The NATO Codification System as the Foundation for eOTD and
ISO Standards 22745 and 8000

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What is the NATO Codification System?

- A **common supply language that is computer sensible and can be used** throughout all logistic operations

- Language independence: Item identification and description can be stored and exchanged in an encoded format and output into the national language of the using country

- Enables **interoperability**

- Optimizes resource management by **minimizing duplication** in inventories

Cataloging = Codification

The NATO Codification System

Facilitates logistic **(co-)operation** by using a uniform and common system for:

Identification

Classification

Stock Numbering

of **items of supply**

The NATO Codification System

- Used officially by 63 countries around the world and translated into 19 languages

- Created for military use but principles can easily be applied to civilian industry and logistics operations

NCS Users: A Global Standard

NATO OTAN NAMSA

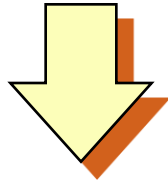ALBANIA BELGIUM BULGARIA CANADA CROATIA CZECH REPUBLIC DENMARK ESTONIA FRANCE

GERMANY GREECE HUNGARY ICELAND ITALY LATVIA LITHUANIA LUXEMBOURG NETHERLANDS

NORWAY POLAND PORTUGAL ROMANIA SLOVAKIA SLOVENIA SPAIN TURKEY UNITED KINGDOM USA

35 Sponsored Non-NATO nations :

8 Tier 2 :

AUSTRALIA AUSTRIA BRAZIL FINLAND KOREA REPUBLIC OF MALAYSIA NEW ZEALAND SINGAPORE

27 Tier 1 & 2 in preparation :

AFGHANISTAN ARGENTINA BOSNIA & HERZEGOVINA CHILE EGYPT GEORGIA INDIA INDONESIA ISRAEL KUWAIT

JAPAN MONTENEGRO MOROCCO OMAN PAPUA NEW GUINEA PHILIPPINES RUSSIAN FEDERATION SERBIA SAUDI ARABIA SOUTH AFRICA

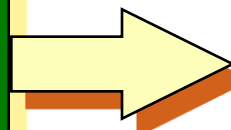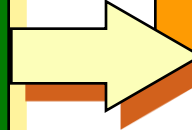SWEDEN THAILAND FYROM* TONGA UAE UKRAINE BRUNEI DARUSSALAM PAKISTAN JORDAN

A unique system of identification

Armed forces' interoperability

strict stock management
- *spare part control*
- *stock comparison*

OPERATIONAL EFFICIENCY
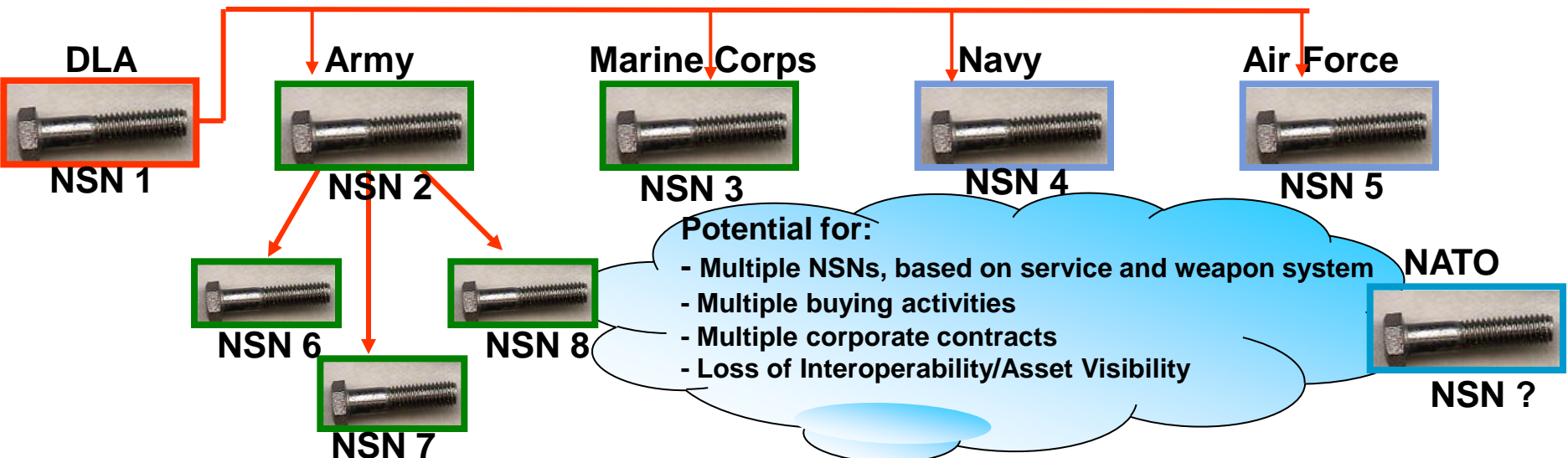
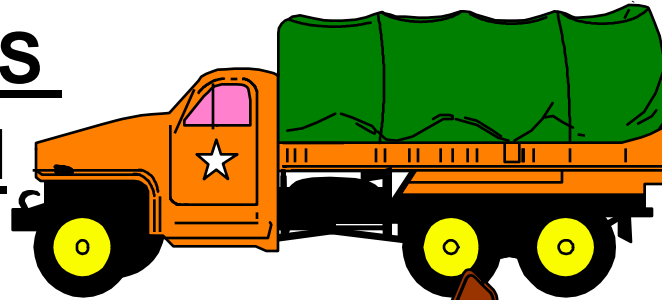**SUBSTANTIAL SAVINGS**

