Department of Defense (DoD) Architecture Framework (DoDAF) Version 2.0

Prepared for
Systems Engineering Conference

26 October 2011

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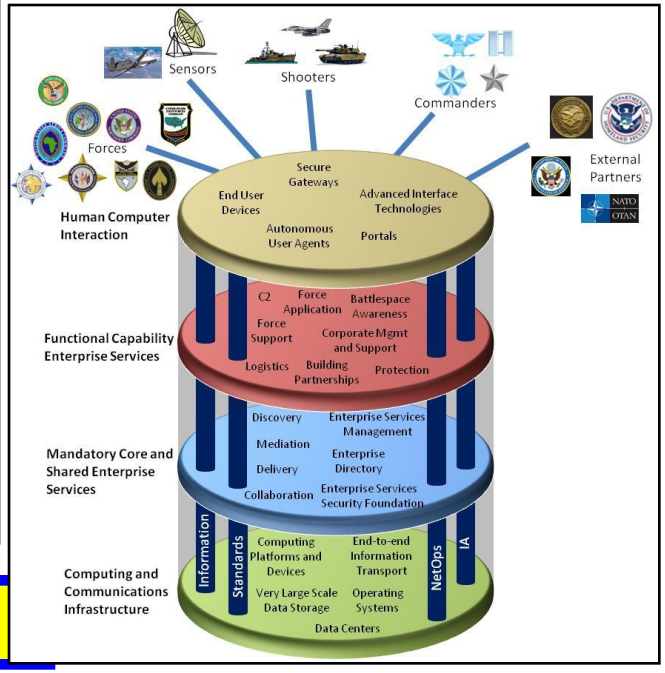
Elements of Quality Architecture

- *Single Architecture Framework*
- *Policy, Direction, Guidance*
- *Exchange*
- *Architecture Tools*
- *Certified Architects*

Enabling efficient and effective acquisition of hardware, software and services used by DoD in missions



Common Architecture Framework Approach

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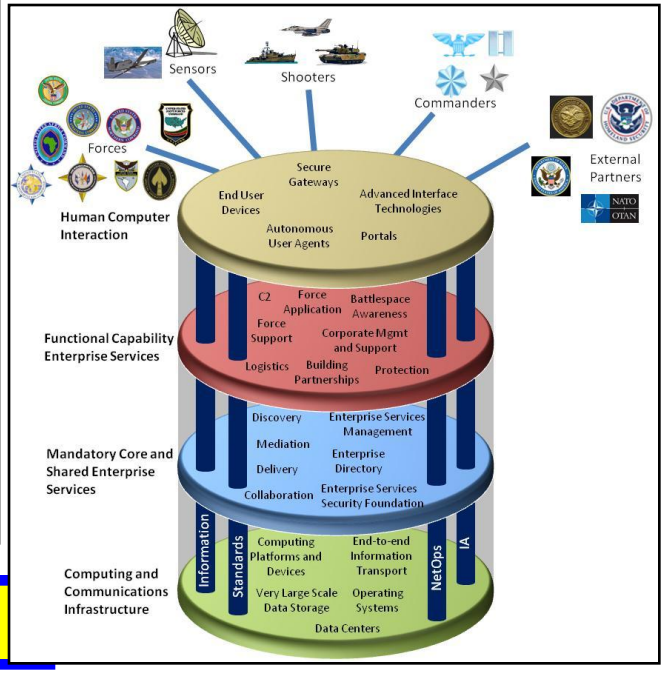
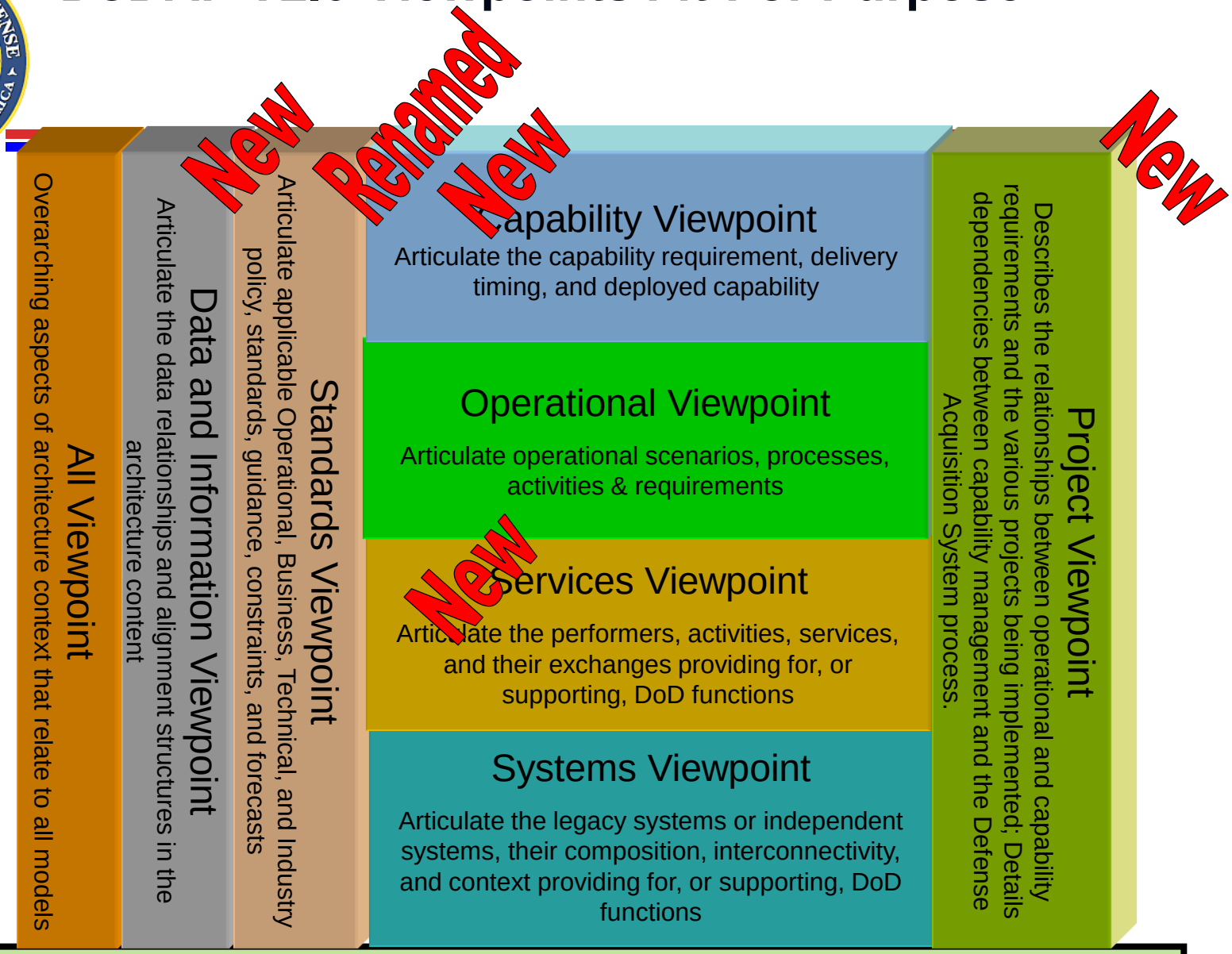


