# Geo-enable the Business Enterprise Architecture

## Geographic Approach for Enterprise Architecture

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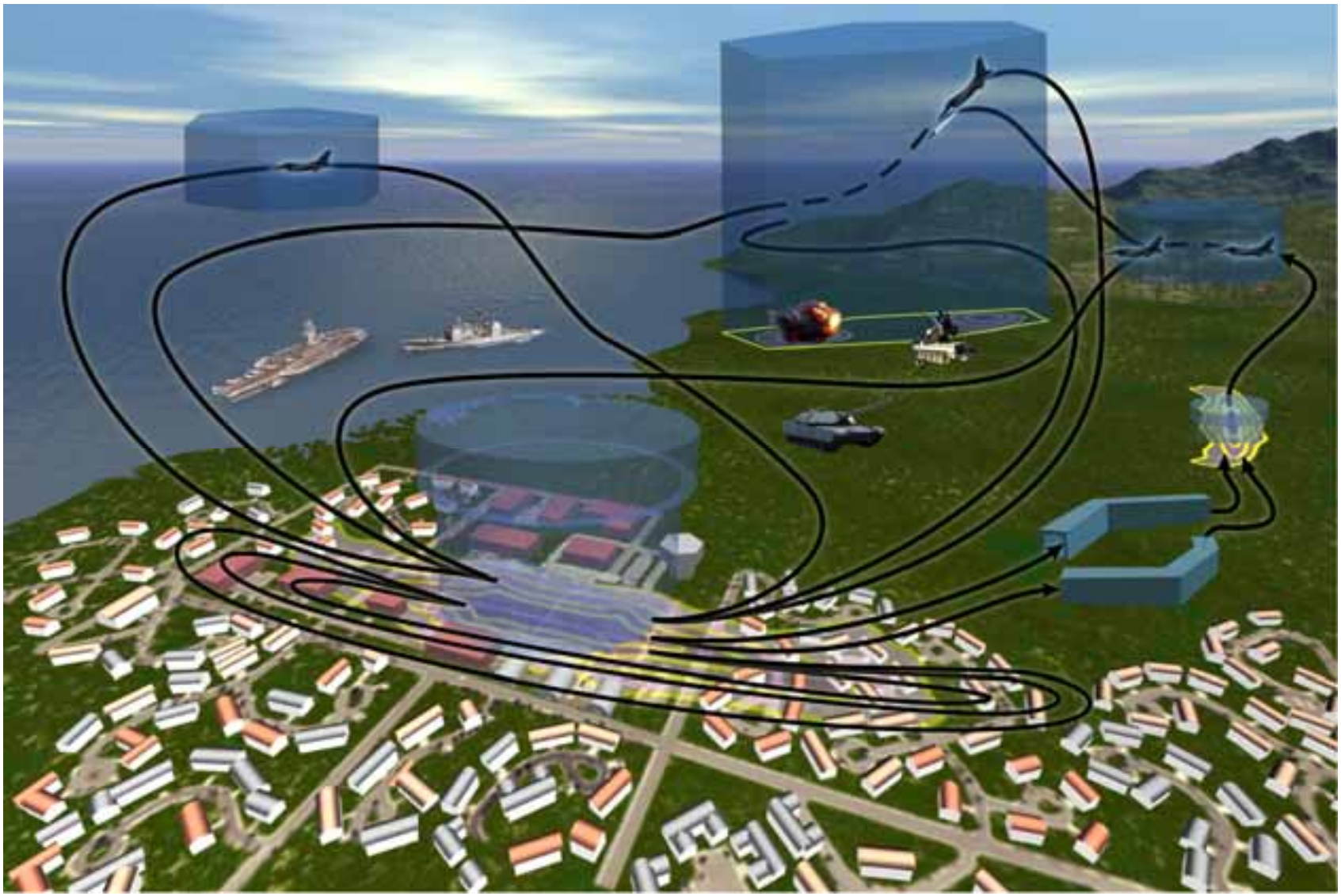
**DISDI Architect**
**ODUSD I&E BEI**

# Defense Basing Space - “The DoD Footprint”



# Major Elements of The DoD Footprint

***What Major Assets or Effects Define Our Common Installation Picture?***

**I&E Assets**

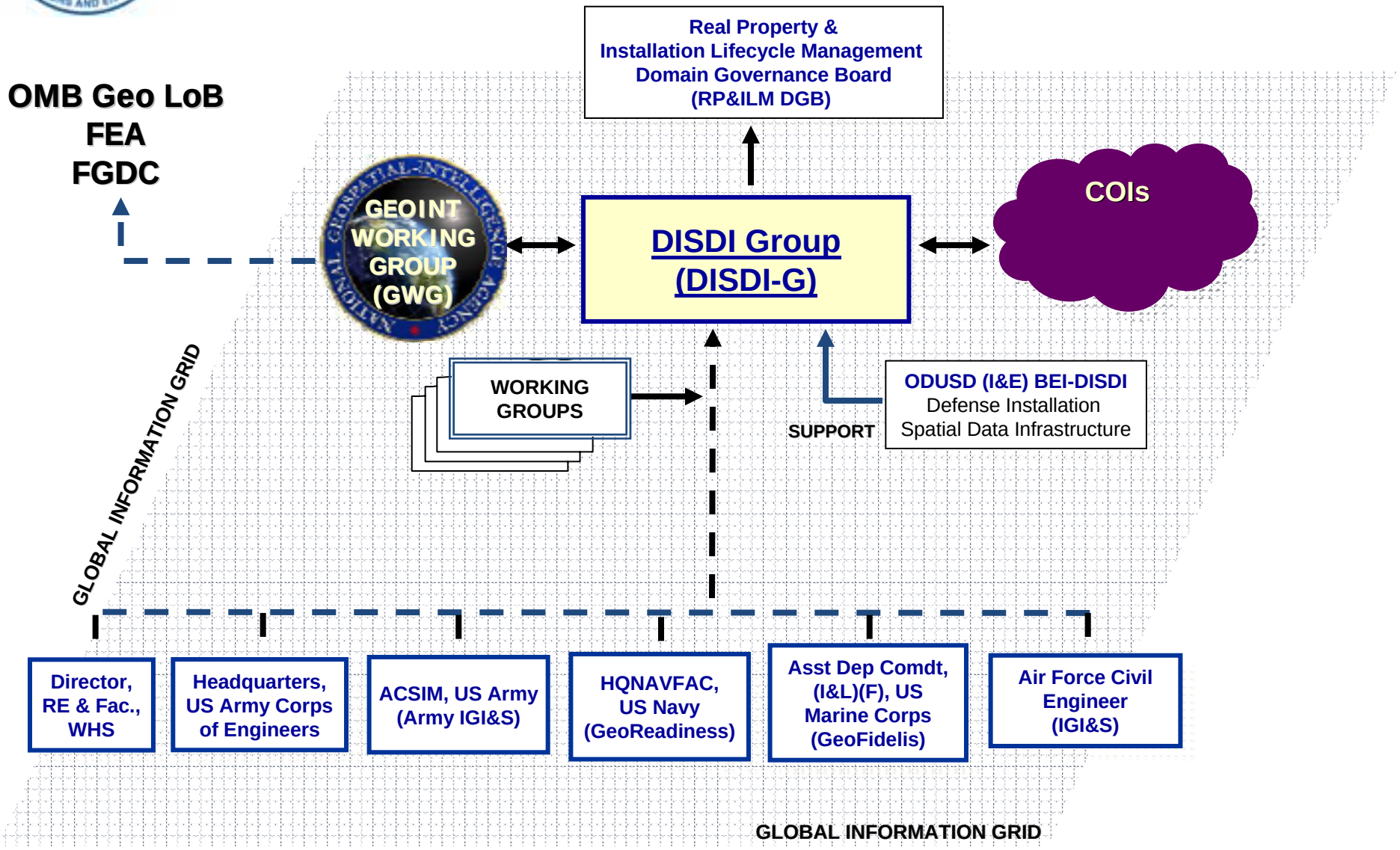
- Real Property Sites
  - Owned Land
  - Less-than-fee
  - Outgrants
- Airspace
  - Special Use
  - Restricted
  - Training Routes
- Seaspace

**I&E Liabilities**

- Environmental Liabilities
- Air Accident Potential Zones
- Noise Zones
- Explosive Safety Quantity-Distance Arcs
- Range Spectrum Requirements

Quantitatively and qualitatively comprise the "footprint" or "basing space" for DoD activities in support of the Battle Space

# Defense Installation Spatial Data Infrastructure Group (DISDI-G)



# Geospatial-Intelligence Working Group

- **GWG has 25 voting members – one vote each**
- **NGA Standards Director chairs (as facilitator), but does not have a vote**
  - NGA rep comes from elsewhere in NGA
- **Voting members set the agenda and are the pathway to DISR approval**