Why the NCS Was Created

DLA   NSN 1

ONE ITEM OF SUPPLY

SINGLE MANAGER

SINGLE NSN

Each military service uses their own logistics "language"

In The Days of WWII

DLA   Army   Marine Corps   Navy   Air Force

NSN 1   NSN 2   NSN 3   NSN 4   NSN 5

NSN 6   NSN 8

NSN 7

Potential for:
- Multiple NSNs, based on service and weapon system
- Multiple buying activities
- Multiple corporate contracts
- Loss of Interoperability/Asset Visibility

NATO

NSN ?

The NATO Stock Number

MANUFACTURERS IDENTIFICATION SYSTEM

USERS CODIFICATION SYSTEM

DUNLOP
11-00-20SPTGM

GOODYEAR TIRE CO
11-00-20SRLER

GOODYEAR FRANCE
11-00-20UNISRL

CUP SNC
1100R20GSRT4-16PR

NAVY
ARMY
AIR FORCE
OTHER
COUNTRIES

2610-14-3224604

Single NATO Stock Number

What Types of Items Are Assigned NSNs?

- All the spare parts that are needed to maintain planes, tanks, ships and other systems used by military forces

- Everything needed to support soldiers, sailors, airmen and marines, including uniforms, food, weapons, medical items and pharmaceuticals

- Everything needed to support the administration of defense departments and civilian agencies

- **The NCS incorporates a large percentage of all the manufactured items made in the world**
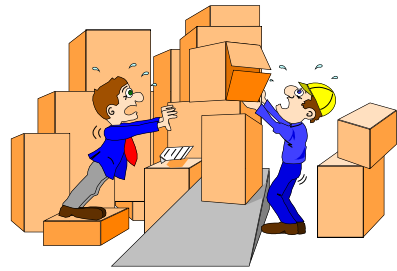
The Scope of the NCS

- More than 40,000 structured and defined Item Names

- More than 25,000 properties to describe items

- More than 150,000 property values to discriminate one item from another
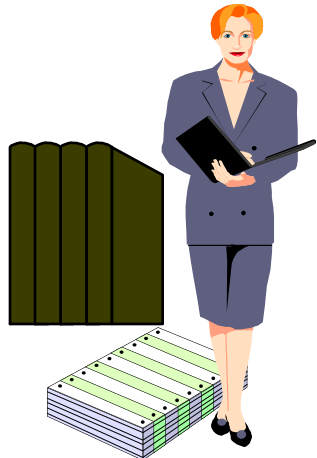
Benefits of the
NATO Codification System

BEFORE

More Inventory $+$ Multiple Procurements $+$ No Visibility of Assets Across Services $=$ Wasted Resources

- Standard Data Elements
- Item of Supply Concept
- Single Manager

AFTER

Less Inventory $+$ Consolidated Buys $+$ Sharing Of Assets $=$ More Effective Force