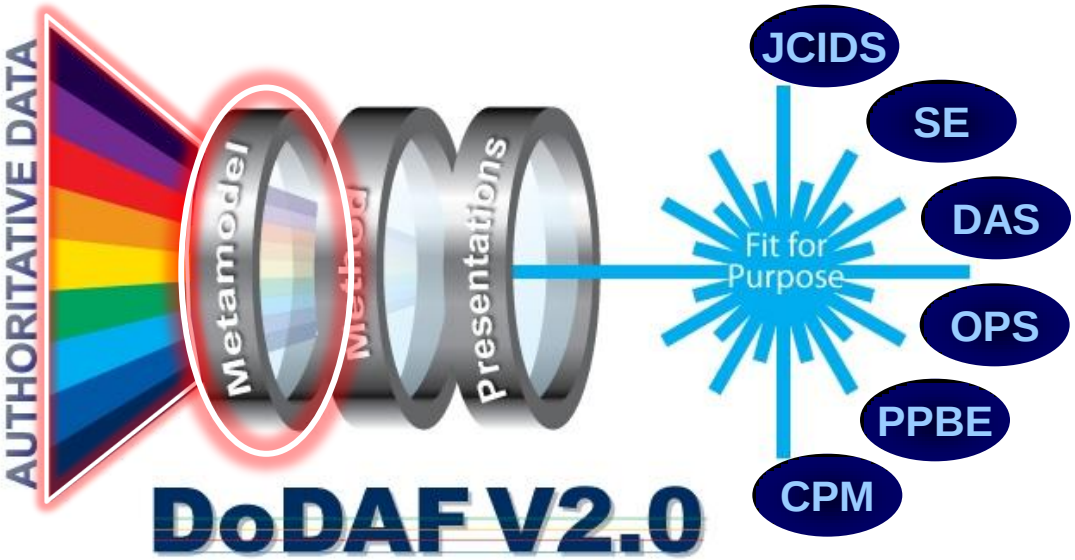
Common Architecture Framework Approach

DoDAF V2.0 Viewpoints Fit-For Purpose



Architecture viewpoints are composed of data that has been organized to facilitate understanding.

Data-Centric Paradigm



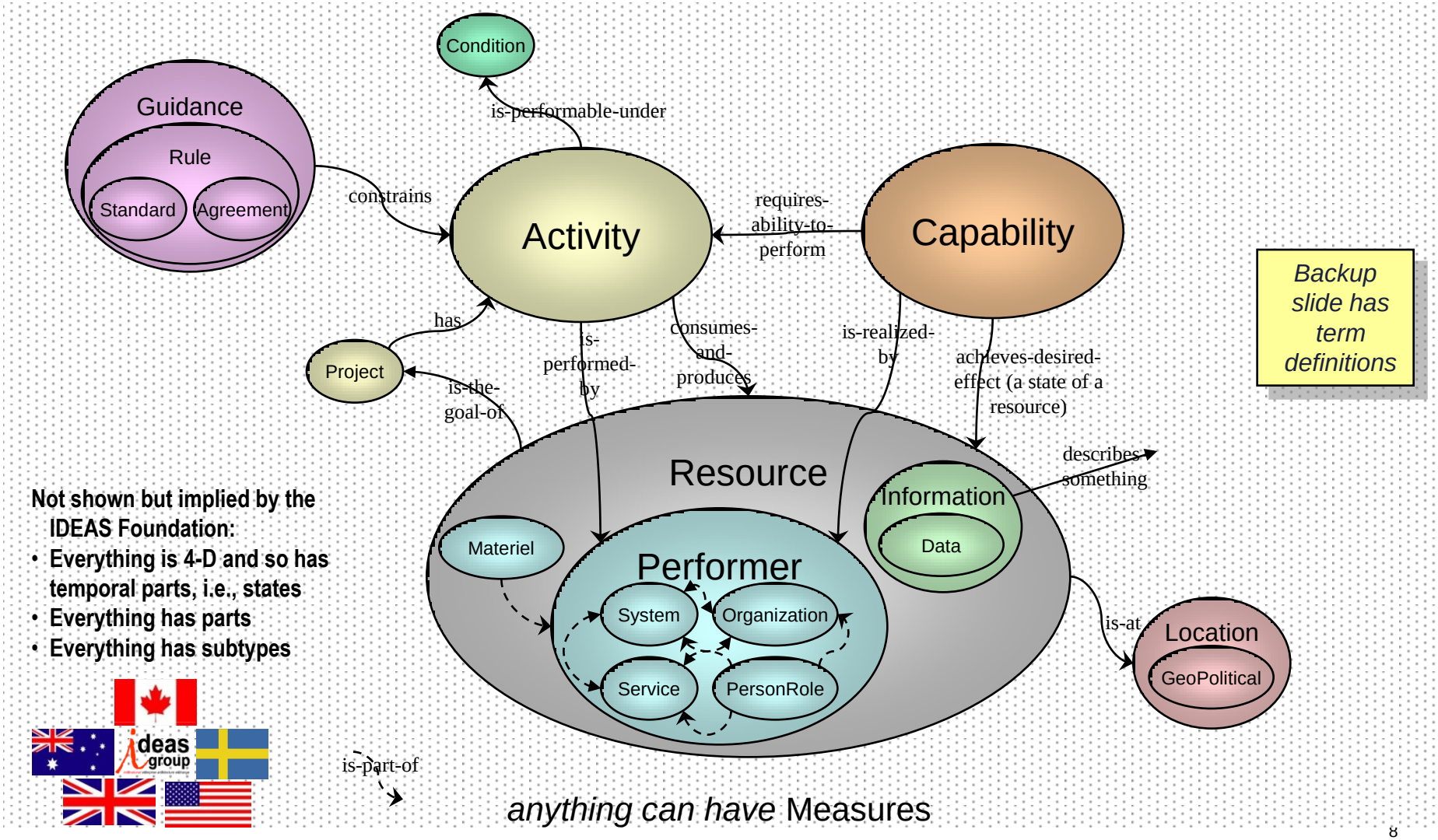
Data-Centric Paradigm

- Prior versions of DoDAF emphasized ‘products’ (i.e., graphical representations or documents).
- DoDAF V2.0 is the capture and analysis of data with its relationships:
  - 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.

