DoDAF V2.0 Overview

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Introduction

- DoDAF is prescribed for the **use and development** of **Architectural Descriptions** in the Department

- DoDAF V2.0 provides an overarching set of architecture **concepts**, **guidance**, **best practices**, and **methods** to enable and facilitate architecture development

- Explicit Roles & Responsibilities
  - **Managers** guidance for use and management of architecture
  - **Architects** guidance for development of architecture, meta-model and data exchange requirements
  - **Developers** guidance defines the DM2 Physical Exchange Specification

Goal: Support Core Processes

1. Capabilities Integration and Development (JCIDS)

2. Planning, Programming, Budgeting, and Execution (PPBE)

3. Acquisition System (DAS)

4. Systems Engineering (SE)

5. Operations Planning

6. Capabilities Portfolio Management (CPM)

Promulgation Memo

- Version 2.0 is the prescribed framework for all Department architectures and represents a substantial shift in approach.
    - *Don't redo current architecture*

- Architectures shall comply with DoDAF V2.0 in their next major release.
    - *Update only in the next release*
    - *Does not prevent early adoption of DoDAF V2.0*

DoDAF V2.0 Conformance

- The data in an architectural description is defined according to the DoDAF meta-model (DM2) **concepts**, **associations,** and **attributes**.
  - The information captured in an architecture tool is consistent with the DM2 concepts, associations, and attributes.
  - Architectural data should be stored in a recognized commercial architecture tool that conforms to industry standards.
  - Tools, preferably **data-driven**, can be used for the **presentation** of architectural data, but must be based on DATA.
- The architecture data is capable of transfer in accordance with the **Physical Exchange Specification** (PES).
  - Architectures that will exchange information need to comply with DM2 PES (for the appropriate architectural data).

Key Concepts

DoDAF V2.0 Key Concepts

- Data-centric v. Product Centric
- DoDAF V2.0 Meta-Model (DM2)
- DoDAF V2.0 Method
- DoDAF Described Models vs. Presentation Views
- "Fit-for-Purpose"

Authoritative Data

Data-Centric Paradigm

- **Prior** versions of DoDAF emphasized '**products**' (i.e., graphical representations or documents).

- DoDAF V2.0 emphasizes the **capture and analysis of data** and its relationships, rather than the creation of products.
  - **Emphasizes** on utilizing architectural data to support **analysis** and **decision-making**.
  - Greatly expands the types of graphical representations that can be used to **support decision-making activities**.
  - Supports **innovative and flexible presentation** of the architectural data in a meaningful, useful, and understandable manner.

Metamodel
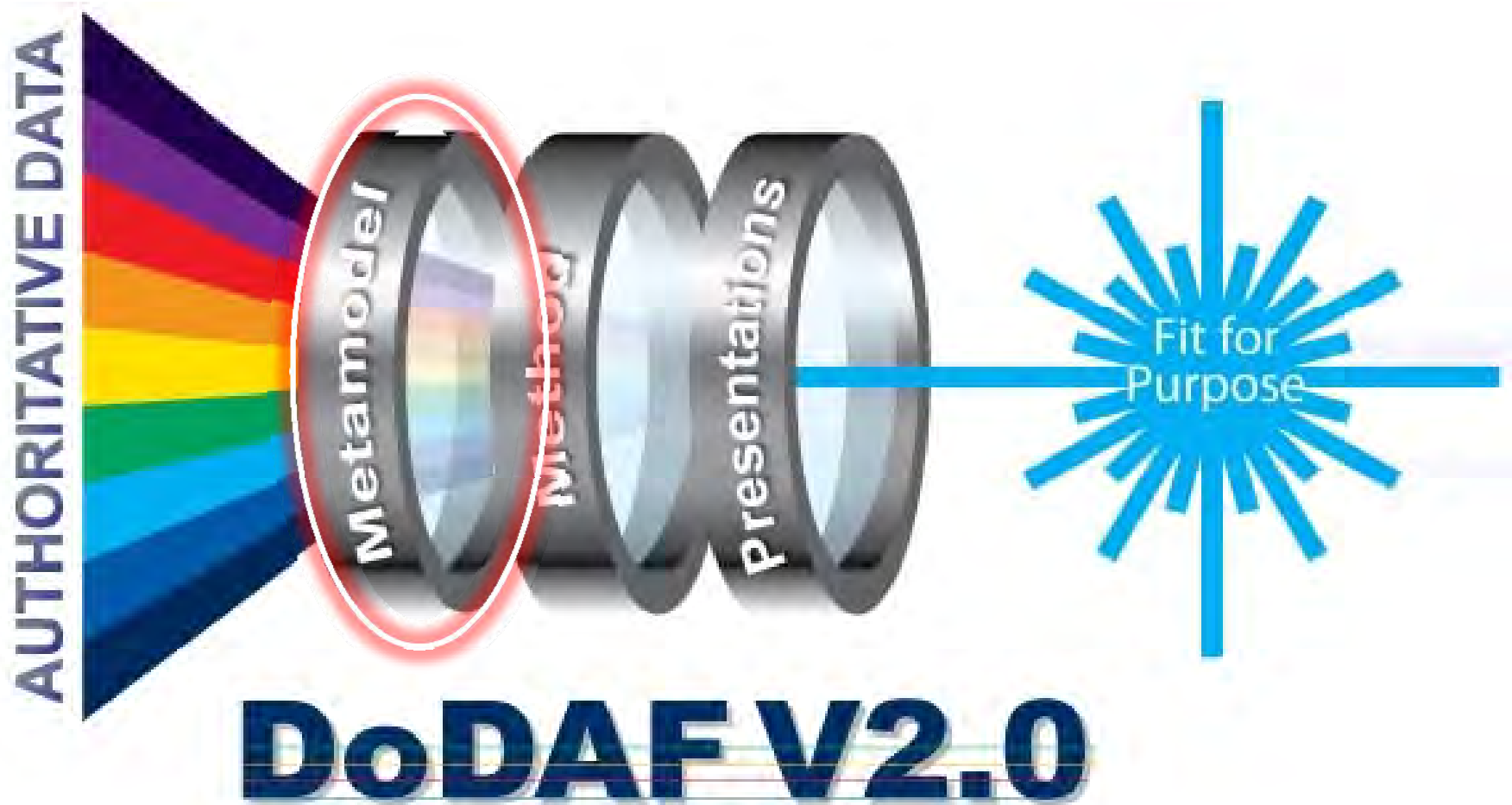
DM2 Introduction

- ## Constrained vocabulary for DoDAF
  - For the description and discourse of models

- ## Federated EA data exchange specification
  - For interoperability of EA data between tools, DBs

- ## Supports the Net Centric Data Strategy
  - Discovery and understandability of EA data