Result = Big Savings

Benefits of the NCS

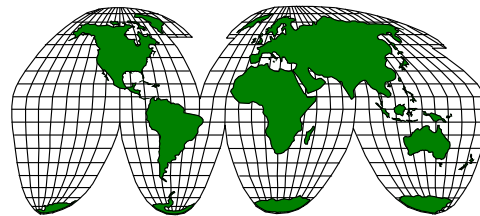- ## Operational

- ## Economic

- ## Flexibility

- ## Interoperability

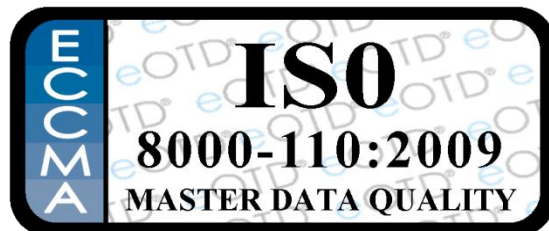**Relations With Industry**

Environment

NATO AC/135 and International Standards

- NATO Allied Committee 135 engaged with ISO and other standards organizations for the following reasons:
  - To automate the codification process
  - To improve the quality and availability of data
  - To help align the NCS with international standards
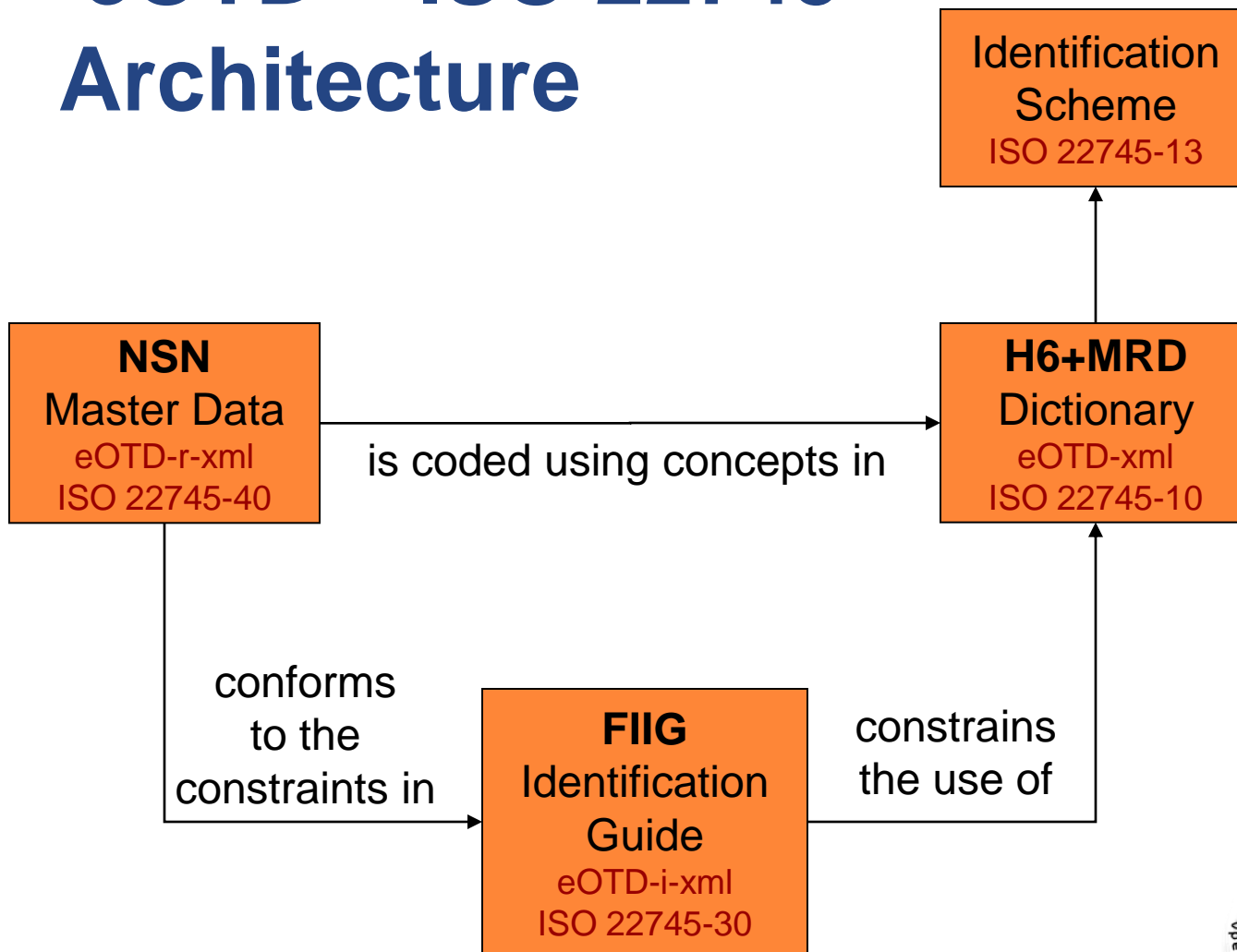 - To increase cooperation with industry

International Standards

- <u>ISO 22745</u> is a standard for master data based on the NATO Codification System (NCS) but designed for industry and incorporating a modern data architecture

- <u>ISO 8000</u> is a standard for measuring and certifying data quality

- ISO 22745 and 8000 are managed by ISO Technical Committee 184/Subcommittee 4 (Industrial Data)

NCS – eOTD – ISO 22745 Architecture

Identification Scheme
ISO 22745-13

NSN
Master Data
eOTD-r-xml
ISO 22745-40

is coded using concepts in

H6+MRD
Dictionary
eOTD-xml
ISO 22745-10

conforms to the constraints in

FIIG
Identification Guide
eOTD-i-xml
ISO 22745-30

constrains the use of

ECCMA
eOTD
Open Technical Dictionary

Common Terminology = Common Mapping

Machine Bolt; Product Number: 3225020037; Nominal thread diameter: 1.0 inches; Width across flats: 1.450 inches; Width across corners: 1.653 inches; Head height: 0.591 inches; Count per pack: 10; Pack price: $0.80