## Core Working Group

- **NGA**
- **CIA**
- **NRO**
- **NSA**
- **Army**
- **Navy**
- **Air Force**
- **Marine Corps**
- **ODNI**
- **OSD (NII & AT&L)**
- **STRATCOM**
- **PACOM**
- **SOCOM**
- **JFCOM**
- **EUCOM**
- **CENTCOM**
- **NORTHCOM**
- **Joint Staff (J2)**
- **DHS**
- **DOE**
- **DISA**
- **DIA**
- **DLA**
- **DARPA**
- **FGDC**

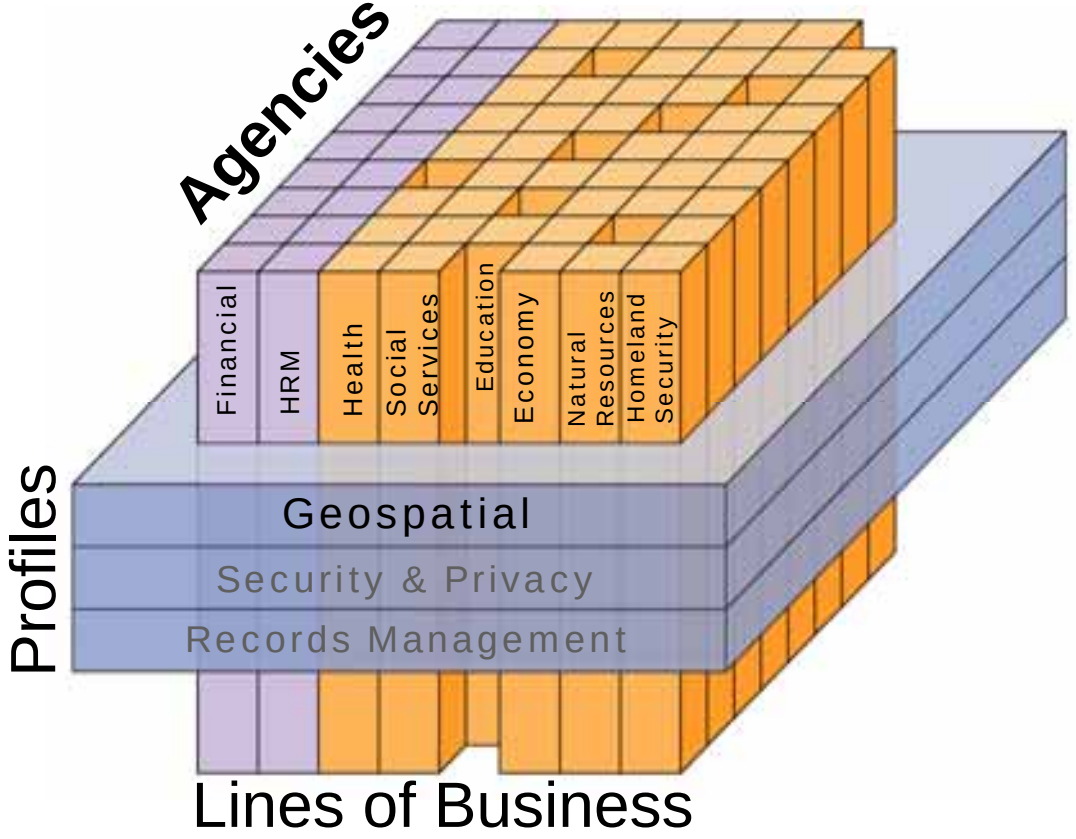
## Associate Members

- **American National Standards Institute (ANSI)**
- **International Organization for Standardization (ISO)**
- **Open Geospatial Consortium (OGC)**
- **US Geospatial Intelligence Foundation (USGIF)**
- **Digital Geospatial Information Working Group (DGIWG)**
- **Joint ISR Capability Group (JISRCG)**
- **United Kingdom**
- **Canada**
- **Australia**

# FEA Geospatial Profile

**The Geospatial Profile of the FEA** document:

- highlights the role of geospatial capabilities within the recognized FEA lines of business
- is intended for use by federal business planners and business architects involved in budget planning and submission
- is general guidance on how geospatial capabilities can be recognized and inserted into an agency's enterprise architecture (EA)




Geospatial Line of Business

# Communities of Interest Approach

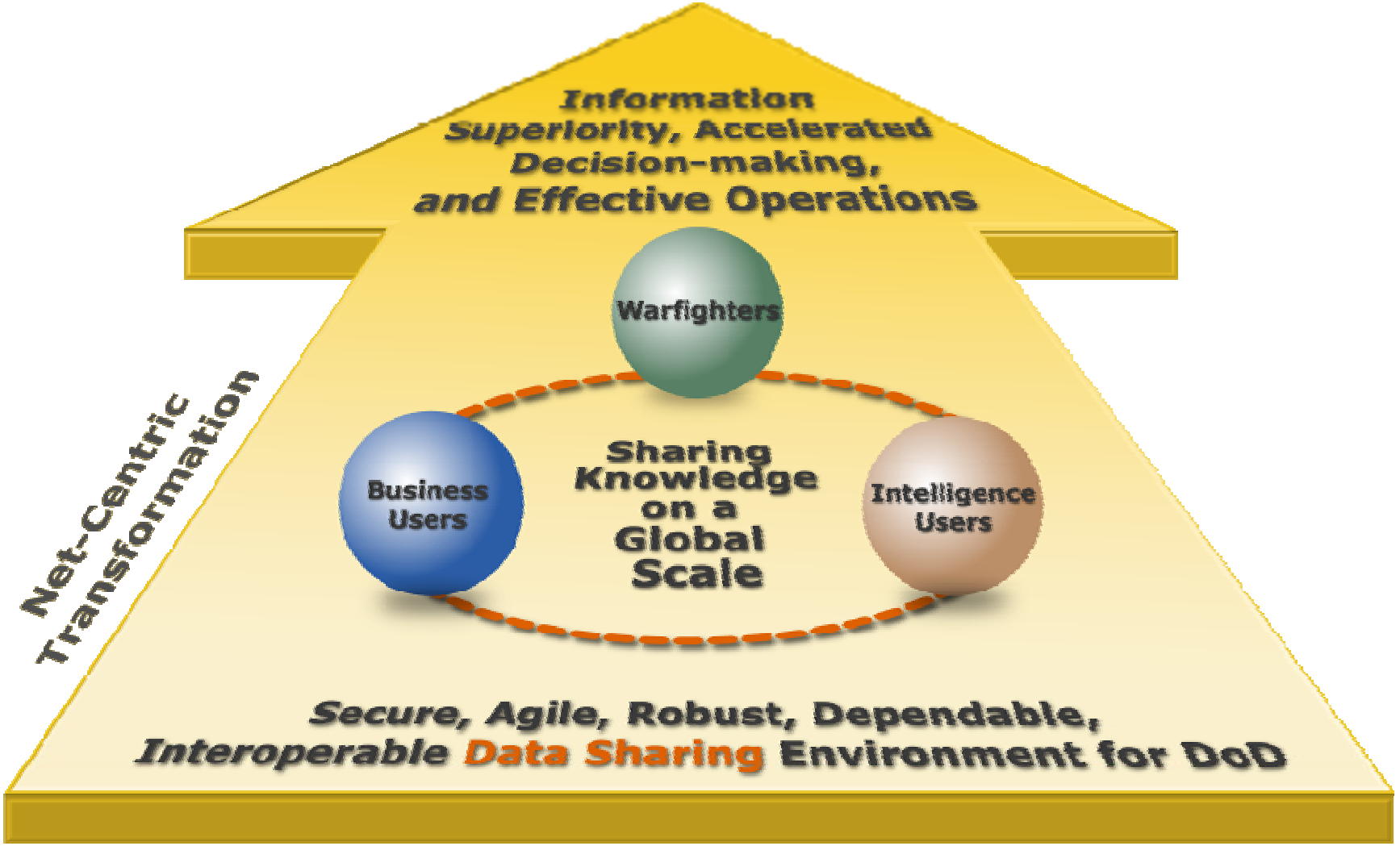
- Define data sharing shortfall as a problem statement
- Define COI-specific vocabularies and taxonomies
  - Vocabularies to improve data exchange within COI and among COIs
  - Taxonomies to improve precision discovery
- Make their data assets visible and accessible
  - Visible via service registry (WSDL), metadata registry (XSD), and data catalogs (DDMS)
  - Accessible via web services and common mime types
- Register semantic and structural metadata to the DoD Metadata Registry (http://metadata.dod.mil)
  - XML Gallery for XML schemas, stylesheets, domain sets, samples
  - Taxonomy Gallery for discovery taxonomies (OWL syntax)
- Pilots, Exercises, Integration with Programs of Record
  - Data asset discovery and understanding
  - Data asset posting to shared spaces

# DISDI-G Works as a COI

- **Spatial Data Standard for Facilities Installations and Environment (SDSFIE) Working Group**
- **Geospatial Metadata Working Group**
- **Architecture Working Group**
- **Imagery Working Group**