- ## Precision semantics for EA analysis
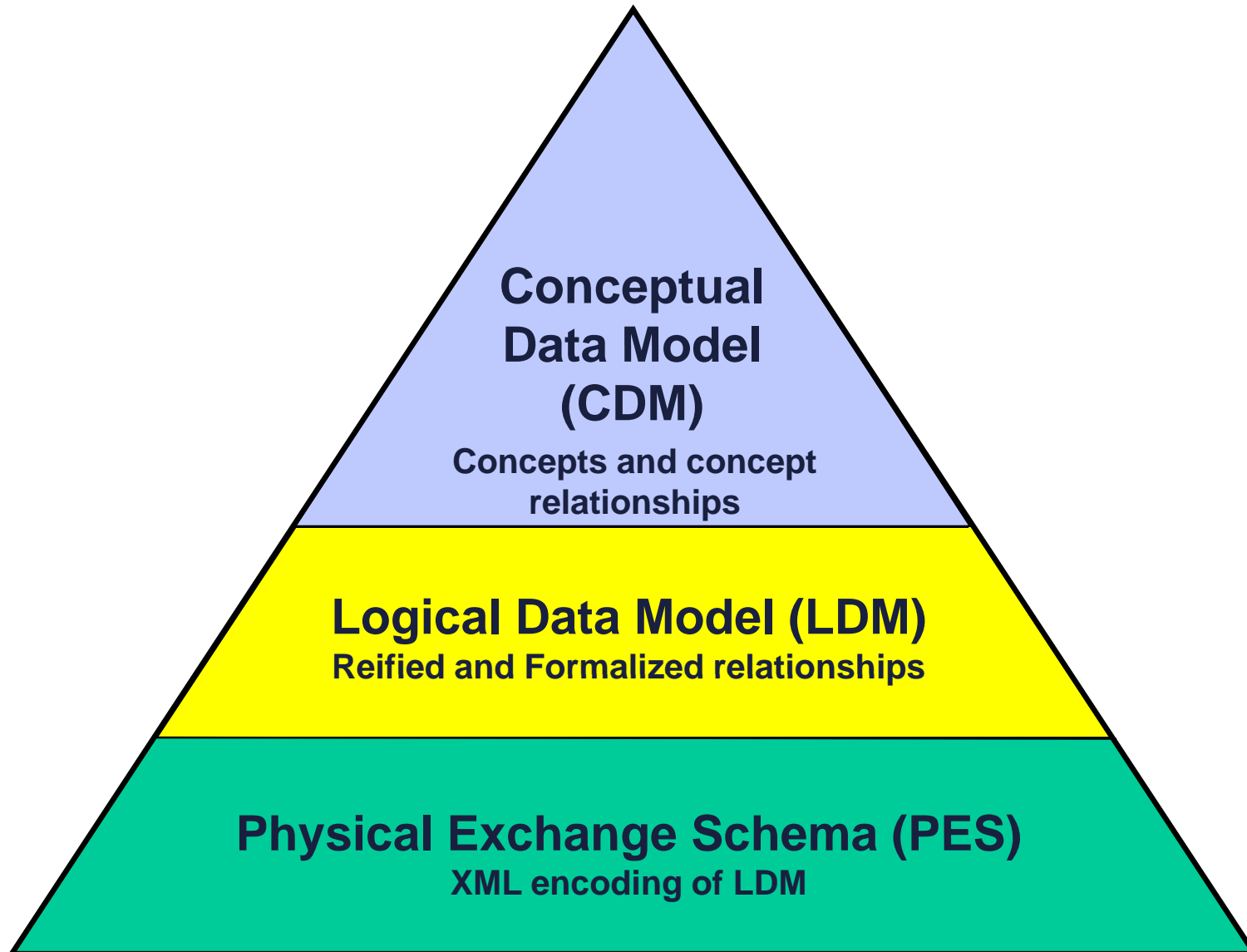 - Provides mathematical rigor to the data

What is the DM2

- The DM2 is made up of three parts:
  - **Conceptual** Data Model
    - -- Key Concepts and Relationships in Non-Technical Terms
  - **Logical** Data Model
    - -- UML Class models that adds technical context to the CDM
  - **Physical** Exchange Specification (PES)
    - -- Implementation model and XSD Schemas

- Built upon the **IDEAS** Foundation
  - International Defense Enterprise Architecture Specification
  - Foundational objects ("Thing", "Individual", "Type", etc.)
  - Relationship types (aka "Tuple" types)
    - -- "Whole/Part", "Before-After", Temporal, etc."

Three Levels of the DM2

Conceptual Data Model (CDM)
Concepts and concept relationships

Logical Data Model (LDM)
Reified and Formalized relationships

Physical Exchange Schema (PES)
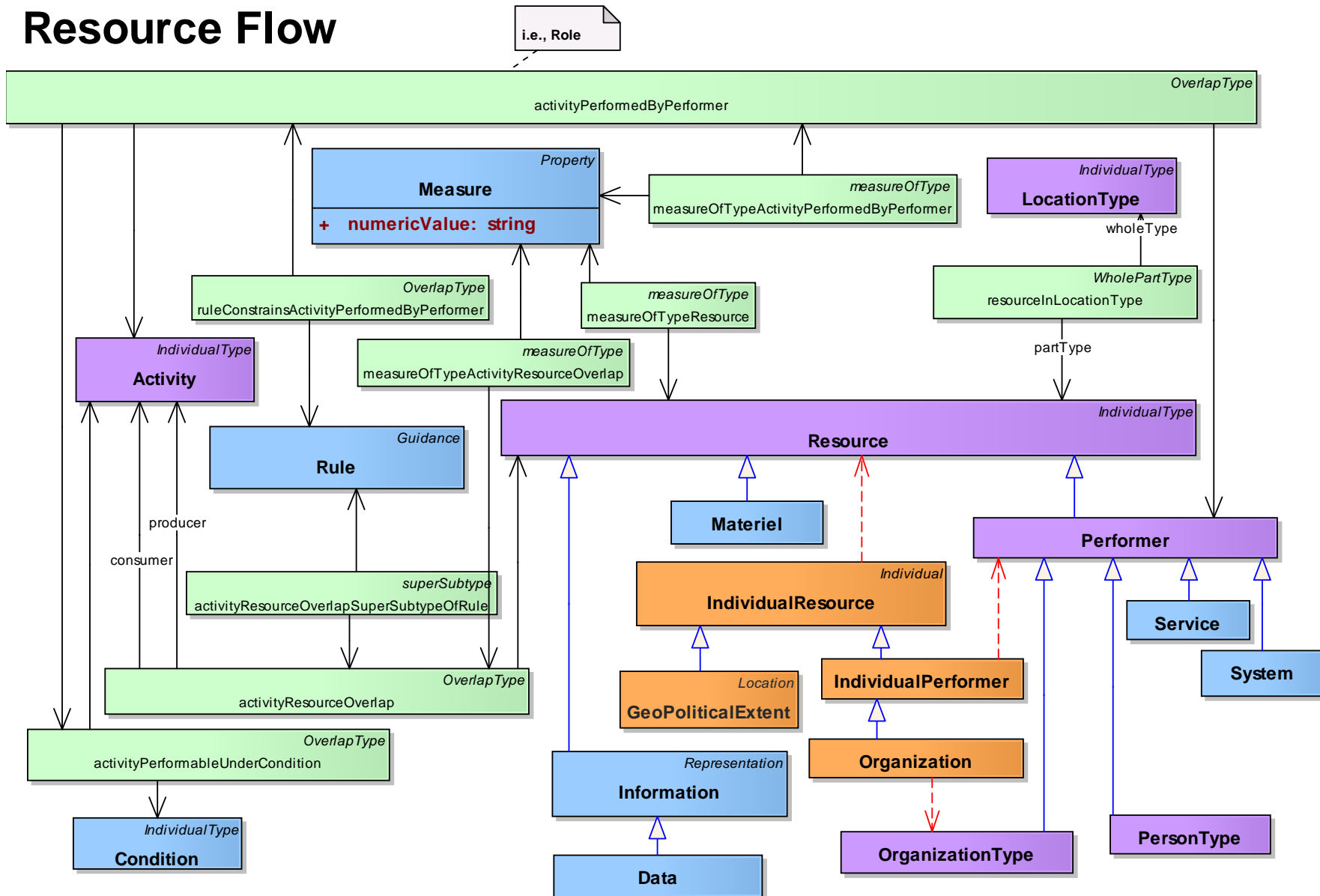**XML encoding of LDM**