Rendered
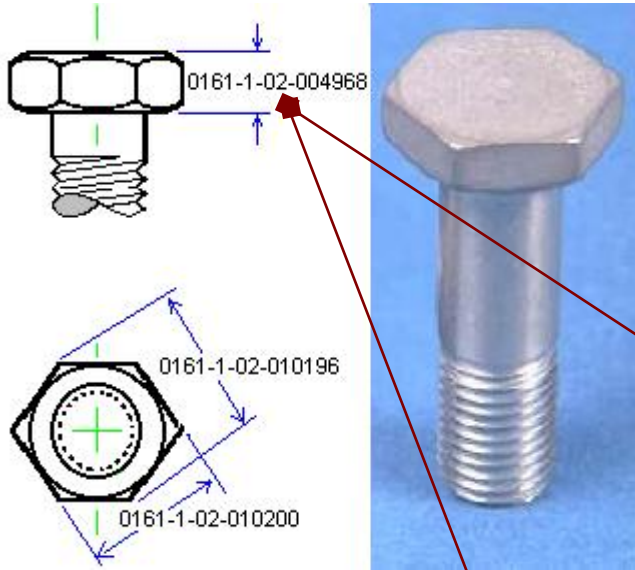
Property ID	Value	Measure ID
0161-1-02-046898	0161-1-07-014684	
0161-1-02-027375	3225020037	
0161-1-02-023822	1.0	0161-1-05-000798
0161-1-02-010200	1.450	0161-1-05-000798
0161-1-02-010196	1.653	0161-1-05-000798
0161-1-02-004968	0.591	0161-1-05-000798
0161-1-02-027376	10	
0161-1-02-027378	0.80	0161-1-08-000168

eOTD Coded

XML

Property term	Value	Measure term
eOTD CLASS NAME	BOLT:MECHANICAL	
PRODUCT NUMBER	3225020037	
NOMINAL THREAD DIAMETER	1.0	INCHES
WIDTH ACROSS FLATS	1.450	INCHES
WIDTH ACROSS CORNERS	1.653	INCHES
HEAD HEIGHT	0.591	INCHES
COUNT PER PACK	10	
PACK PRICE	0.80	US DOLLAR

Identifiers Resolved

eOTD

The NATO Stock Number
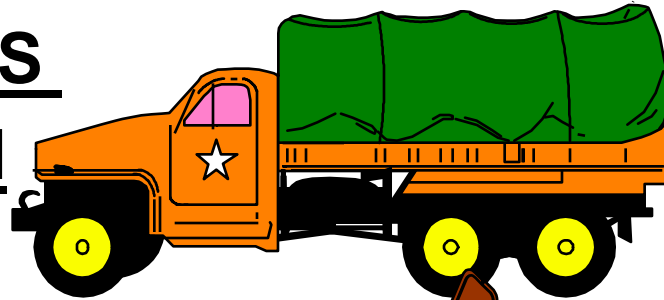
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CUP SNC
1100R20GSRT4-16PR

NAVY
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AIR FORCE
OTHER
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Single NATO Stock Number

Value for Industry

ACW COMMON CODING

ANGLO COAL

52368965412 – Tyre Bridgestone
435/95 R25

ANGLO BASE METALS

**56329845 – Tyre BS 435/R25 Standard
Purpose E3 2 Star Radial**

ANGLO PLATINUM

125435 – Bridge Stone 25inch 435/95

KUMBA RESOURCES

**965123465 – Tyre Bridgestone Part
Number 12345**

One Common Anglo Number

Standardised Long Description:
Tire: Pneumatic, Vehicular: Service Type for
Which Designed: Loader Tire Rim Nominal
Diameter: 25' Tire Width: 445mm Aspect Ratio:
0.95 Tire Ply Arrangement: Radial Ply
Rating: 2* Tire & Rim Association Number: E3
Tread Material: Standard Tire Air Retention
Method: Tubeless Tire Load Index and Speed
Symbol: NA Tread Pattern: VHB TKPH
Rating: 80

Standardised Short Description:
Tire Pneumatic: Loader 25' 445mm 0.95 2*

**The eOTD is a foundation for design collaboration and industry standards**.

ISO 22745 and the eOTD are the foundational enablers for the breakthrough our industry needs in the next generation of direct, accurate, and effective collaboration across the supply chain at meaningful and granular levels of data exchange never before imagined.