DoDAF Meta Model (DM2) Purposes

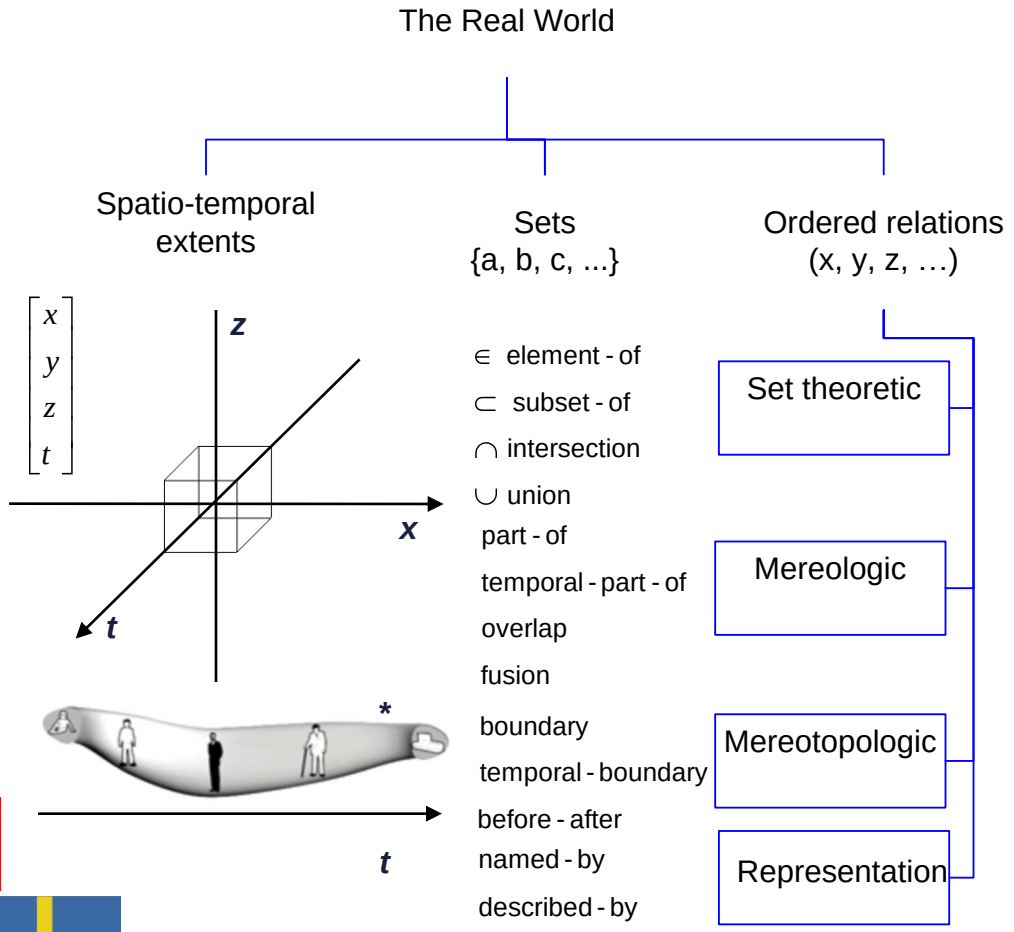
1. Precise unambiguous *definition of DoDAF terms* and their inter-relationships
   - Architecture views (e.g., OV-2) are specified in DM2 terms in addition to their usual narrative text descriptions
2. Views are rendered from DM2 data
   - Views can be *exchanged* as DM2 XML or OWL data
3. Defines precision semantics for architecture *integration and analysis*

Conceptual Level of DM2 is Simple



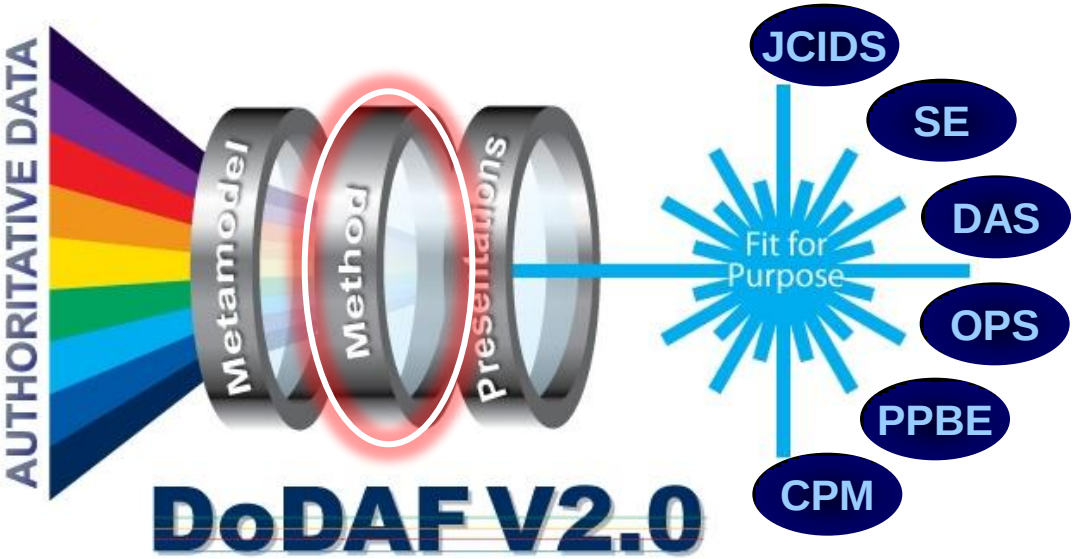
DM2 Mathematical Foundation
- IDEAS -

- Four dimensionalist -- xyzt
- Extensional -- physical existence is the criterion for identity
- Signs and representations are separated from referents
- Mathematics:
  - Type theory ~ Set theory
  - Mereology (wholes and parts)
  - 4D Mereotopology (spatio-temporal relations)