Conceptual Data Model
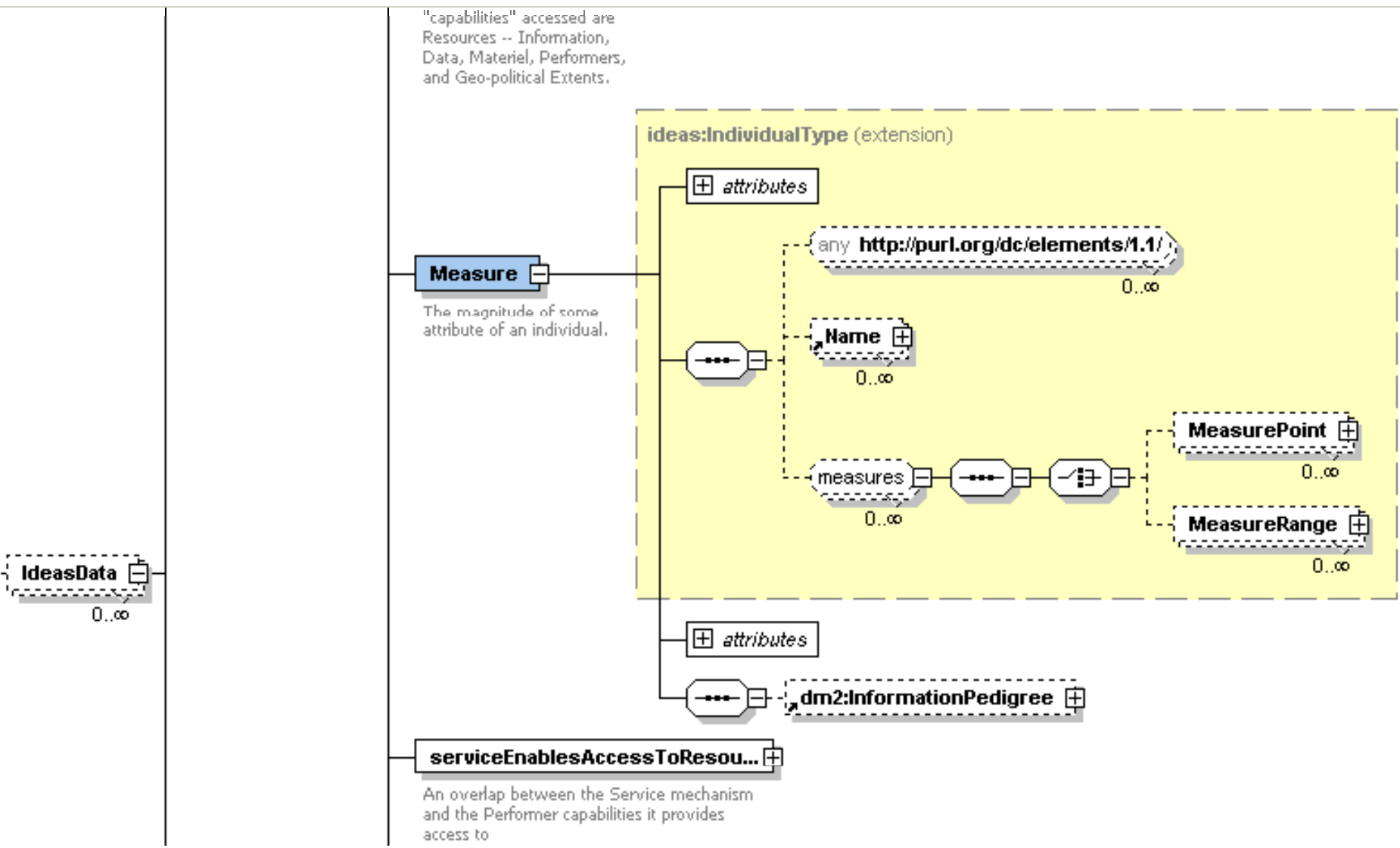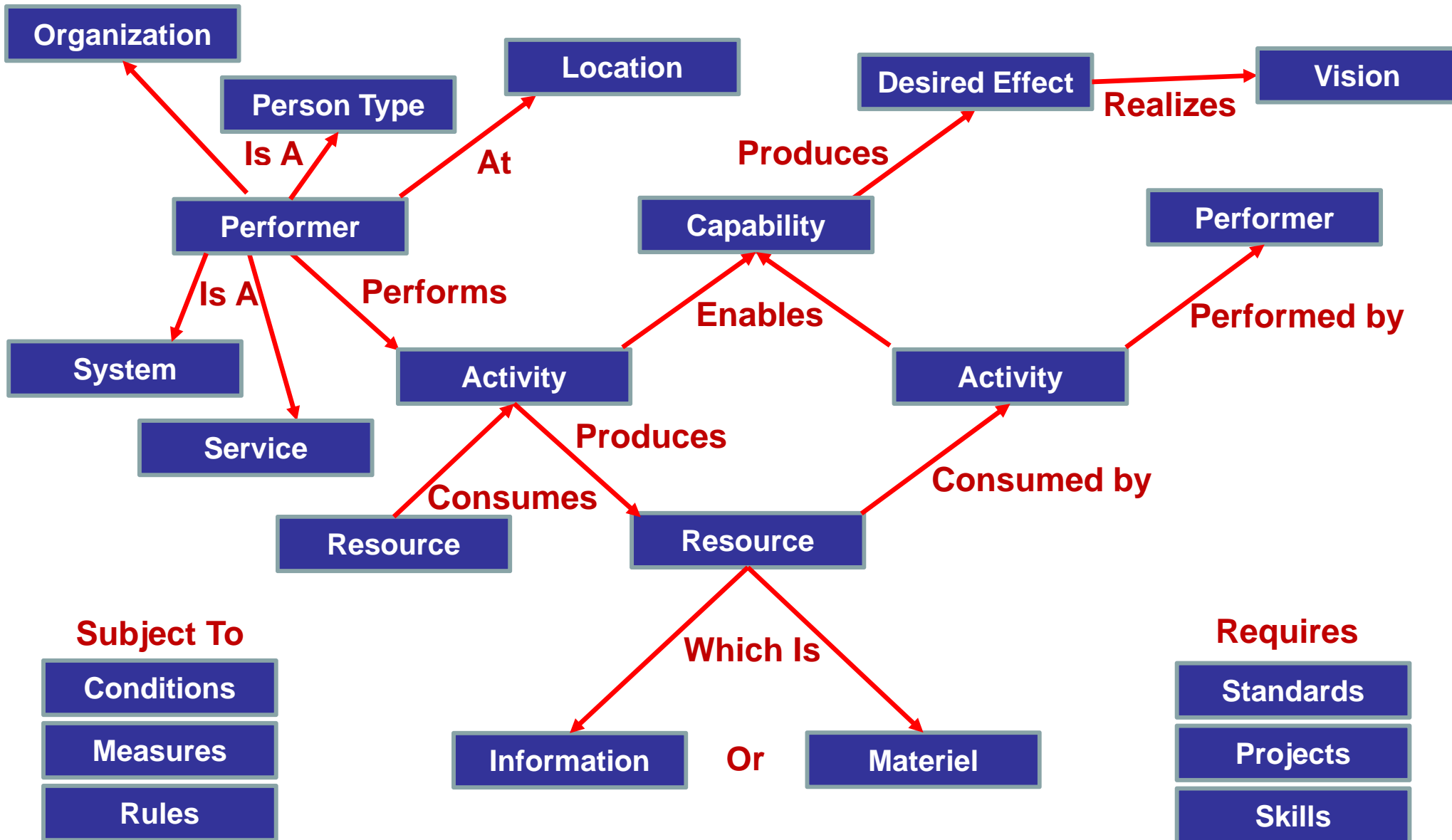
Logical Data Model (sample)