Alton Sanders
Senior Manager,
IDS Engineering Standards Control Function

PW Knowledge and Reuse Management (KARMA)
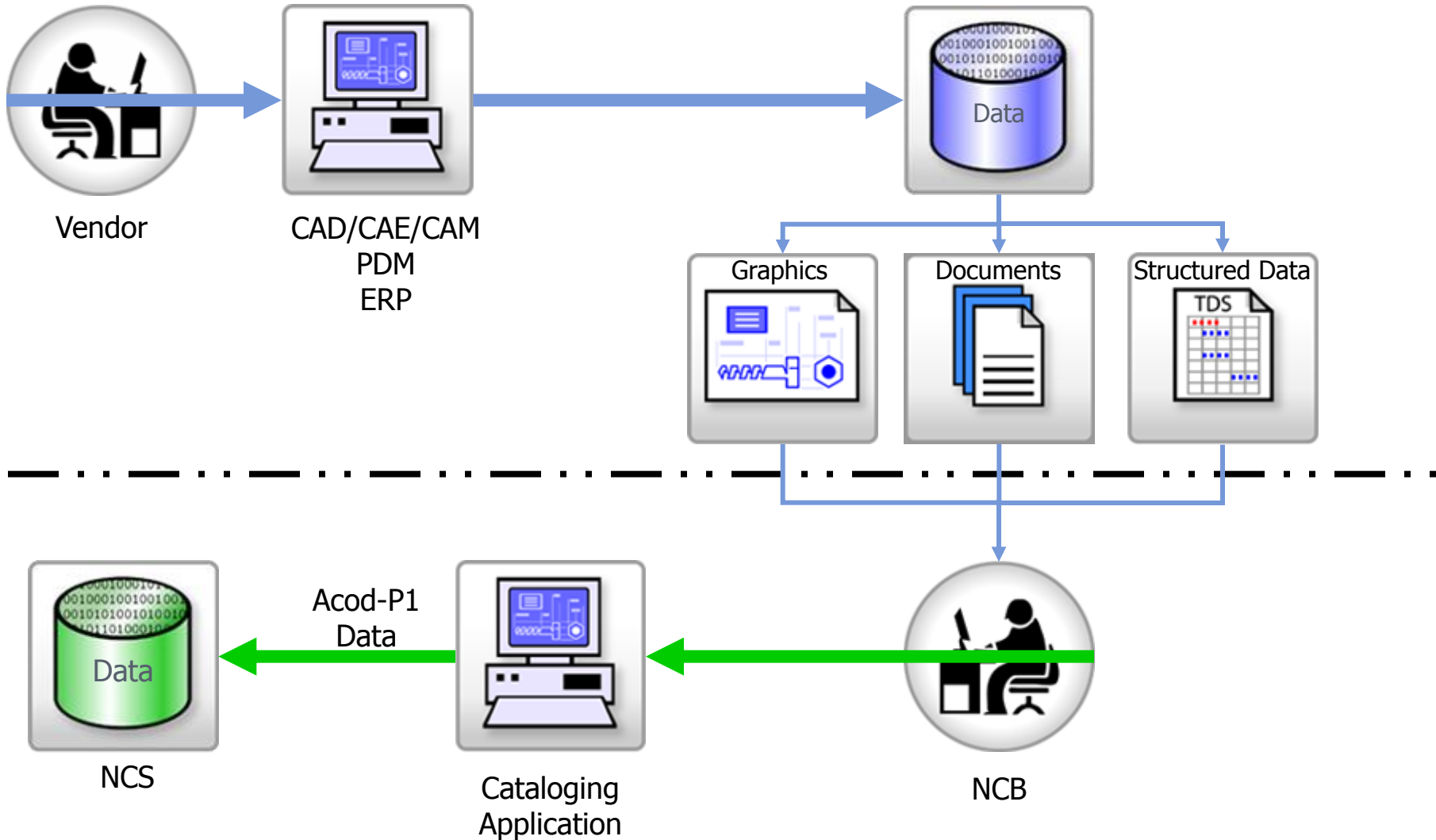
ISO 22745: Automation of Cataloging