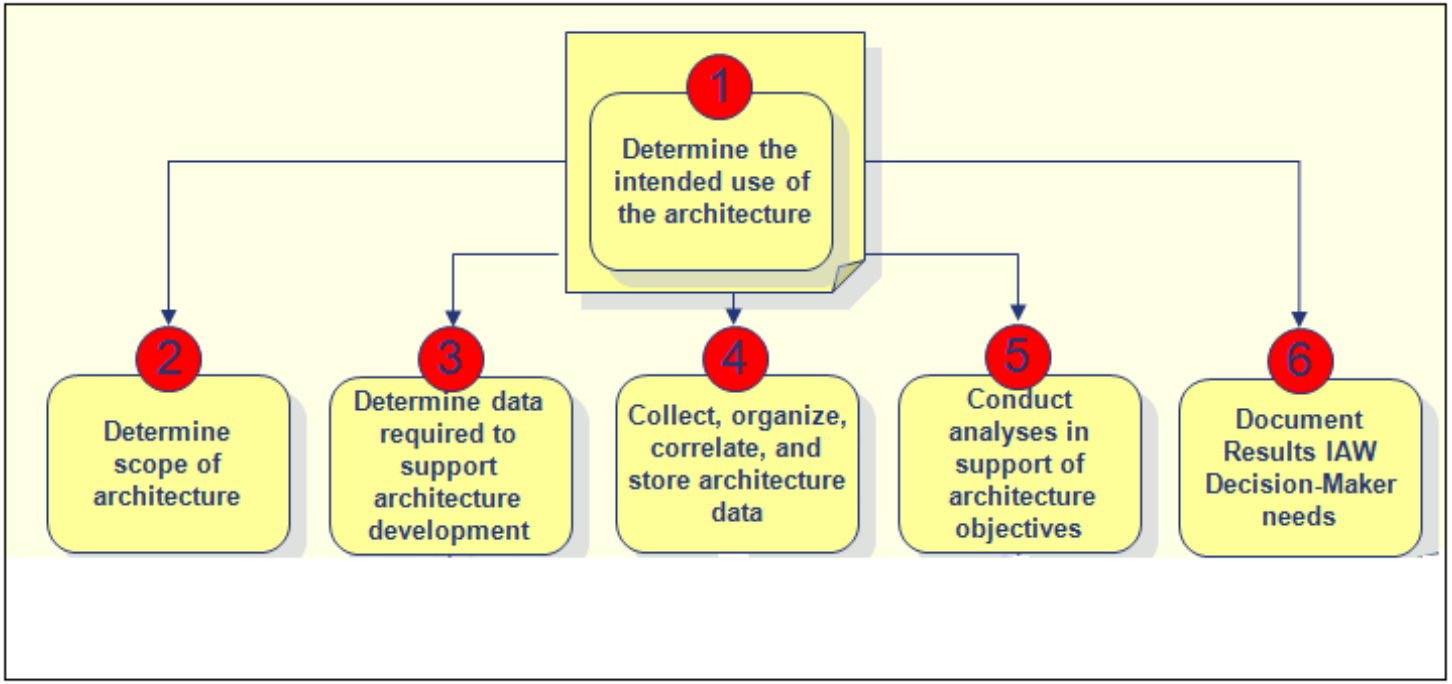


* © Rob Byranton

Method

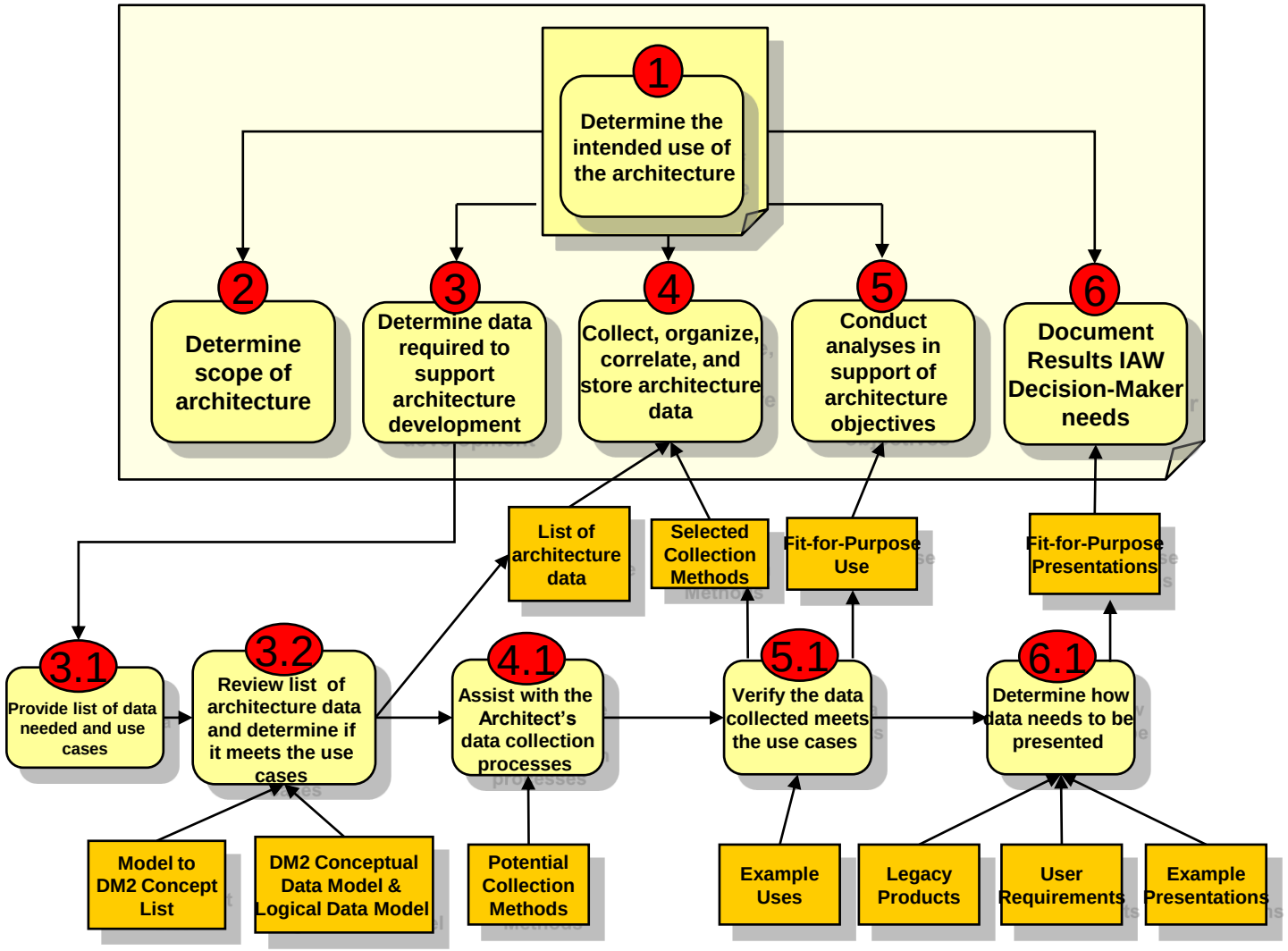

AUTHORITATIVE DATA
Metamodel
Method
Presentations
Fit for Purpose
JCIDS
SE
DAS
OPS
PPBE
CPM
DoDAF V2.0

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



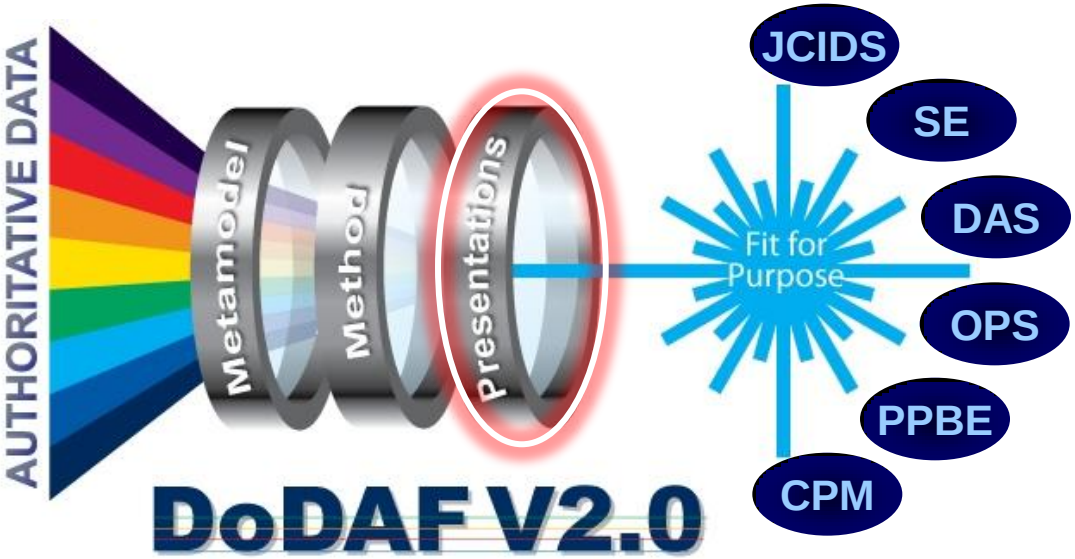
- Determine **Use**, **Scope** and **Data Requirements** of Architecture