Resource Flow

Physical Exchange Specification

"capabilities" accessed are Resources -- Information, Data, Materiel, Performers, and Geo-political Extents.

ideas:IndividualType (extension)

attributes

any **http://purl.org/dc/elements/1.1/**
0..∞

Measure

The magnitude of some attribute of an individual.

Name
0..∞

measures
0..∞

MeasurePoint
0..∞

MeasureRange
0..∞

IdeasData
0..∞

attributes

dm2:InformationPedigree

serviceEnablesAccessToResou...

An overlap between the Service mechanism and the Performer capabilities it provides access to

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DM2 in Practice

Organization

Person Type

Location

Desired Effect → **Realizes** → Vision

Is A

At

Produces

Performer

Capability

Performer

Is A

Performs

Enables

Performed by

System

Activity

Activity

Produces

Service

Consumes

Consumed by

Resource

Resource

Subject To

Which Is

Requires

Conditions

Standards

Measures

Information

Or

Materiel

Projects

Rules

Skills

IDEAS Foundation

- Developed by an international group of computer scientists, engineers, mathematicians, and philosophers under defense sponsorship.
- See http://www.ideasgroup.org or http://en.wikipedia.org/wiki/IDEAS_Group
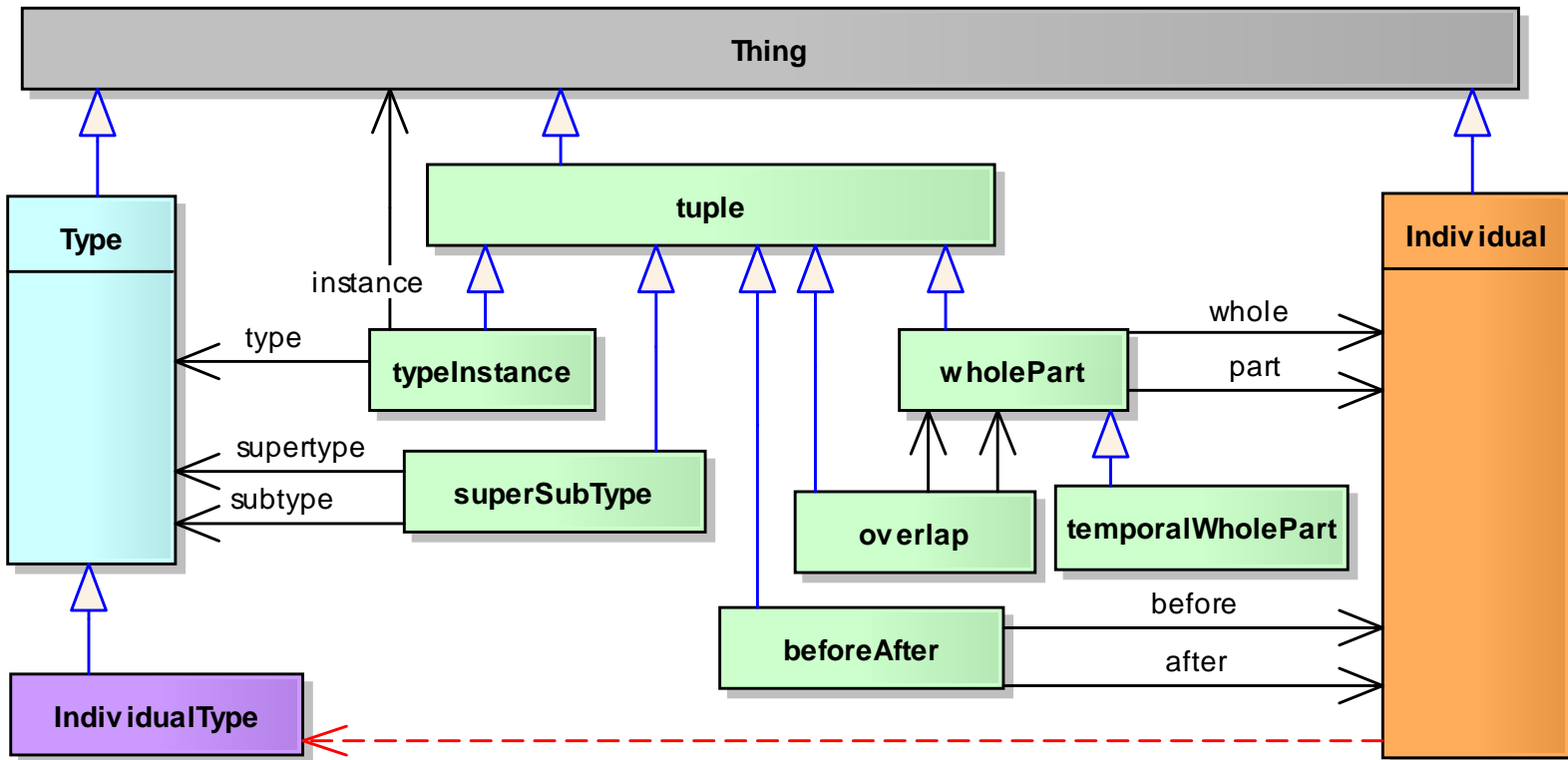
Method