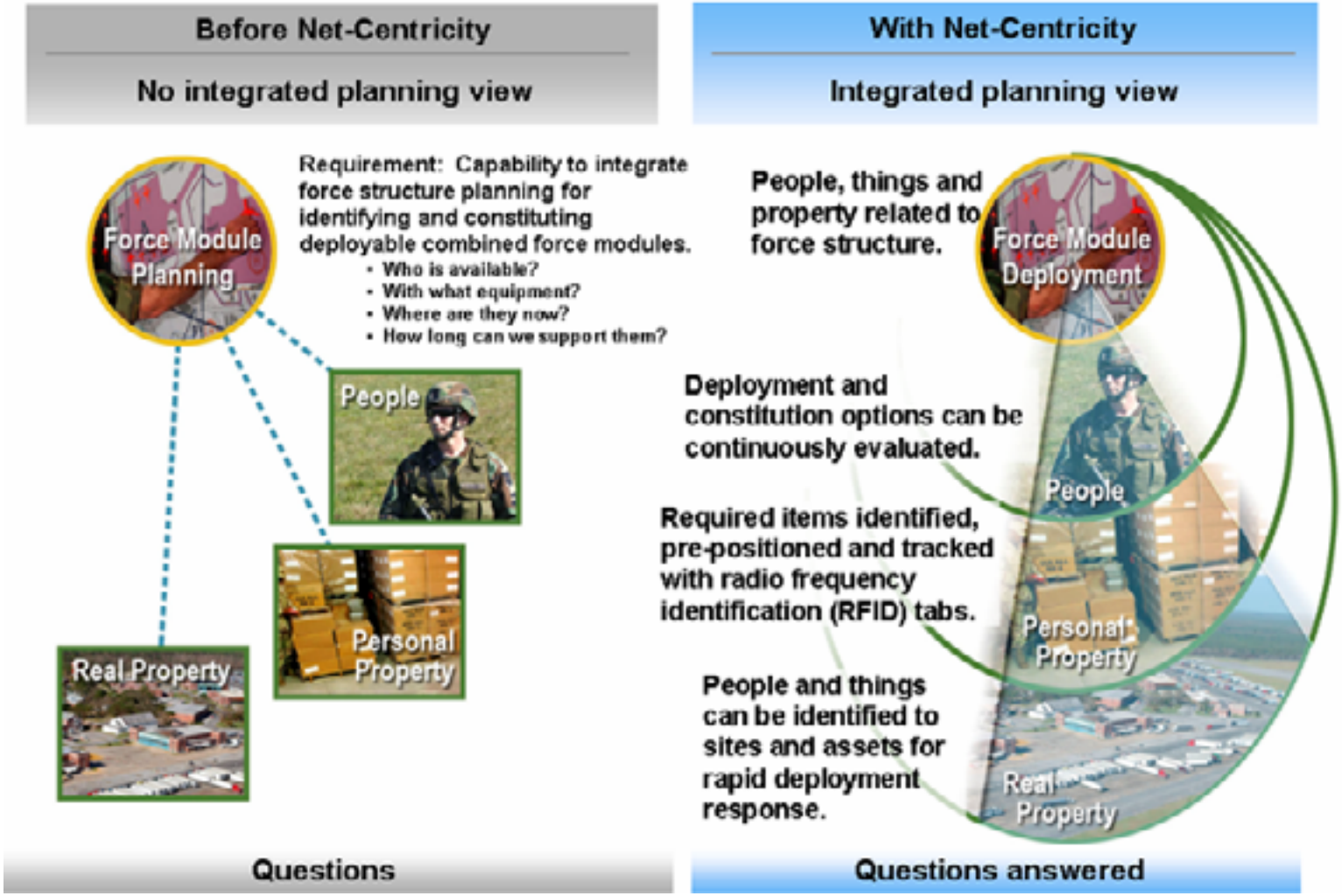
- **DISDI Metadata Profile**
- **Pilot to Geo-enable Real Property Unique Identifier Registry**