○ Mapping Catalog Data from Source Data
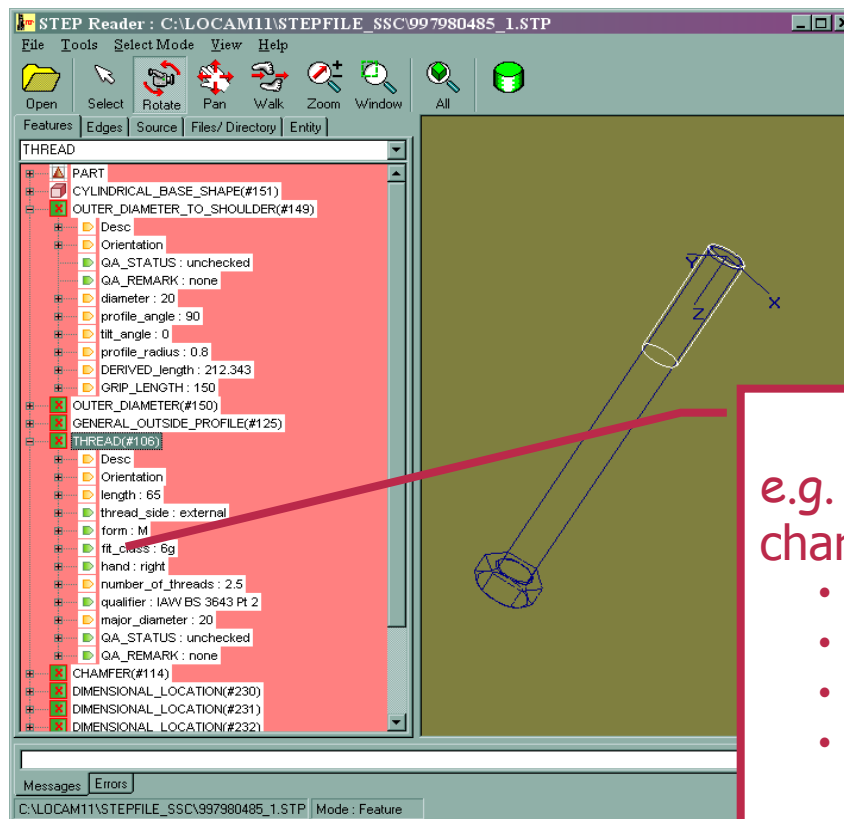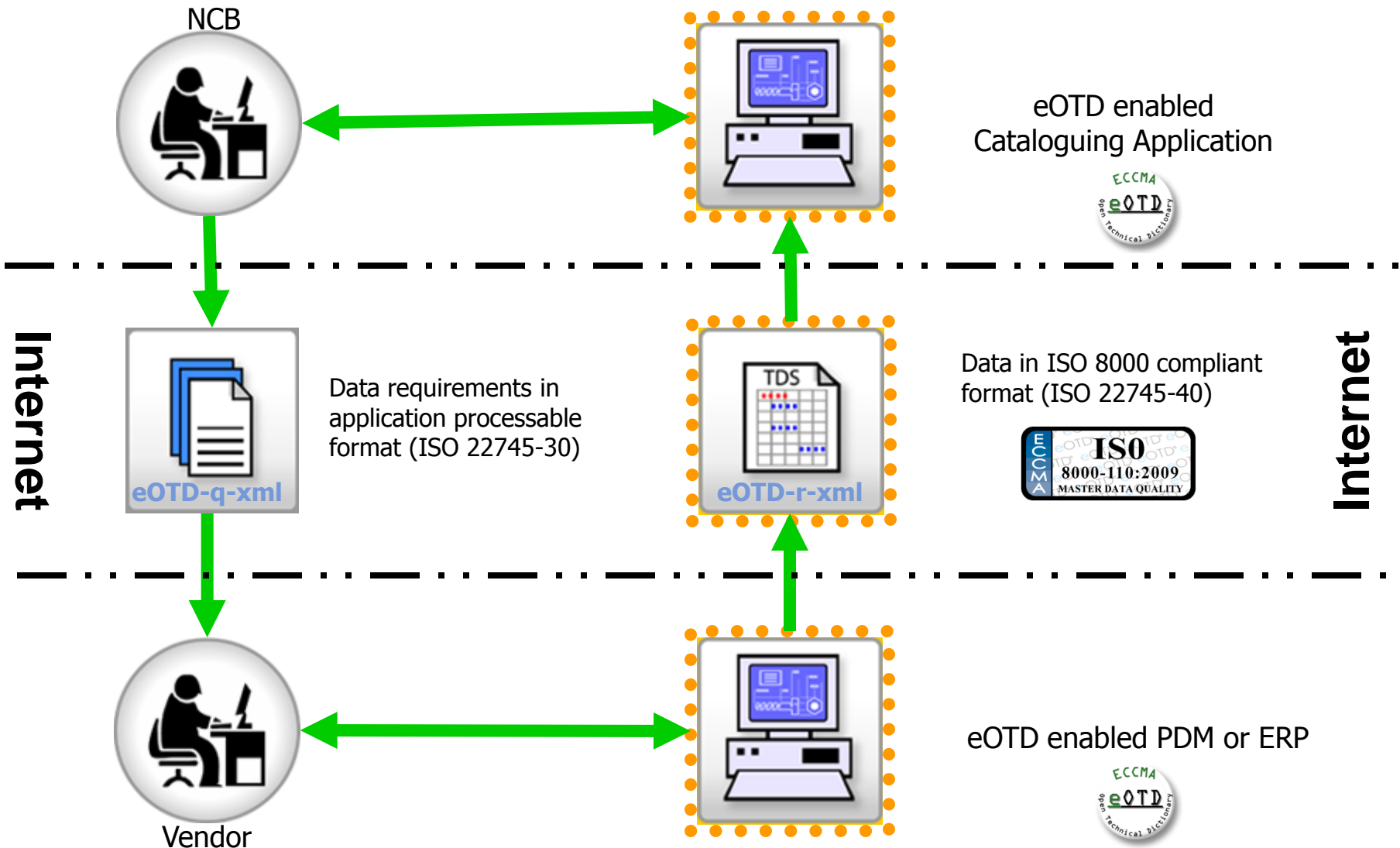

features

e.g. thread
characteristics including
  • length (65 mm)
  • form (ISO M)
  • class (6G)
 • diameter (20 mm)