Methodology: DoDAF V2.0 Six-Step Architecture Development Process

- Determine **Use**, **Scope,** and **Data Requirements** of Architecture

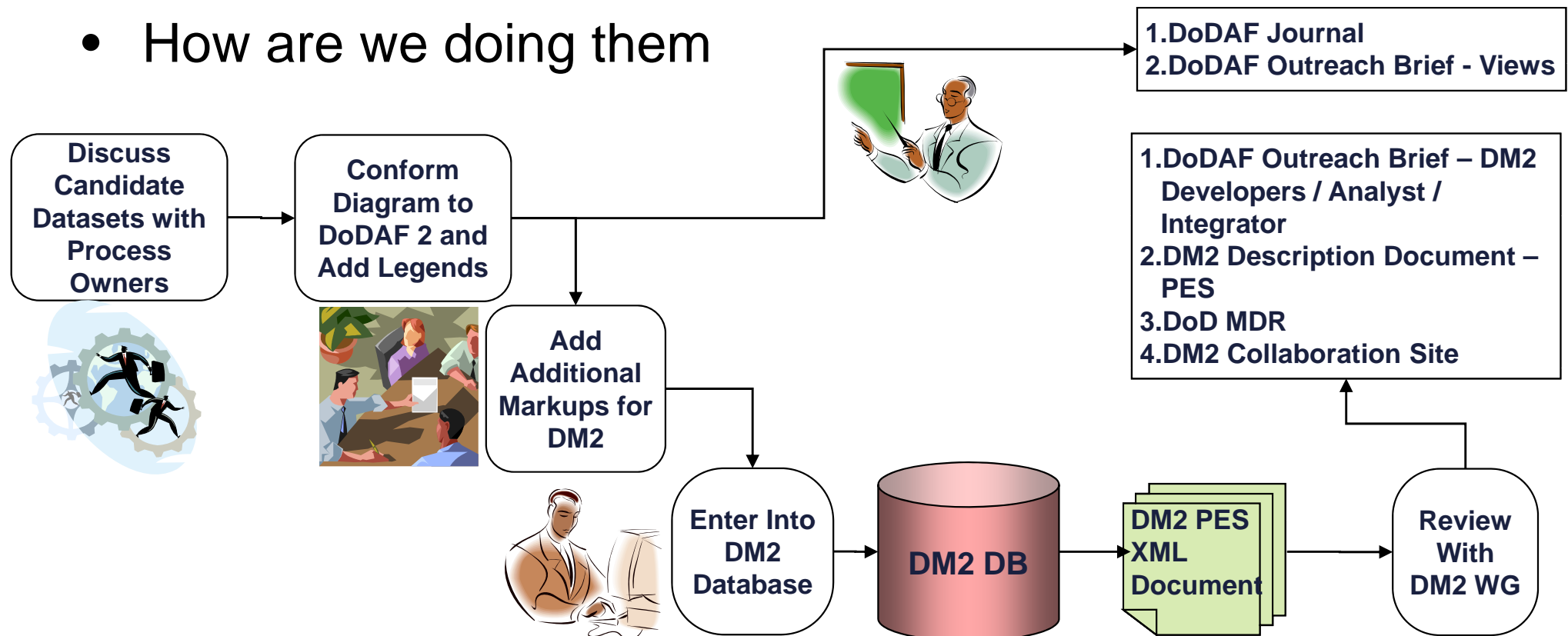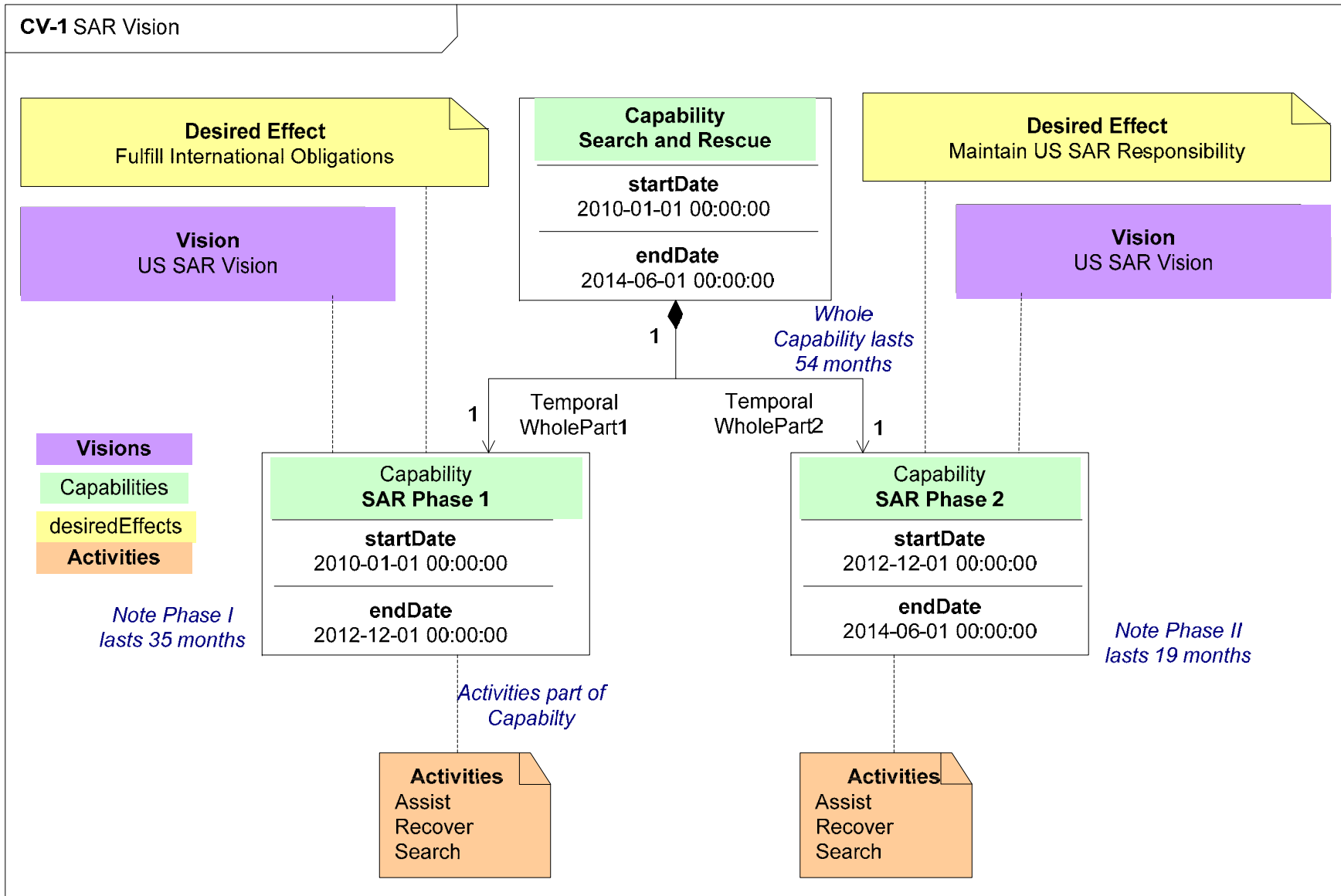- **Architect** (build models), **analyze,** and **present** (report)