- **Architect** (build models), **analyze** and **present** (report)

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

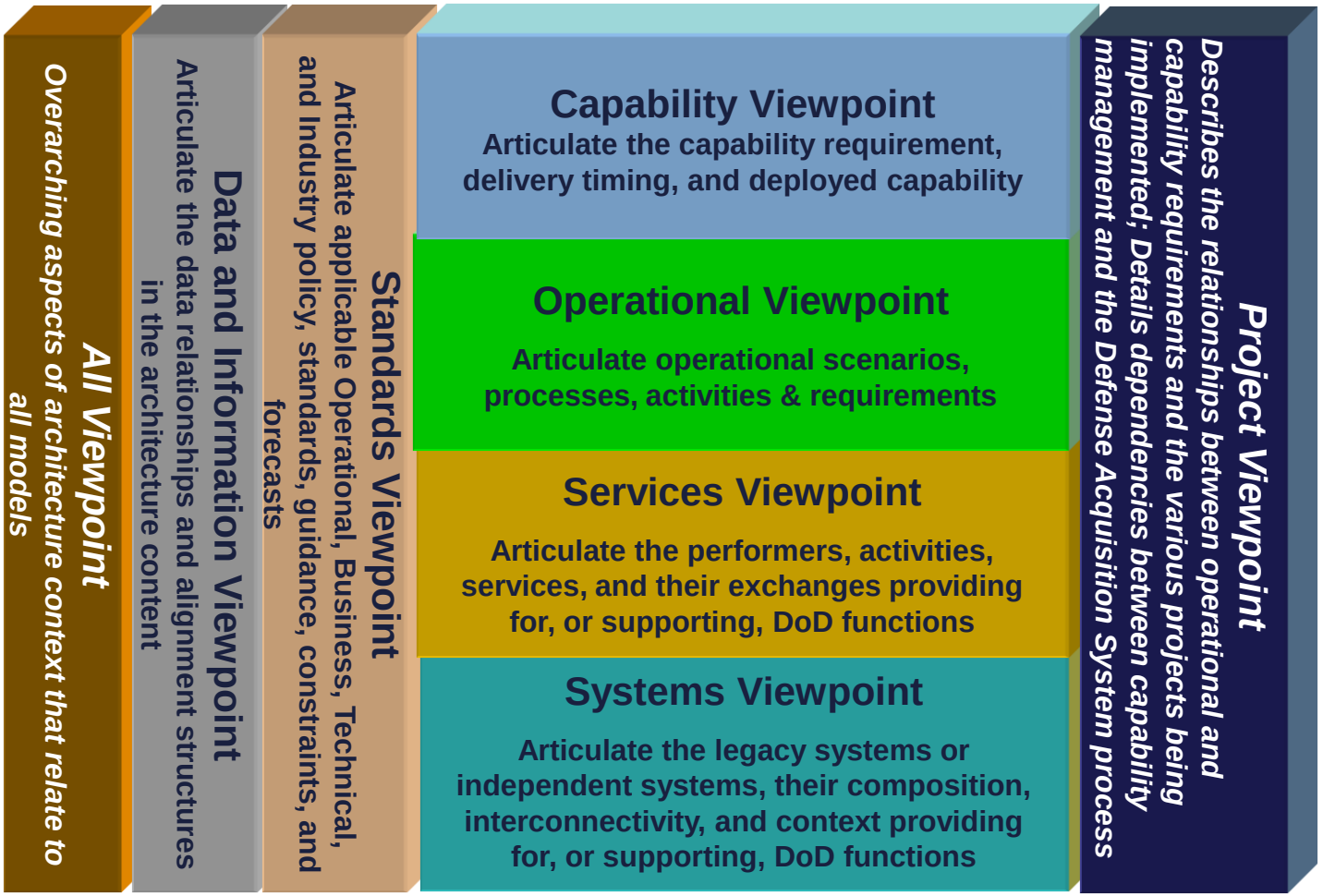


Detailed Steps for Decision-Maker

Presentations



Viewpoints


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
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
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 models