# The Net-Centric Vision

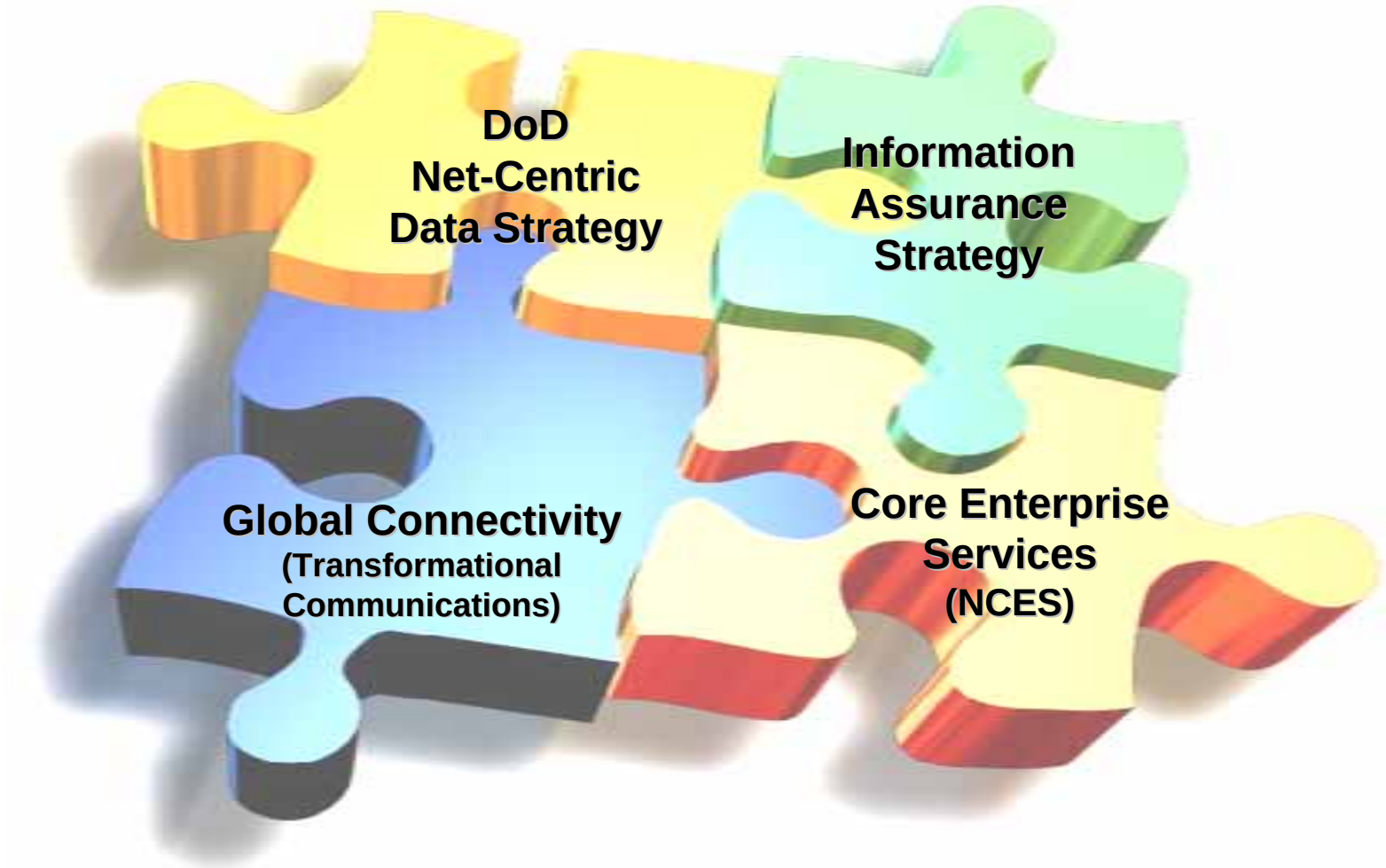


# People, Places and Things

## I&E Net-Centric Products and Processes Support
## Integrated Situational Awareness of People, Places and Things



# Global Information Grid Components

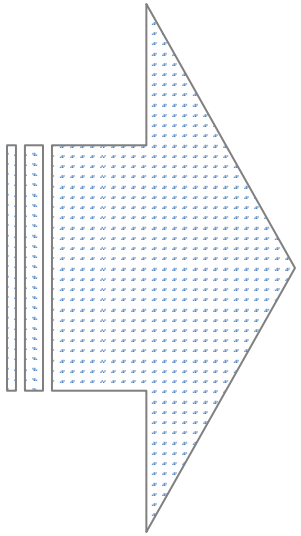



**Global connectivity, real-time collaboration, and rapid and continuous information exchange**

# Community Goals

**DoDD 8320.02**

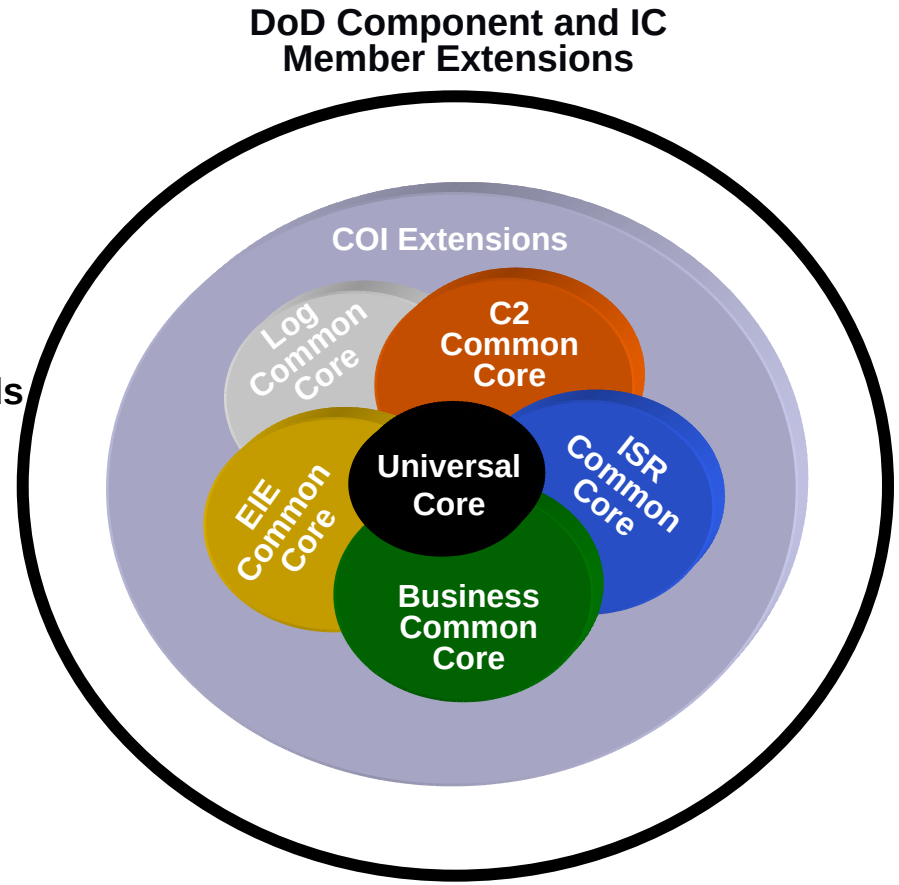
1. Visibility
2. Accessibility
3. Understandability
4. Trustworthiness
5. Interoperability
6. Responsiveness
7. Institutionalizing



1. Universal Core
2. DoD Metadata Registry
3. Business Enterprise Architecture
4. NCES Enterprise Services
5. NCES Enterprise Security

# DoD Architecture Alignment

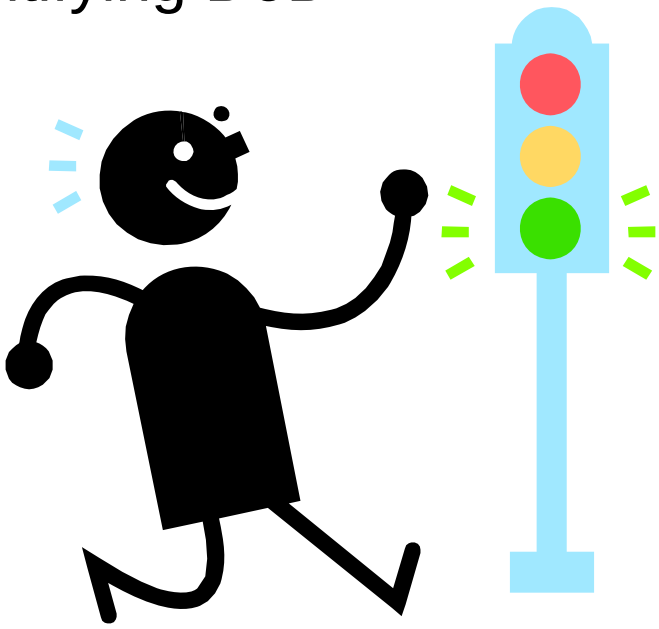
- **Constructing a universal core data schema that enables information sharing**
  - **Ways to describe "when, where, what"**
  - **Minimal set of terms in the core**
  - **Agreed to by DoD and Intel Community**
  - **Appropriate use of open and Federal standards**
  - **Extensible by COIs and systems as needed**




WHERE = Geospatial and Real Property Information

# Enabling “Location” In The Enterprise

- DoD systems using **one** source for identifying DoD location
  - **Authoritative:** **Legal Interest**
  - **Efficient:** **Web Services**
  - **Accurate:** **Real-time update**
    **Minimizes human error**
    **Independent Verification and Validation**



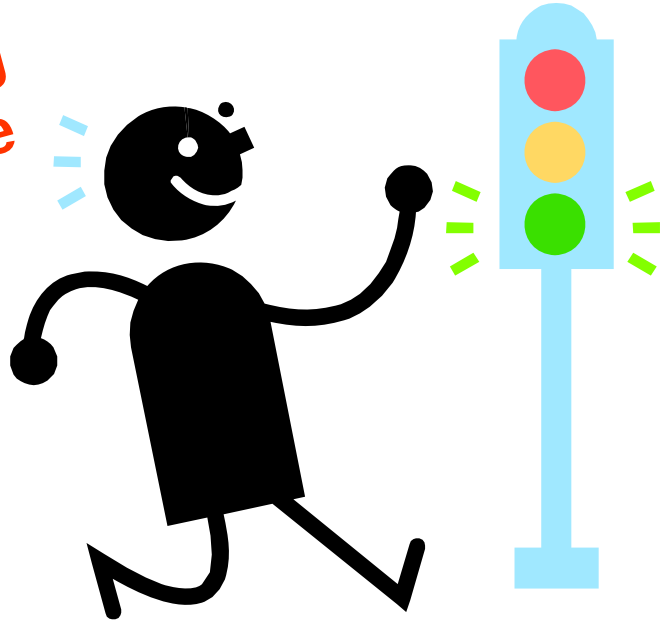
# Geospatial Key Elements for the Enterprise