DoDAF 2.0 Viewpoints

Project Viewpoint
Describes the relationships between operational and capability requirements and the various projects being implemented; Details dependencies between capability management and the Defense Acquisition System process.

Capability Viewpoint
Articulate the capability requirement, delivery timing, and deployed capability

Operational Viewpoint
Articulate operational scenarios, processes, activities & requirements

Services Viewpoint
Articulate the performers, activities, services, and their exchanges providing for, or supporting, DoD functions

Systems Viewpoint
Articulate the legacy systems or independent systems, their composition, interconnectivity, and context providing for, or supporting, DoD functions

Standards Viewpoint
Articulate applicable Operational, Business, Technical, and Industry policy, standards, guidance, constraints, and forecasts

Data and Information Viewpoint
Articulate the data relationships and alignment structures in the architecture content

All Viewpoint
Overarching aspects of architecture context that relate to all views

DoDAF V2.0 Exemplars

- What are they
  - Collections of architectural views and their corresponding DM2 PES XML document examples
  - From coherent datasets, e.g., UPDM S&R, NCES ISP

- How are we doing them

| 1. DoDAF Journal |
| 2. DoDAF Outreach Brief - Views |

Discuss Candidate Datasets with Process Owners → **Conform Diagram to DoDAF 2 and Add Legends**

Add Additional Markups for DM2

Enter Into DM2 Database → **DM2 DB** → **DM2 PES XML Document** → **Review With DM2 WG**

| 1. DoDAF Outreach Brief – DM2 Developers / Analyst / Integrator |
| 2. DM2 Description Document – PES |
| 3. DoD MDR |
| 4. DM2 Collaboration Site |

Model Examples

CV-1 SAR Vision

Desired Effect
Fulfill International Obligations

Capability
Search and Rescue

startDate
2010-01-01 00:00:00

endDate
2014-06-01 00:00:00

Desired Effect
Maintain US SAR Responsibility

Vision
US SAR Vision

Vision
US SAR Vision

Whole
Capability lasts
54 months

1

Temporal
WholePart**1**

Temporal
WholePart**2**

1

Visions

Capabilities

desiredEffects

Activities

Capability
SAR Phase 1

startDate
2010-01-01 00:00:00

endDate
2012-12-01 00:00:00

Note Phase I
lasts 35 months

Capability
SAR Phase 2

startDate
2012-12-01 00:00:00

endDate
2014-06-01 00:00:00

Note Phase II
lasts 19 months

Activities part of
Capabilty

Activities
Assist
Recover
Search

Activities
Assist
Recover
Search

Model Examples

OV-2 [Architectural Description] Organizational Interactions

Bounding box means Resource at Location

Legend:

- Location Type[1]
- PersonType
- Organization Types

Resource Flows

Information (Resource)

- Consume (Activity)
- Produce (Activity)
- System[2]
- Materiel[2]

Search Org Type

WO : warningOrder

Place of Safety1
PoS Org Type

DS : distressSignal

Tsk : tasking

Stat : status

DS : distressSignal

Rescue Org Type

Boat Radio Communications System[2]

Boat Radio2

speak

Person in Distress

DS : voiceDistressSignal

key

Ctrl : control

Tsk : tasking

Rqst : request

SAR Asset Controller

Rqst : request

Tactical C2 Org Type

TI : trackInfo

DS : keyDistressSignal

Monitoring Org Type

NOTE 1. Should generally not be shown in OV-2 unless an important constraint, i.e., not within the solution trade space.
NOTE 2: Should never be in OV-2 but included here for illustrative purposes to show SV-1 "bridge". Such a dataset could be defined as a "fit for purpose" dataset within a sub-COI.