Capability Views: Strategic Goals

CV-1: Vision	The overall vision for transformational endeavors, which provides a strategic context for the capabilities described and a high-level scope.
CV-2: Capability Taxonomy	A hierarchy of capabilities which specifies all the capabilities that are referenced throughout one or more Architectural Descriptions.
CV-3: Capability Phasing	The planned achievement of capability at different points in time or during specific periods of time. The CV-3 shows the capability phasing in terms of the activities, conditions, desired effects, rules complied with, resource consumption and production, and measures, without regard to the performer and location solutions.
CV-4: Capability Dependencies	The dependencies between planned capabilities and the definition of logical groupings of capabilities.
CV-5: Capability to Organizational Development Mapping	The fulfillment of capability requirements shows the planned capability deployment and interconnection for a particular Capability Phase. The CV-5 shows the planned solution for the phase in terms of performers and locations and their associated concepts.
CV-6: Capability to Operational Activities Mapping	A mapping between the capabilities required and the operational activities that those capabilities support.
OV-1: High-Level Operational Concept Graphic	The high-level graphical/textual description of the operational concept.

Operational Views: Business Services

OV-2: Operational Resource Flow Description	A description of the Resource Flows exchanged between operational activities.
OV-3: Operational Resource Flow Matrix	A description of the resources exchanged and the relevant attributes of the exchanges.
OV-4: Organizational Relationships Chart	The organizational context, role or other relationships among organizations.
OV-5a: Operational Activity Decomposition Tree	The capabilities and activities (operational activities) organized in a hierarchal structure.
OV-5b: Operational Activity Model	The context of capabilities and activities (operational activities) and their relationships among activities, inputs, and outputs; Additional data can show cost, performers, or other pertinent information.
OV-6a: Operational Rules Model	One of three models used to describe activity (operational activity). It identifies business rules that constrain operations.
OV-6b: State Transition Description	One of three models used to describe operational activity (activity). It identifies business process (activity) responses to events (usually, very short activities).
OV-6c: Event-Trace Description	One of three models used to describe activity (operational activity). It traces actions in a scenario or sequence of events.

Data and Information Views

DIV-1: Conceptual Data Model	The required high-level data concepts and their relationships.
DIV-2: Logical Data Model	The documentation of the data requirements and structural business process (activity) rules. In DoDAF V1.5, this was the OV-7.
DIV-3: Physical Data Model	The physical implementation format of the Logical Data Model entities, e.g., message formats, file structures, physical schema. In DoDAF V1.5, this was the SV-11.
StdV-1 Standards Profile	The listing of standards that apply to solution elements.
StdV-2 Standards Forecast	The description of emerging standards and potential impact on current solution elements, within a set of time frames.

There may be cross-referenced data and information standards.

Service and System Views: Enabling Applications

SvcV-1 Services Context Description	The identification of services, service items, and their interconnections.
SvcV-2 Services Resource Flow Description	A description of Resource Flows exchanged between services.
SvcV-3a Systems-Services Matrix	The relationships among or between systems and services in a given Architectural Description.
SvcV-3b Services-Services Matrix	The relationships among services in a given Architectural Description. It can be designed to show relationships of interest, (e.g., service-type interfaces, planned vs. existing interfaces).
SvcV-4 Services Functionality Description	The functions performed by services and the service data flows among service functions (activities).
SvcV-5 Operational Activity to Services Traceability Matrix	A mapping of services (activities) back to operational activities (activities).
SvcV-6 Services Resource Flow Matrix	It provides details of service Resource Flow elements being exchanged between services and the attributes of that exchange.
SvcV-7 Services Measures Matrix	The measures (metrics) of Services Model elements for the appropriate time frame(s).
SvcV-10a Services Rules Model	One of three models used to describe service functionality. It identifies constraints that are imposed on systems functionality due to some aspect of system design or implementation.
SvcV-10b Services State Transition Description	One of three models used to describe service functionality. It identifies responses of services to events.
SvcV-10c Services Event-Trace Description	One of three models used to describe service functionality. It identifies service-specific refinements of critical sequences of events described in the Operational Viewpoint.

SV-4 Systems Functionality Description	The functions (activities) performed by systems and the system data flows among system functions (activities).
SV-5a Operational Activity to Systems Function Traceability Matrix	A mapping of system functions (activities) back to operational activities (activities).
StdV-1 Standards Profile	The listing of standards that apply to solution elements.
StdV-2 Standards Forecast	The description of emerging standards and potential impact on current solution elements, within a set of time frames.

There are normally cross-referenced application and technical service standards.

System Views: Host Infrastructure

SV-1 Systems Interface Description	The identification of systems, system items, and their interconnections.
SV-2 Systems Resource Flow Description	A description of Resource Flows exchanged between systems.
SV-3 Systems-Systems Matrix	The relationships among systems in a given Architectural Description. It can be designed to show relationships of interest, (e.g., system-type interfaces, planned vs. existing interfaces).
SV-5b Operational Activity to Systems Traceability Matrix	A mapping of systems back to capabilities or operational activities (activities).
SV-6 Systems Resource Flow Matrix	Provides details of system resource flow elements being exchanged between systems and the attributes of that exchange.
SV-7 Systems Measures Matrix	The measures (metrics) of Systems Model elements for the appropriate timeframe(s).
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There are normally cross-referenced infrastructure standards.