**Universal Core**
**(When, Where, What)**

**Business Enterprise Architecture 5.0**

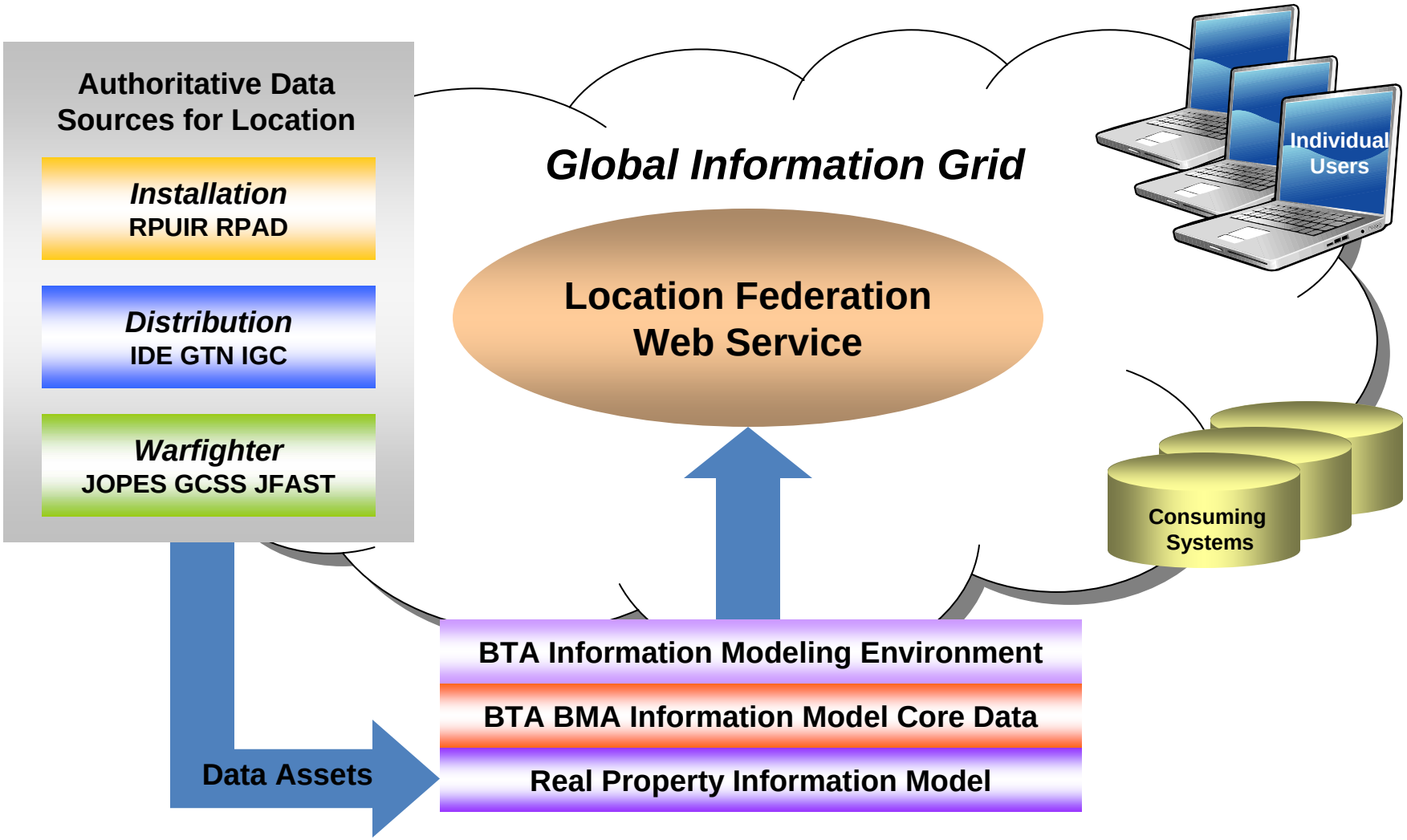
**Geo-enabled Location**

**Implementing Authoritative Location**



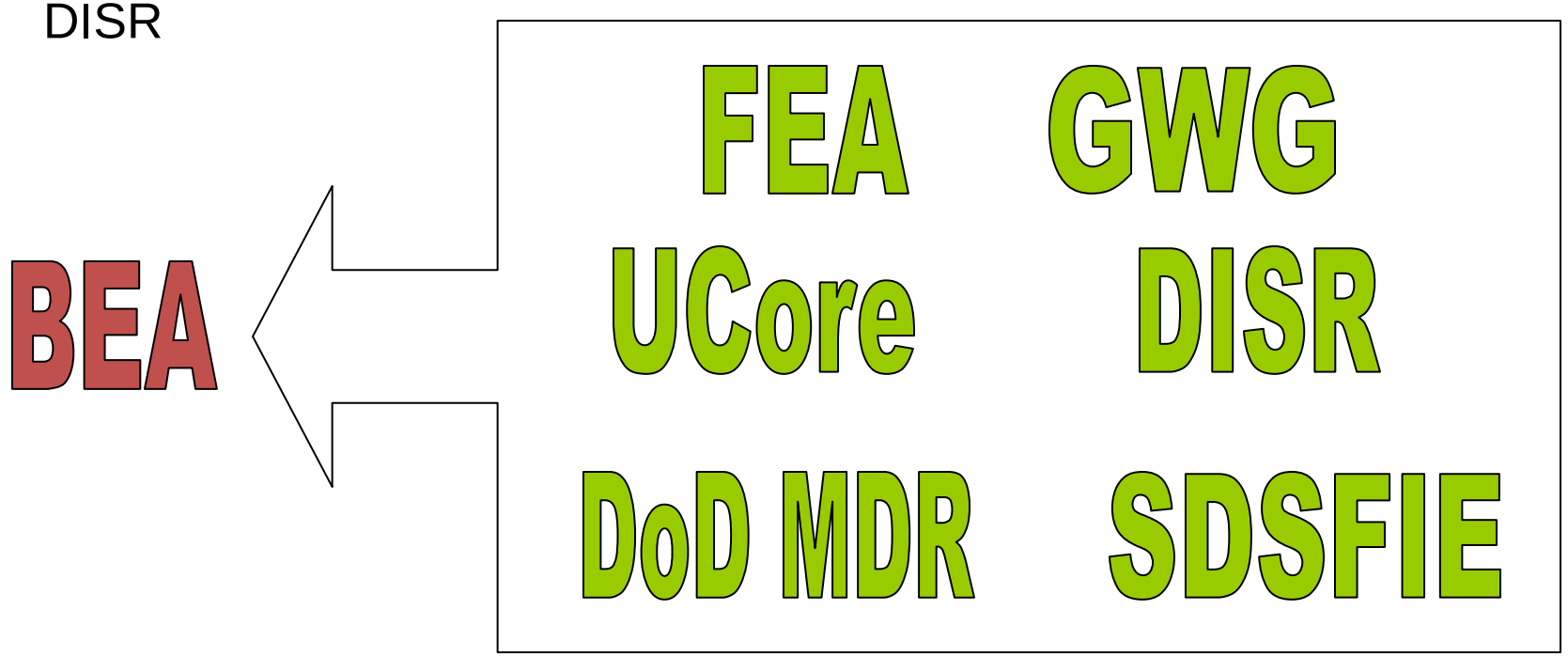
**Spatial Data Standards for Facilities, Infrastructure, & Environment**

# Location Federation for a Net-Centric DoD

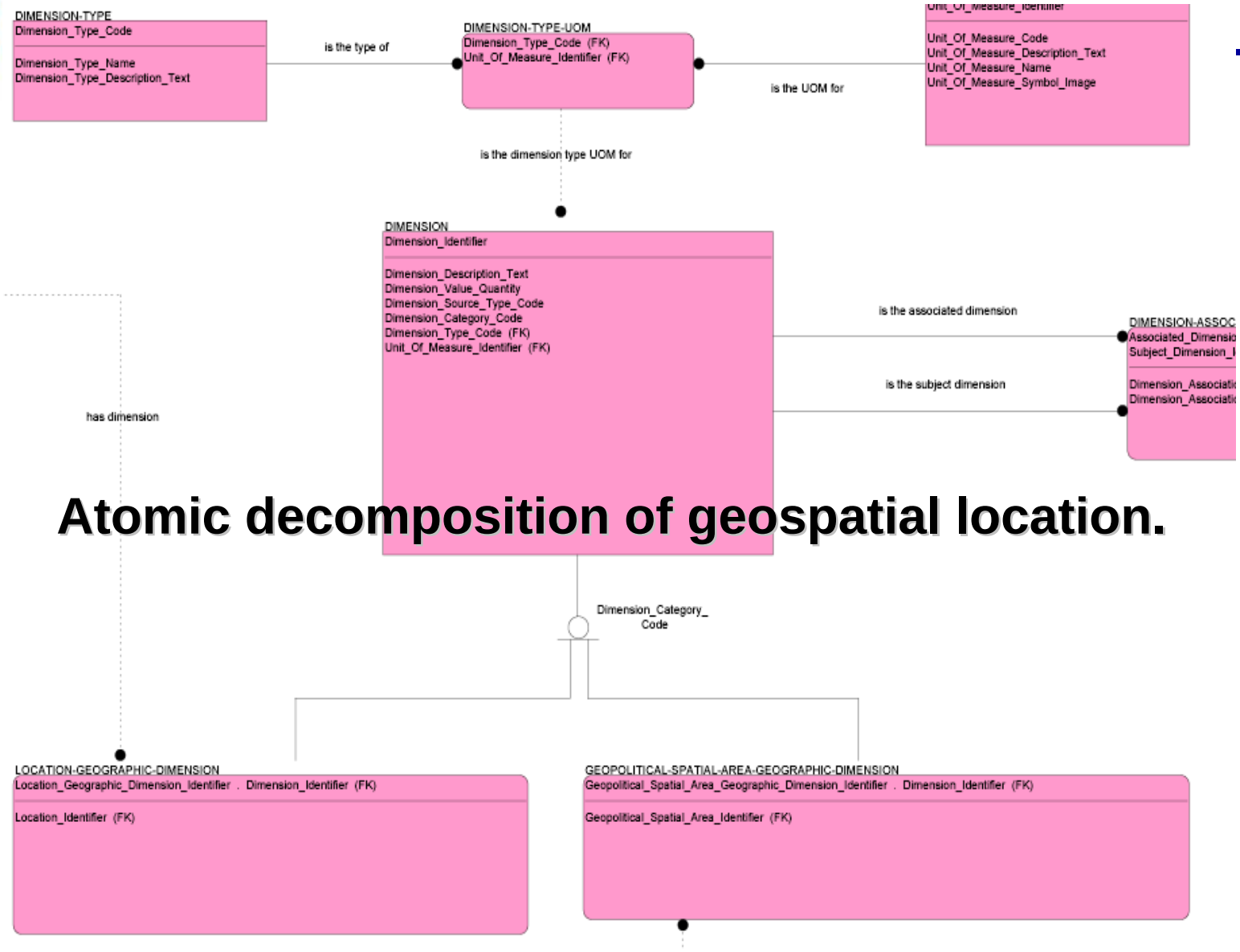


# Geo-Enable Location in BEA 5.0

- **Problem:**
  - DISR mandates the use of ISO standards for geospatial systems but current BEA products do not incorporate ISO geospatial standards.
  - Existing I&E geospatial data standards (i.e., SDSFIE) not included in DISR