Presentations
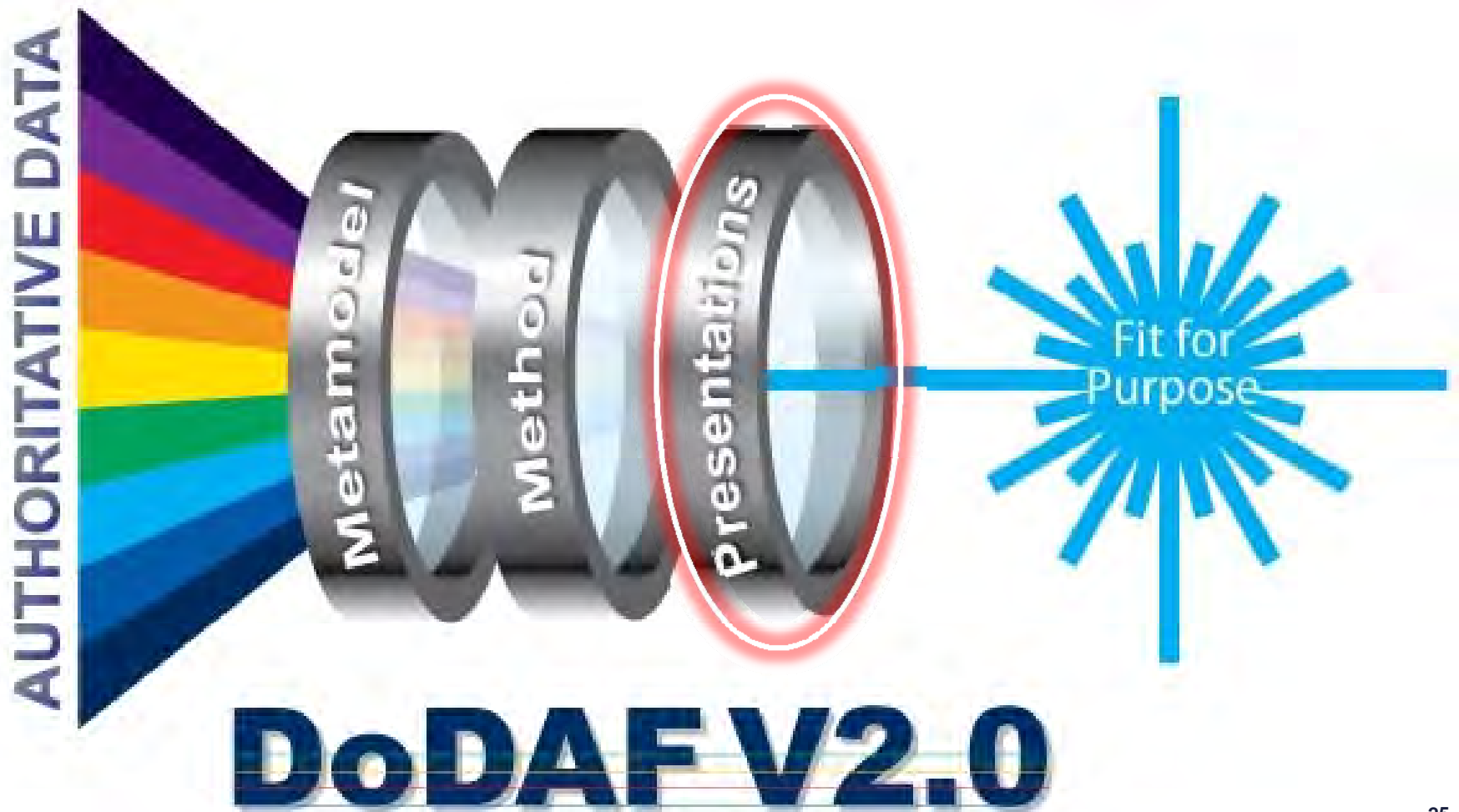
Presentation Views

- DoDAF V2.0 enables architects to provide visualizations of the collected architecture information through a combination of DoDAF-described Models and Fit-for-Purpose Views.

- ***DoDAF V2.0-described Models*** are **templates** for creating architecture views (i.e., OV-2, SysV-4) of the architecture data.

- ***Presentation Views*** allow the architect to **present** the **data** in **views commonly** used by **information consumers**.

Presentation Views

Dashboards · Graphical Depictions · Reference Models · Fusion Products · Hybrid Products