Information Security

Explicitly:

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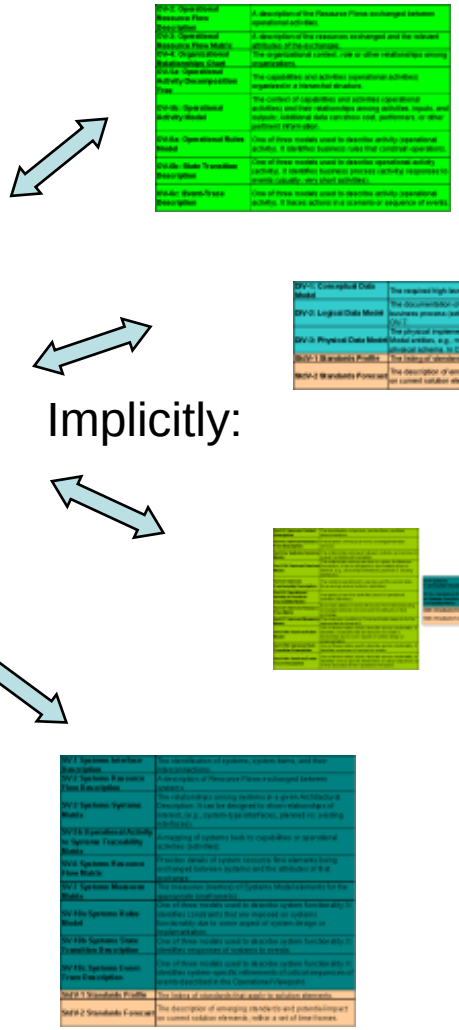
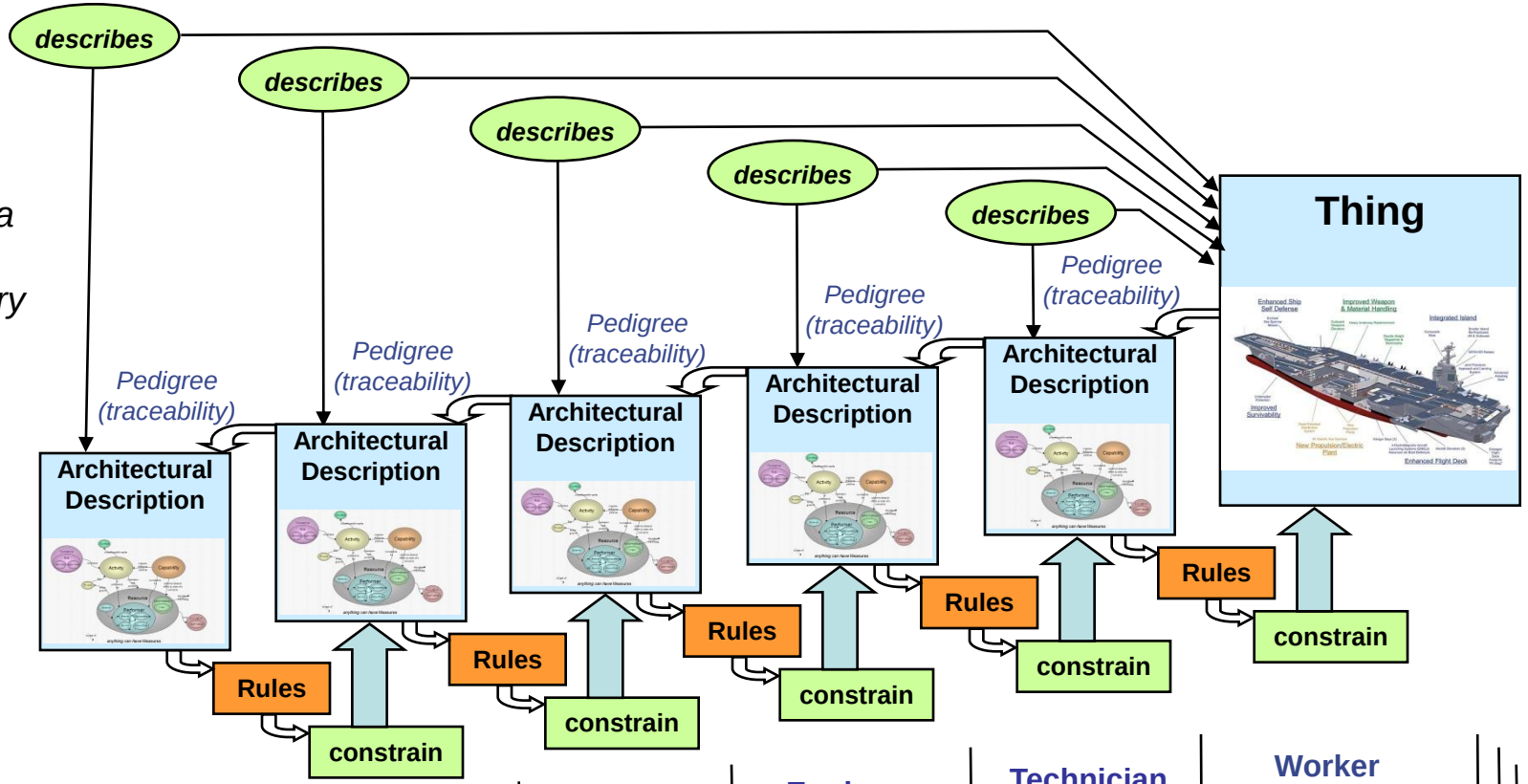


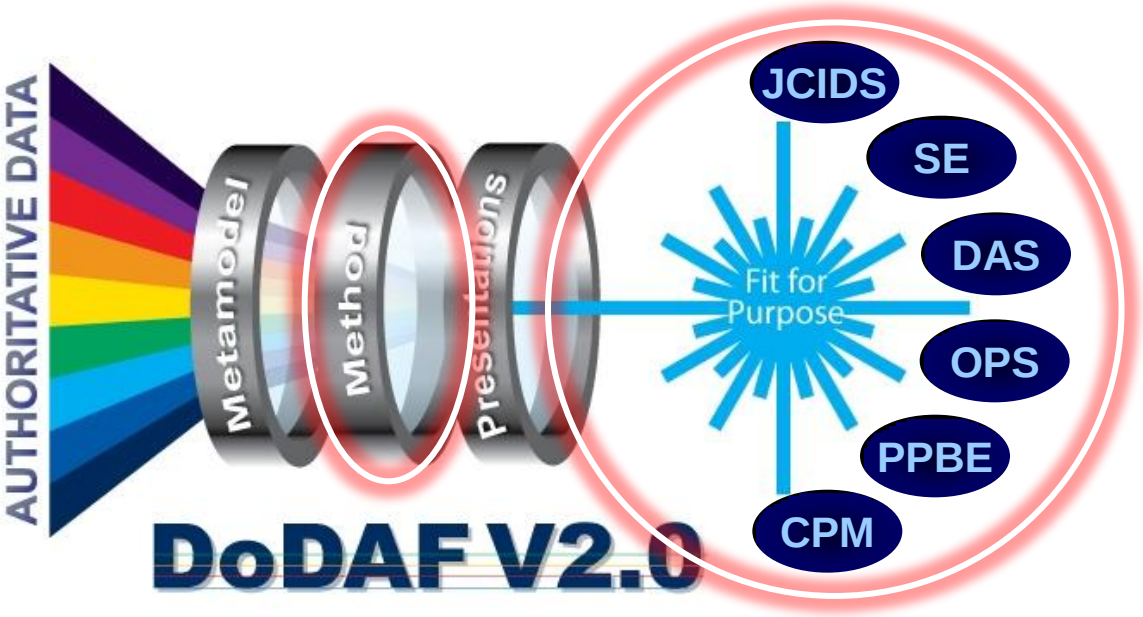
Implicitly:

