

6.2. Military Departments and Defense Agencies will identify populations of select uniquely identified items to track and manage within their maintenance SIM programs. Selection of these populations shall be based on the magnitude of potential benefits to DoD maintenance operations.

SIM programs will be designed and operated to optimize end item availability while minimizing support costs by:

- Providing **rapid access to comprehensive and accurate information.**
- **Eliminating** manually-supported **paperwork**, **reducing job times**, **enhancing maintenance** task and personnel **scheduling**, and **optimize repair inventory.**
- **Reducing maintenance requirements** through better configuration management and item/select population life-cycle history information.
- Facilitating tracking of specific item performance to **support reliability analysis, warranty claims, and repair performance evaluation.**