Architecture Information

Activities · Functions · Data · Business Rules

Architecture Methods

Activity Models · Process Models · Activity Models · System Function
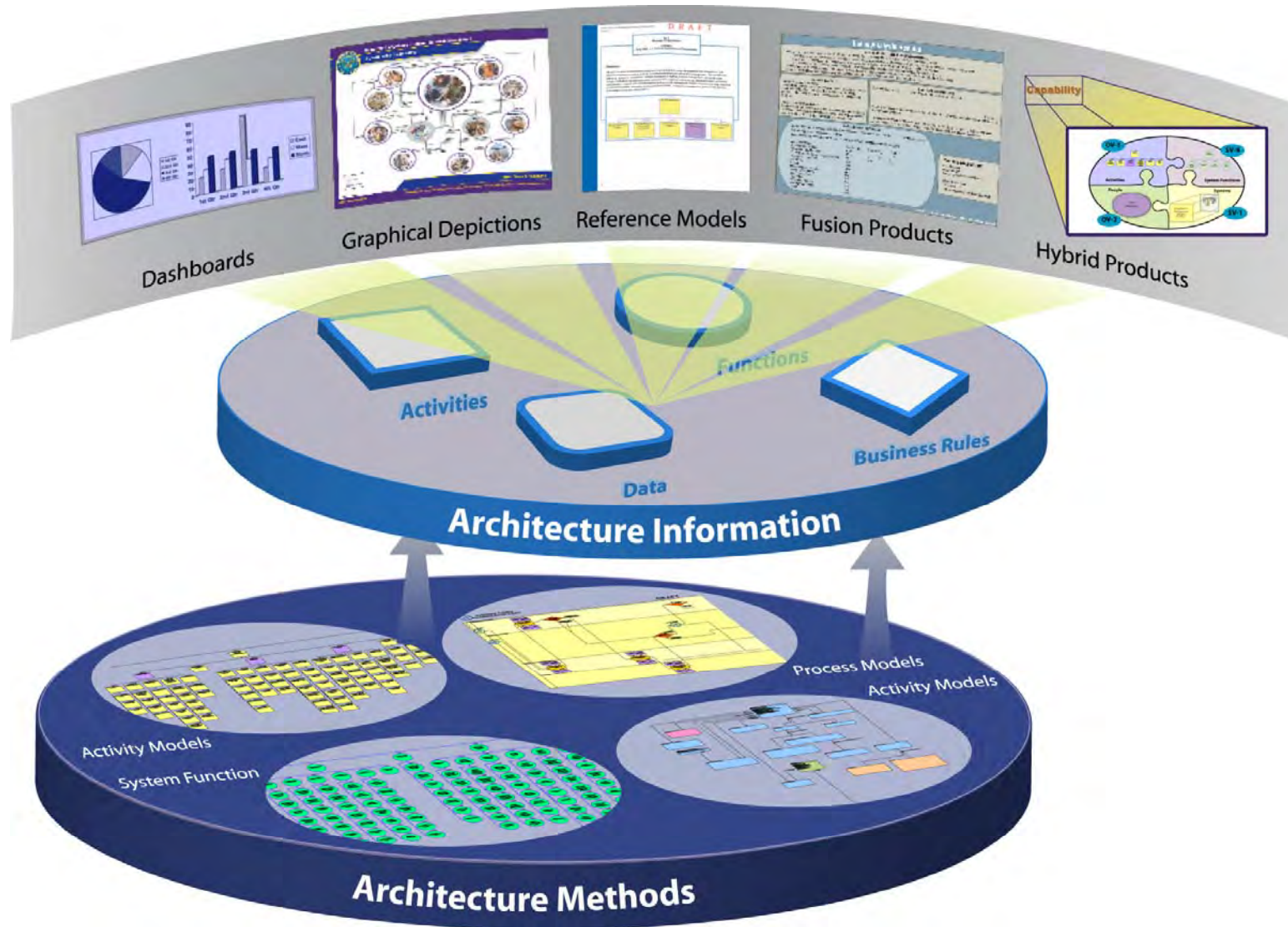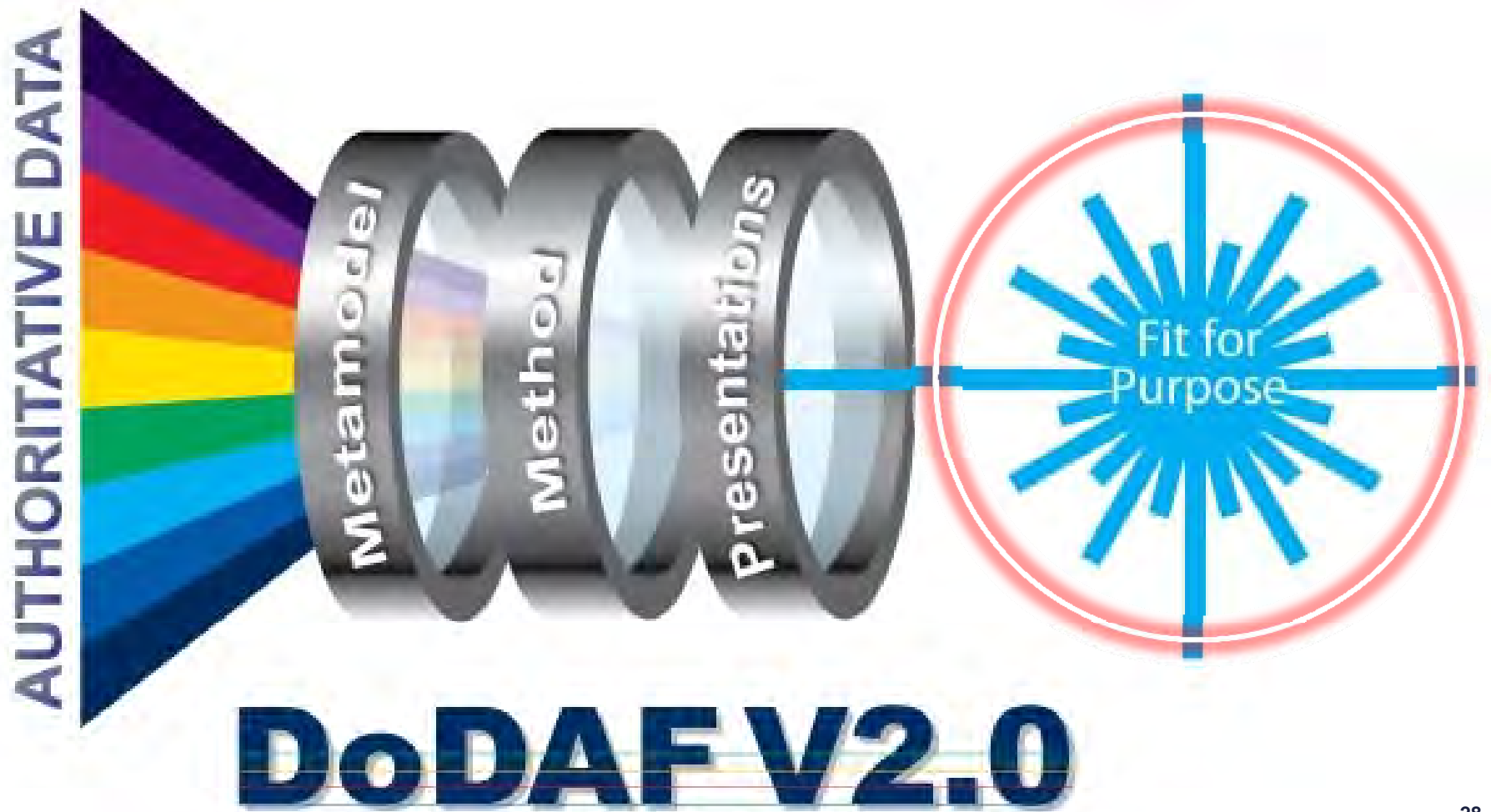
"Fit-for-Purpose"

"Fit-for-Purpose"

- Is an architectural view that is appropriately **focused** on supporting the **stated goals** and **objectives**.

- Is **meaningful** and **useful** in the decision-making process.

- **Encourages** the architect to **focus** on collecting **data** and creating views that are **customized** to the **decision-maker's value chain**.

- Architectural data and views are **aligned** to the **information consumer's needs**.

Web Enabled

DoDAF V2.0 Moved to Web-Based Collaboration Environment

- DoDAF V2.0 will be promulgated via the DoD CIO/NII website and not published as document.

  – Promoting collaboration among the DoDAF community

  – Improved ability to locate information

  – Facilitate changes & updates to DoDAF guidance

The official and most current DoDAF V2.0 content is located on the government websites.

DoDAF V2.0 Website Overview

- Public DoDAF Website
  - Open to public
  - Hosted on the DoD CIO/NII website
  - http://cio-nii.defense.gov/sites/dodaf20/

- Private DoDAF Website
  - Need Government Sponsor
  - Need Account
  - Change Request Submission
  - Hosted on DKO Homepage
  - https://www.us.army.mil/suite/page/454707

Public Website

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Private DoDAF Website – DKO

https://www.us.army.mil/suite/page/454707

Change Request Information

- DKO DoDAF V2.0 Homepage,
  https://www.us.army.mil/suite/page/454707,

- Under the "DoDAF and DoDAF Journal Change Requests" channel

  - Select "Open a Topic" to initiate a Change Request

  - Initiated Change Requests will be reviewed and adjudicated monthly by DoDAF and DM2 Working Groups

  - Approved Change Requests will be updated in DoDAF 2.01

DKO DoDAF V2.0 Homepage
https://www.us.army.mil/suite/page/454707

DoD Enterprise Architecture Conference

- **San Antonio, TX**
- **May 10-14, 2010**
- **Register at:**
  WWW.DODENTERPRISEARCHITECTURE.ORG
- **Co-hosted by Architecture, Standards, and Interoperability Directorate, DoD Deputy CIO and Joint Staff**

Questions