# BEA 4.1 – Real Property Accountability OV-7 Location

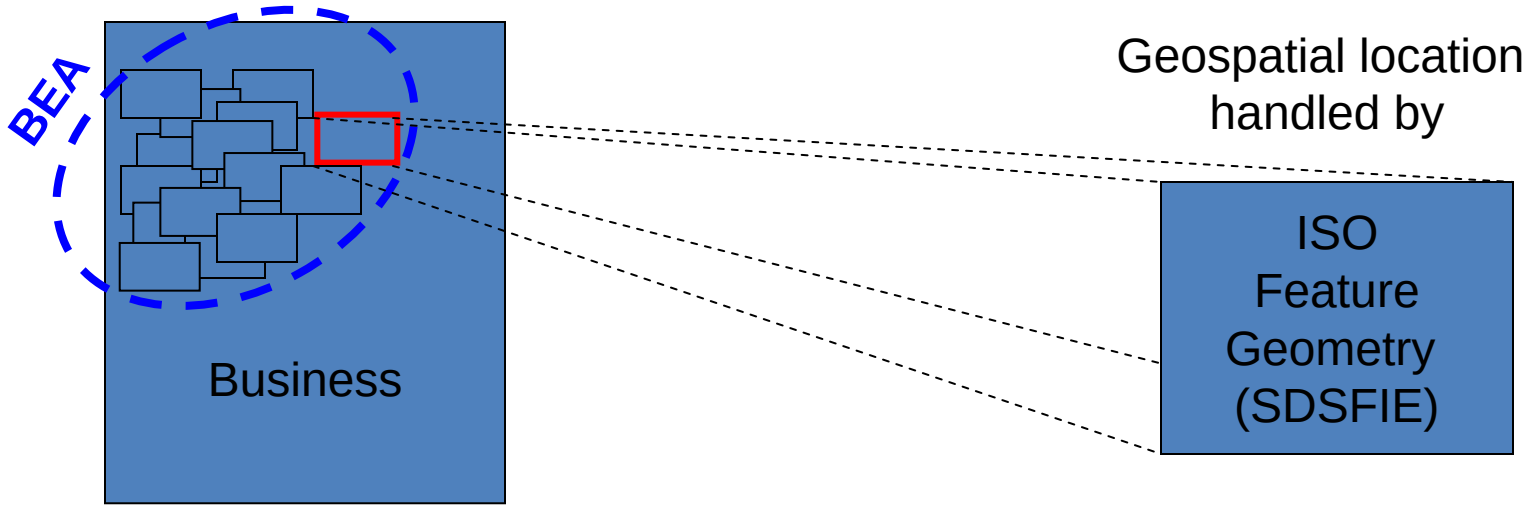



**Atomic decomposition of geospatial location.**

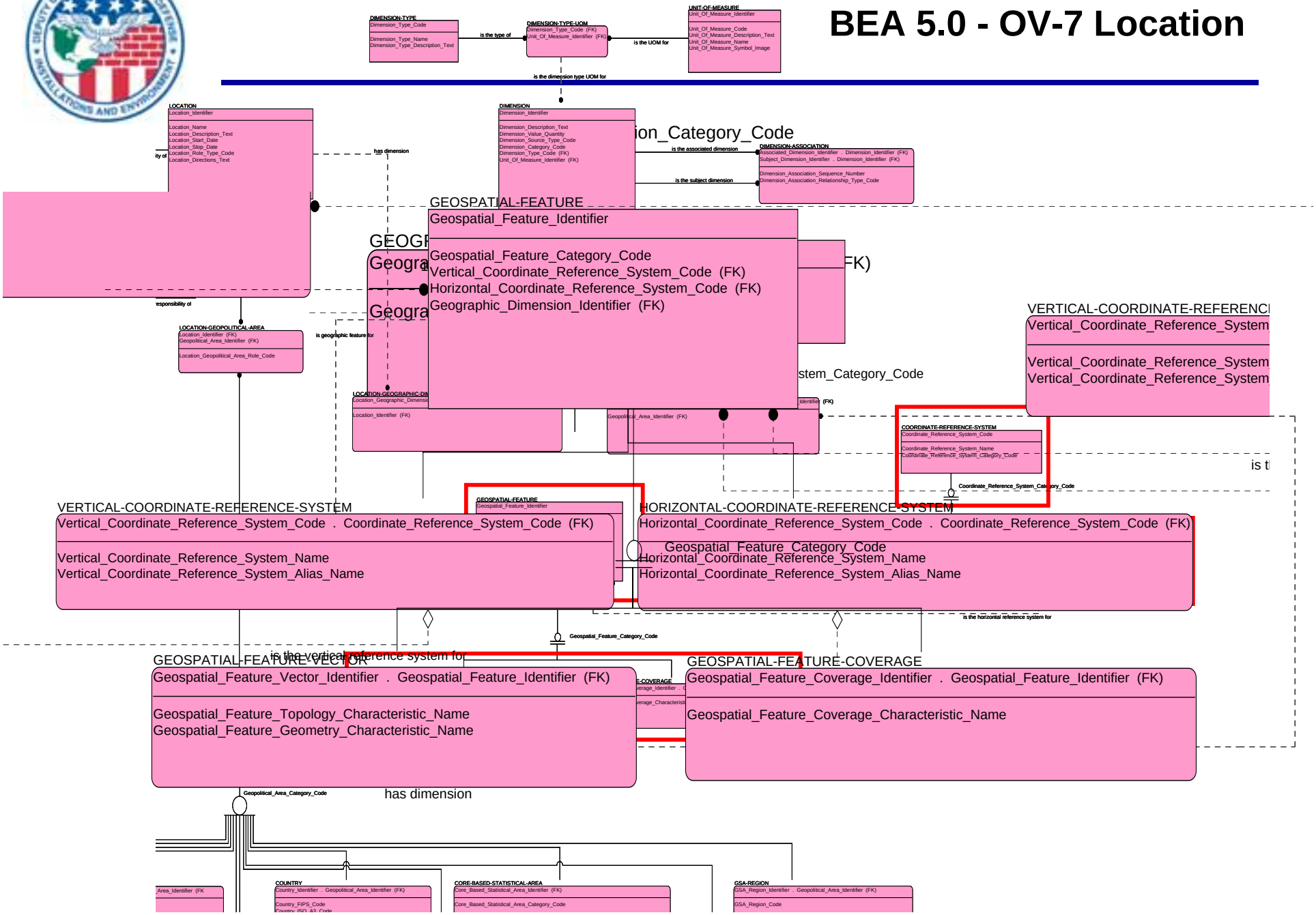
# Geo-Enable Location in BEA 5.0

**Strategy:** Immediate changes include

- Update BEA products to align with DISR.
- Implement ISO geospatial meta-model for BEA 5.0 release.
- Align with geospatial standards and architectures as implemented by warfighter, intelligence domains and RP&ILM.