NATO Codification System
as is

Vendor

CAD/CAE/CAM
PDM
ERP

Data

Graphics

Documents

Structured Data

TDS

NCS

Data

Acod-P1
Data

Cataloging
Application

NCB

NATO Codification System
to be

Faster - Better - Cheaper

NCB

eOTD enabled
Cataloguing Application

Internet

Data requirements in
application processable
format (ISO 22745-30)

eOTD-q-xml

Data in ISO 8000 compliant
format (ISO 22745-40)

eOTD-r-xml

Internet

TDS

ISO
8000-110:2009
MASTER DATA QUALITY

Vendor

eOTD enabled PDM or ERP

Automated Cataloging

ISO 8000-110:2008 CERTIFICATION IDENTIFIES A BUYER, ITEM MANAGER OR USER, AS THE <u>DATA REQUESTOR</u> AND A SUPPLIER OR MANUFACTURER AS THE <u>DATA PROVIDER</u>
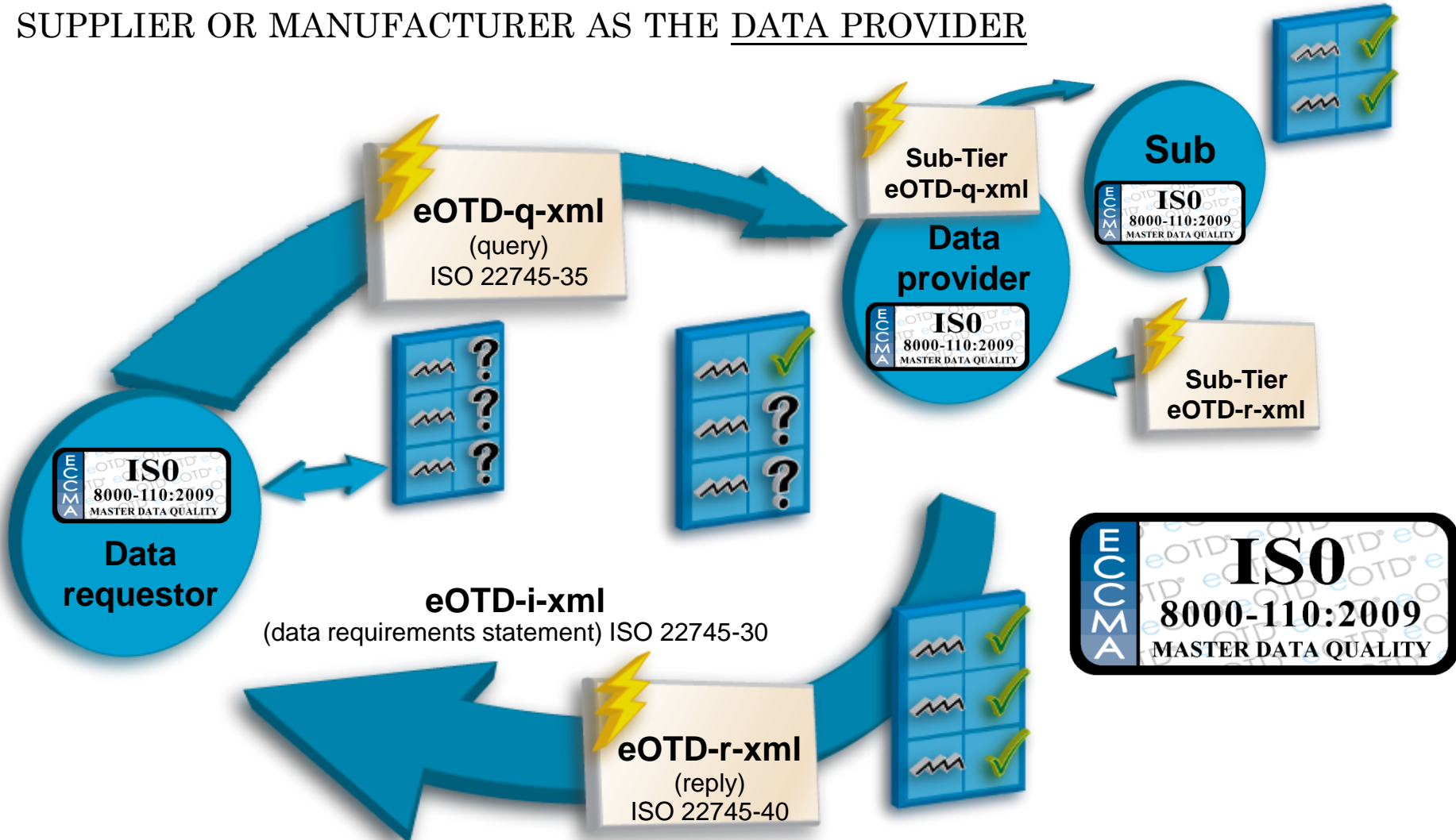
AC/135 Pilot Projects