# BEA 5.0 - OV-7 Location



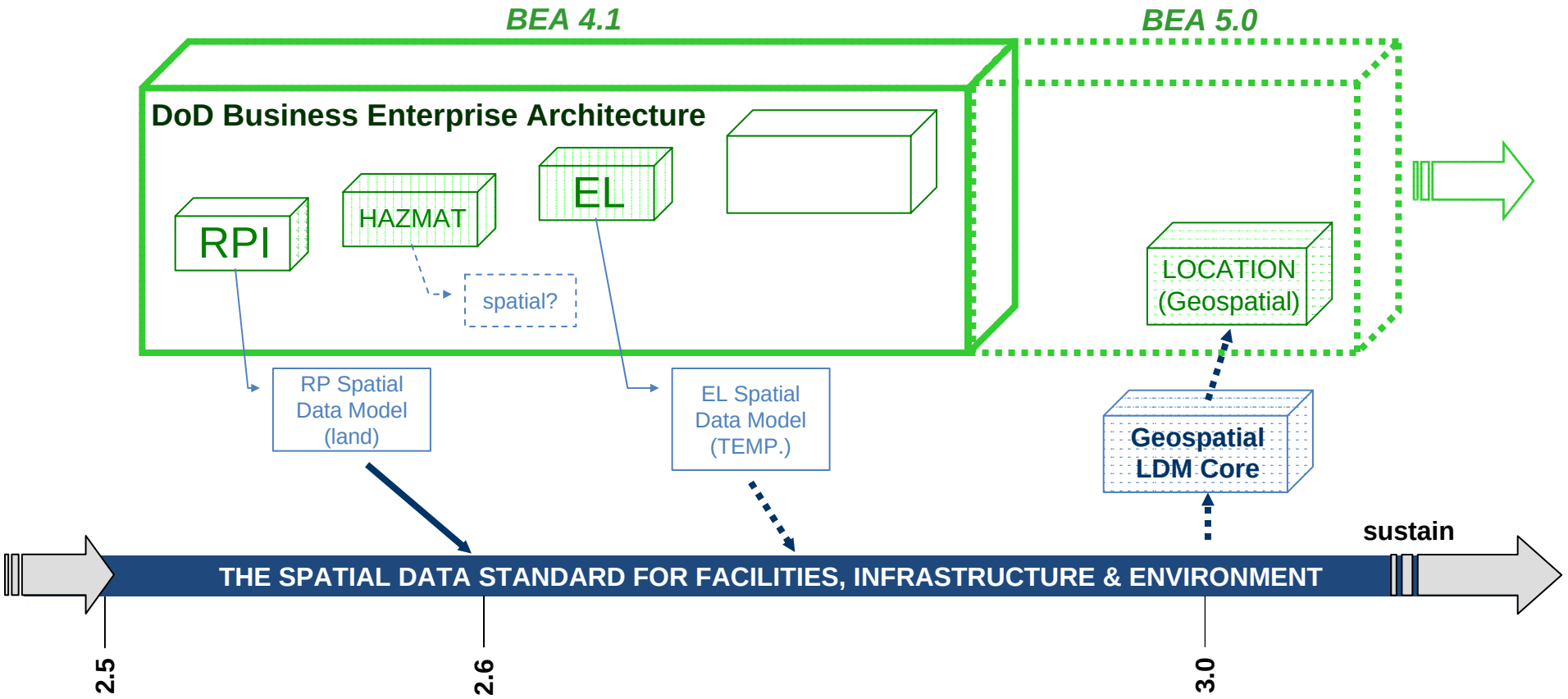
# Geo-Enable Location in BEA 5.0

**BEA 5.0 release date: March 08**

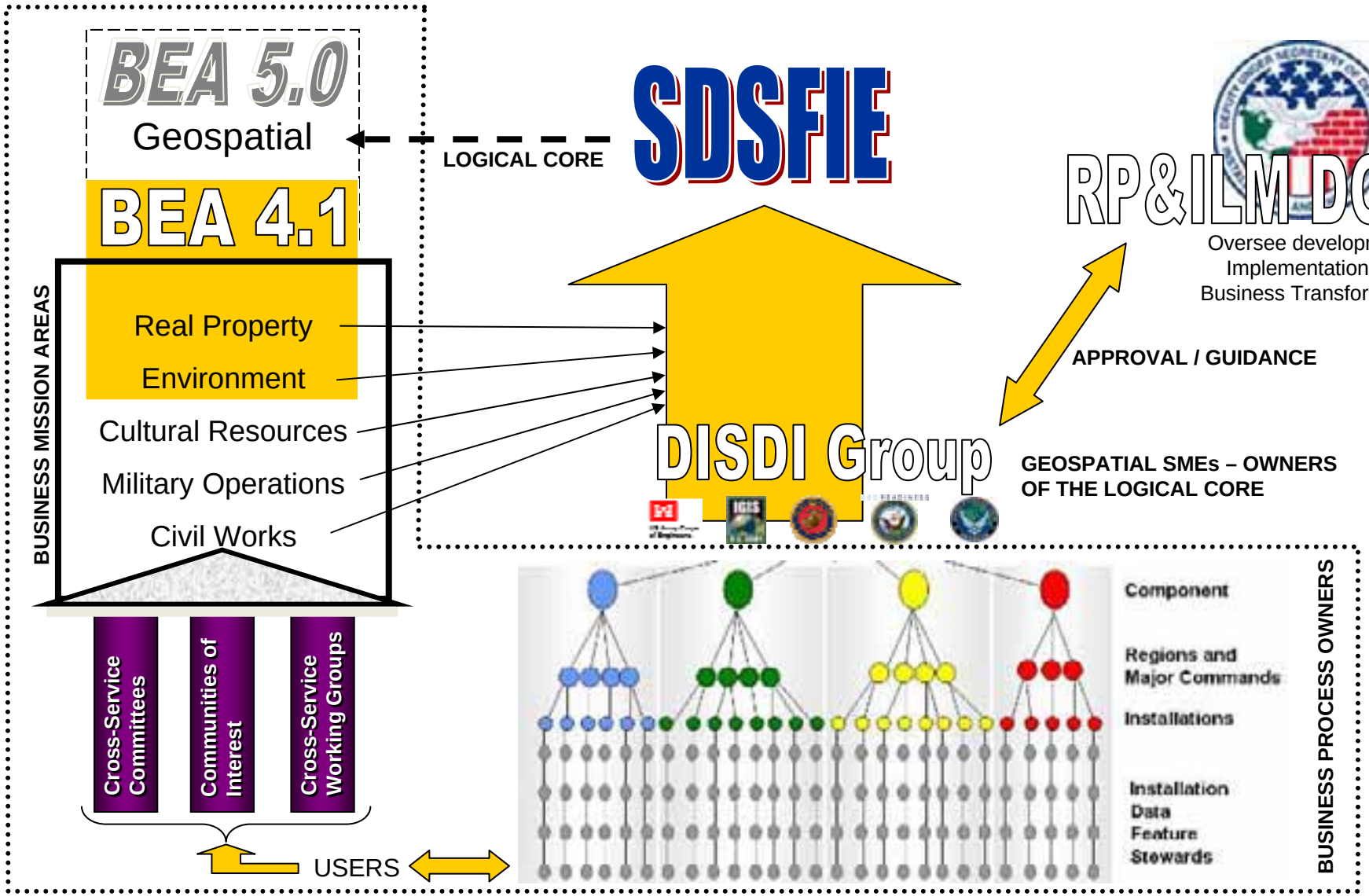
## Outcome:

- Geo-enables the Real Property Business Process Model.
- Aligns all current efforts for geospatial representation, visualization and analysis of Real Property assets.
- Ensures business domain geospatial data requirements are DISR compliant and fit within the National System for Geospatial-Intelligence (NSG) framework.

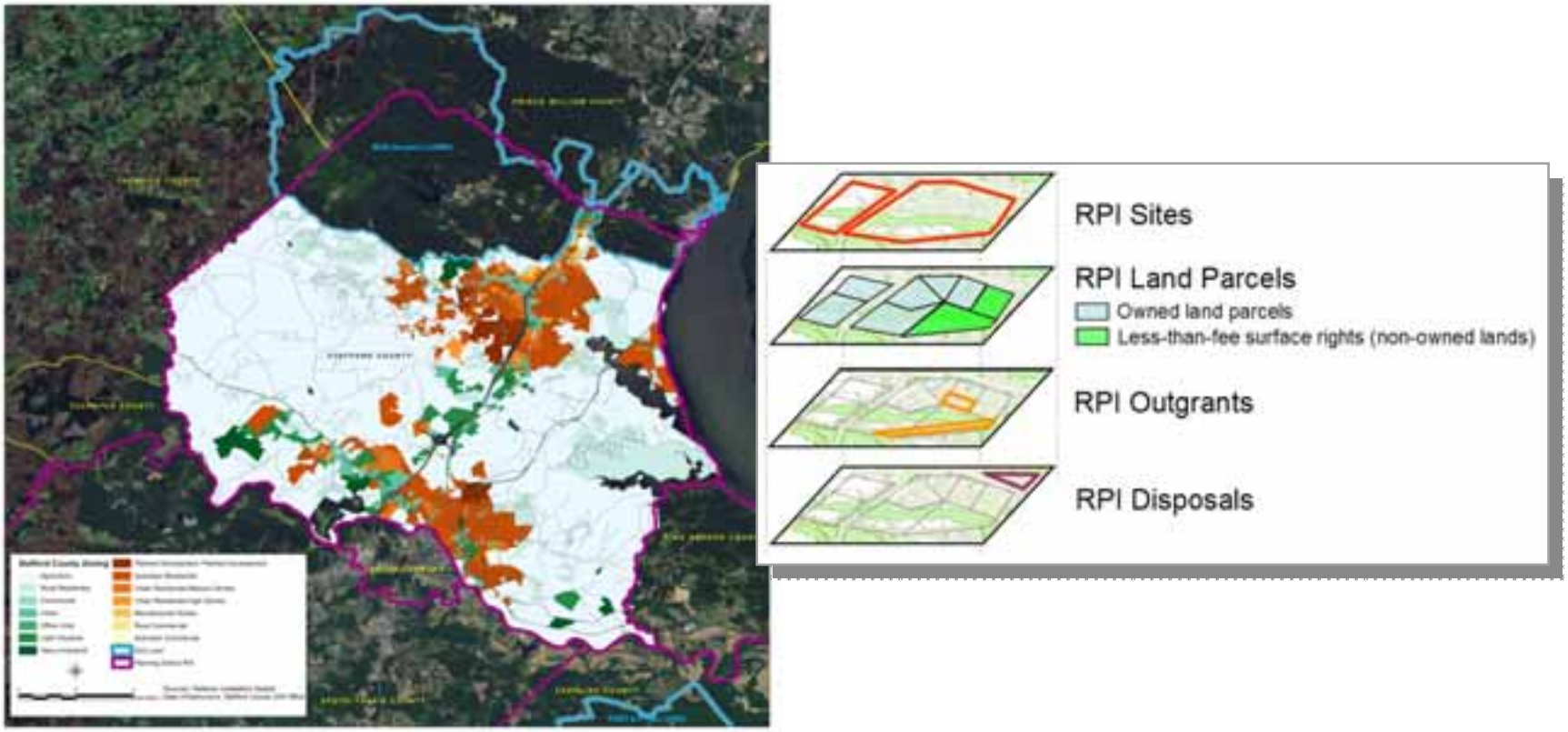
# Spatial Data Standards for the Business Enterprise Architecture



# SDSFIE Governance and Business Mission Area Stakeholders



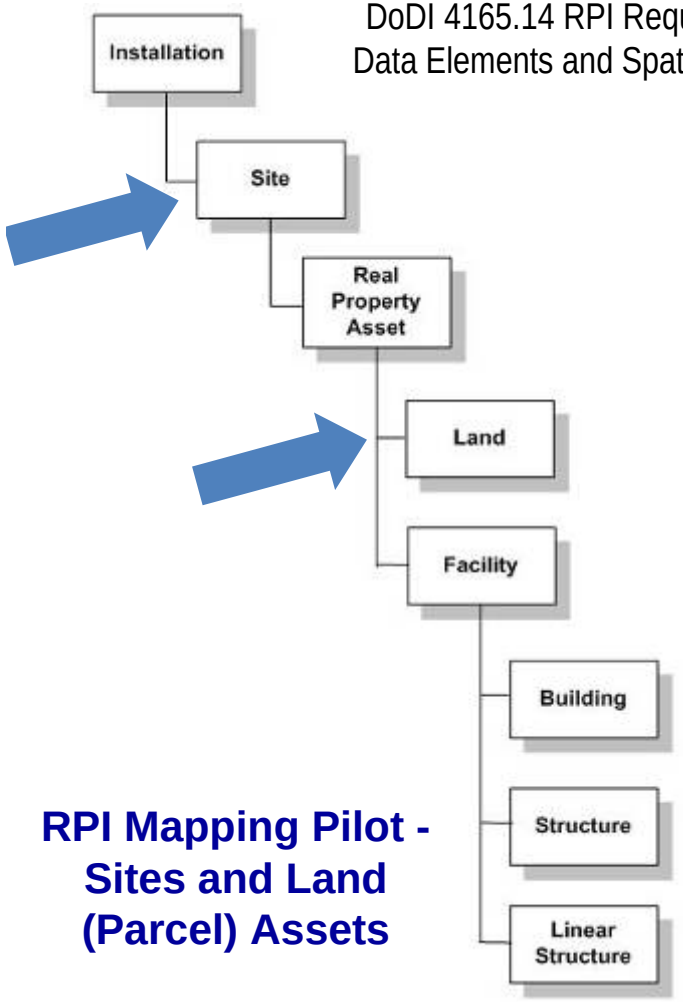
# Geo-enabling Defense Installation Business

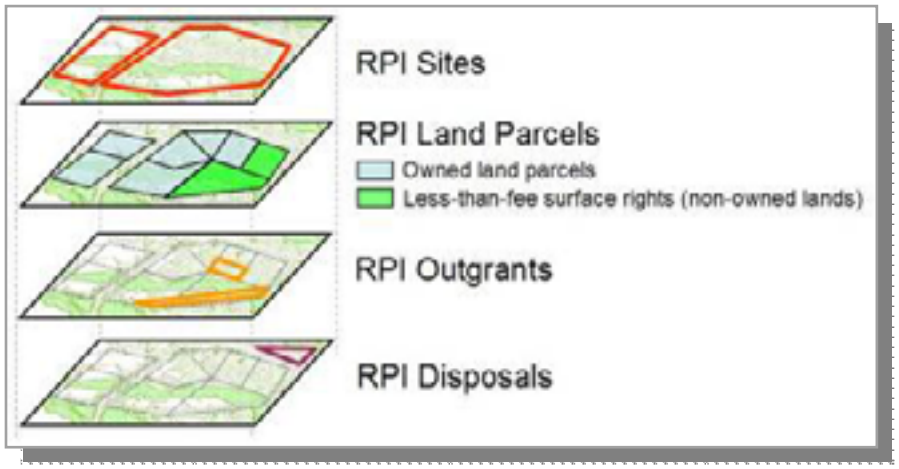



Real Property accountability is enhanced with auditable geospatial maps and linked databases. DoD assets will become easier to track throughout the installation lifecycle, and geospatial data can be readily matched with that of surrounding communities to support mutual land use planning goals.

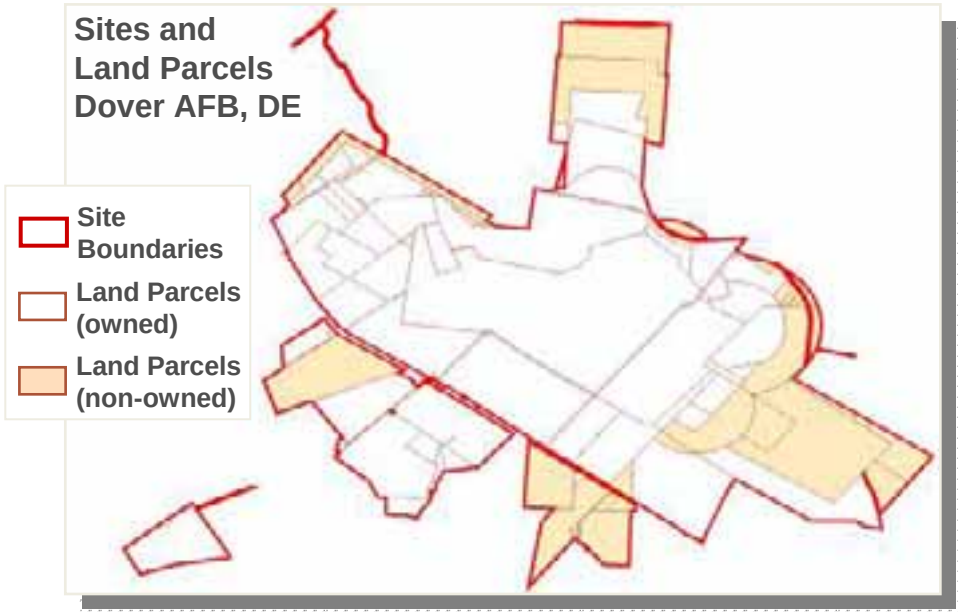
# Transforming the Business with Geospatial Solutions
## Real Property Inventory Initiative

DoDI 4165.14 RPI Requirements – Logical Data Elements and Spatial Data Map Layers




**RPI Mapping Pilot - Sites and Land (Parcel) Assets**



# BEA 5.0 Changes

- Changes to: OV-7, OV-5, OV-6a, TV-1, TV-2
- Correct Geospatial Primitives Definitions
- Includes all DISR geospatial standards
- Affects textual storage of location
  - Business Rules

***a.*** *to store coordinates must also store units and coo sys*
***b.*** *to store elevation must also store units and vertical datum*

Generally applicable to current and future BEP (Business Enterprise Priorities): RPI, EL

- High Level concepts
- Align with Enterprise goals
  - UCore, DoD MDR, FEA, ETP

- Contents:
  - high level organizations, missions, geographic configuration, connectivity, etc.

# Standards Profile

Structure:

- ISO/TS 19103:2005 **– *Geographic information – Conceptual schema language***
- ISO 19107:2003 **– *Geographic information – Spatial schema***
- ISO 19108:2002 **– *Geographic information – Temporal schema***
- ISO 19109:2005 **– *Geographic information – Rules for application schema***
- ISO 19110:2005 **– *Geographic information – Methodology for feature cataloguing***
- ISO 19111:2003 **– *Geographic information – Spatial referencing by coordinates***
- ISO 19112:2003 **– *Geographic information – Spatial referencing by geographic identifiers***
- ISO 19115:2003/Cor.1:2006 **– *Geographic information – Metadata – Technical Corrigendum 1***
- ISO 19118:2005 **– *Geographic information – Encoding***
- ISO 19123:2005 **– *Geographic information – Schema for coverage geometry and functions***
- ISO/CD 19126 **– *Geographic information – Feature concept dictionaries and registries* (committee draft)**
- ISO/DIS 19131 **– *Geographic information – Data product specification* (final secretariat processing)**
- ISO/DIS 19136 **– *Geographic information – Geography Markup Language (GML)***
- ISO/TS 19138:2006 **– *Geographic information – Data quality measures***
- ISO/DTS 19139 **– *Geographic information – Metadata – XML schema implementation***
- ISO/IEC 19501:2005 **– *Information technology – Open Distributed Processing – Unified Modeling Language (UML)***

Content:

- DFDD Baseline 2007-1 **– Digital Geospatial Information Working Group (DGIWG) Feature Data Dictionary (DISR: Mandated)**
- NFDD version 1.8 **– NSG Feature Data Dictionary**
- NEC version 1.8 **– NSG Entity Catalog**
- **SDSFIE version 3.0 (FY 09)**

# Future Standards Alignment

- ISO 19119 – Geographic Information Services
  - critical to defining where the web services are deployed and used within the SOA
- Catalog Services (CS-W)
  - Abstract model and protocol-specific solutions for the discovery of geospatial resources.
- Styled Layer Descriptor (SLD)
  - Applying rendering or symbolization rules to features.
  - An SLD requests a WMS to present a map according to submitted style rules.
- Web Map Context (WMC)
  - Companion to WMS – describes how to save a map view comprised of many different layers from different Web Map Services.
- Filter Encoding Specification (FE)
  - Used in requests to WFS and queries to CS-W.
- ISO 19115 – Metadata **(in implementation)**
- Web Coverage Service
  - Allows access to raster data sets

# Geospatial Business Transformation

- Net-Centric Data Strategy
  - Many users, one map = standard installation map
- Geospatial Data
  - Discoverable, Understandable and Accessible to Anticipated and Unanticipated Users

- Authoritative Location
  - Enterprise-provided
  - Standards-based
  - BEA 5.0 - Geospatially enabled location framework

# Questions?

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