- AC/135 has undertaken several projects to test the feasibility of using 22745 and 8000 to facilitate automated cataloging

- Those projects comprise the Smart STEP Codification (now Supplier Sourced Codification) series

- Partners have included ECCMA, Patria, BAE, and Rockwell Automation

Benefits of ISO 22745 for Government

- Opportunities for improvement of NATO/DLIS system through increased industry participation

- Promotes NCS approach as an ISO standard

- Faster access to better industrial data

Goal: Electronic transfer of characteristic data from our suppliers and manufacturers to NCBs
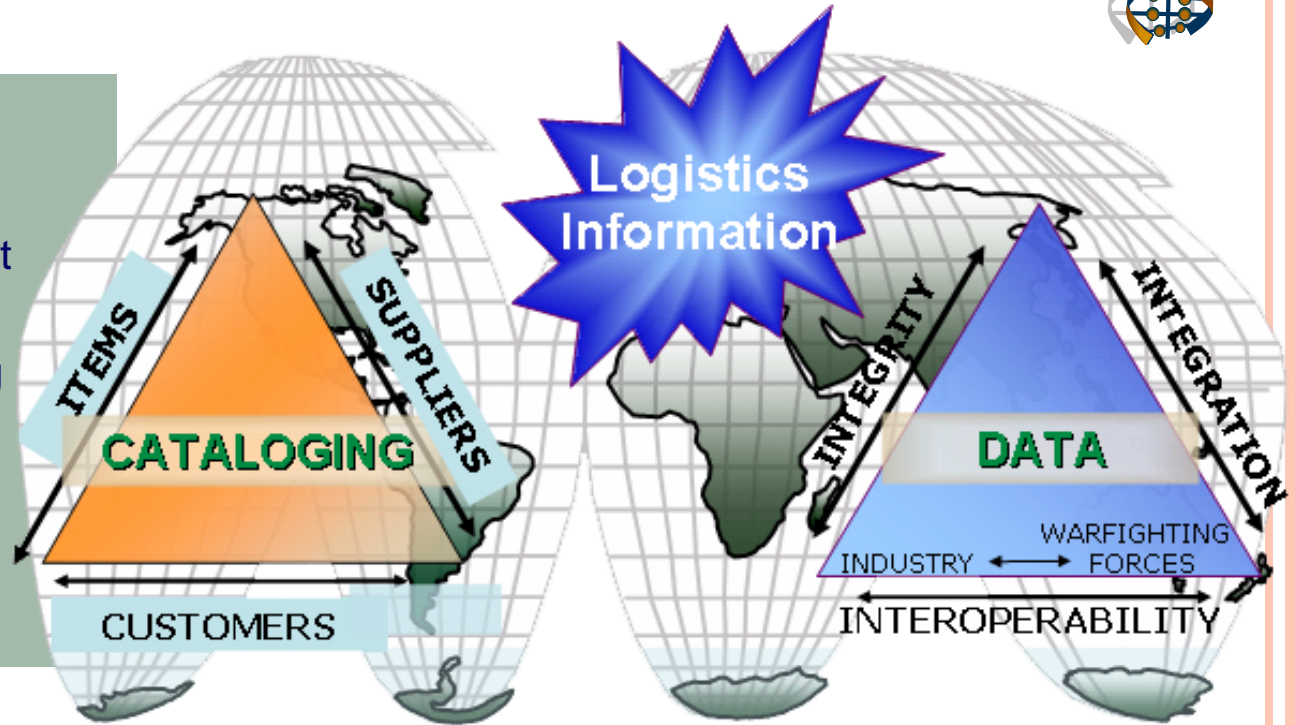

ISO — International Organization for Standardization

Data is the DNA

Data is the DNA of materiel management

- Acquisition
- Financial management
- Hazardous material
- Freight and packaging
- Maintenance
- Sustainability
- Disposal
- Demilitarization

ITEMS
SUPPLIERS
CATALOGING
CUSTOMERS

Logistics Information

INTEGRITY
INTEGRATION
DATA
INDUSTRY — WARFIGHTING FORCES
INTEROPERABILITY

Development

In-Storage

In-Transit

In-Theater

Disposal

NSN

UID

RFID

The NATO Codification System

The Bridge to Interoperability

NATO Allied Committee 135: www.nato.int/codification