Views are traceable and reifiable

Same pattern applies to a an evolutionary acquisition spiral, just repeated iteratively

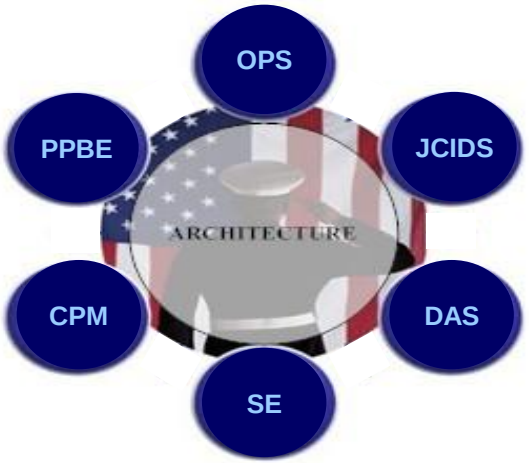


Fit for Purpose



DoD's 6 Core Processes

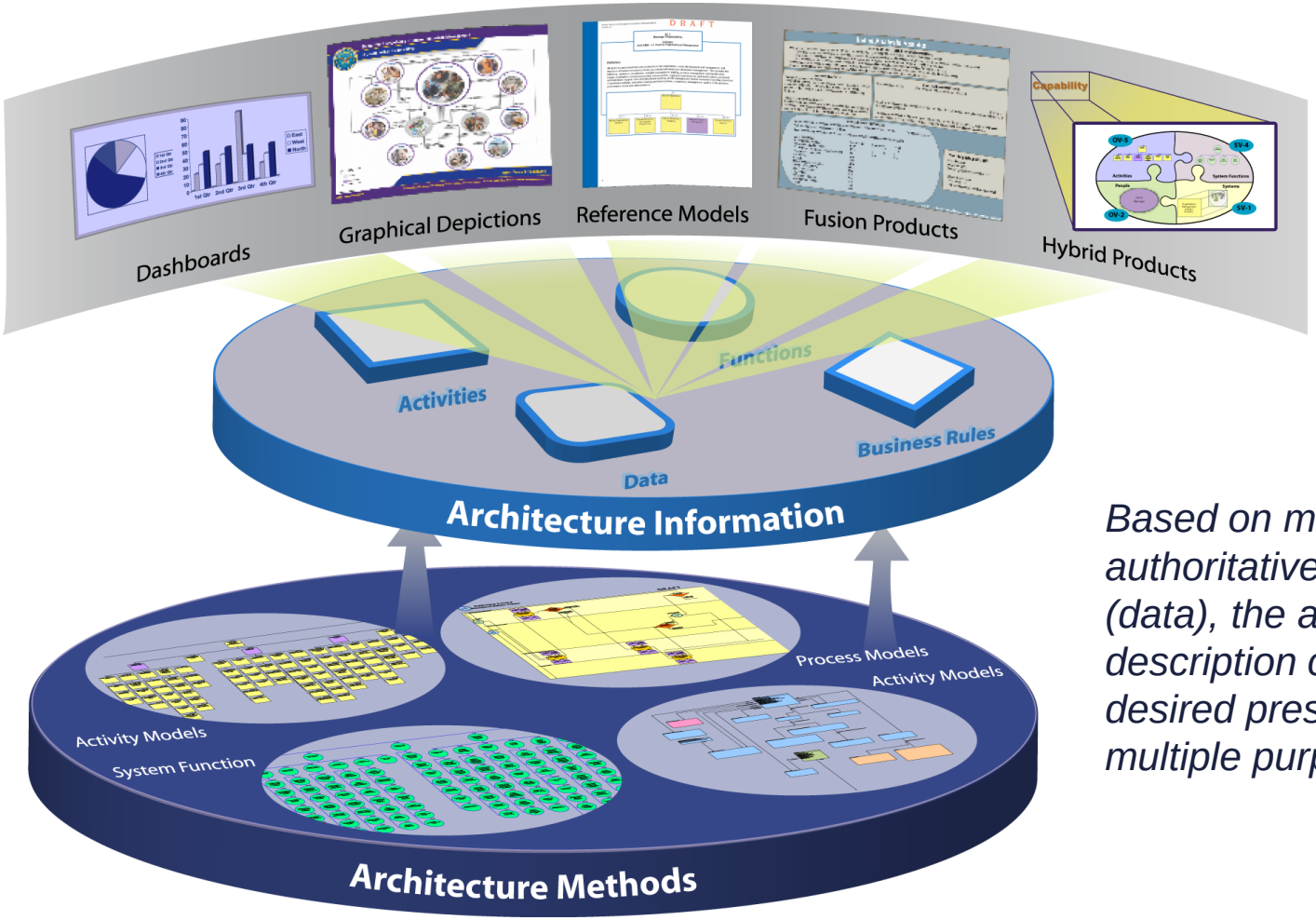
Core Process		Governance	
OPS	Operations	JCS	DoD Architectures Directive (Draft) OASD (CIO)
JCIDS	Joint Capability Integration Development System	JCS	
		JCS	
DAS	Defense Acquisition System	USD (AT&L)	
SE	Systems Engineering (SE)	USD (AT&L)	
CPM	Capability Portfolio Management (CPM)	USD (P) OASD (CIO)	
PPBE	Programming Planning and Budget Execution (PPBE)	USD (P)	



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.

“Fit for Purpose” Architecture Descriptions

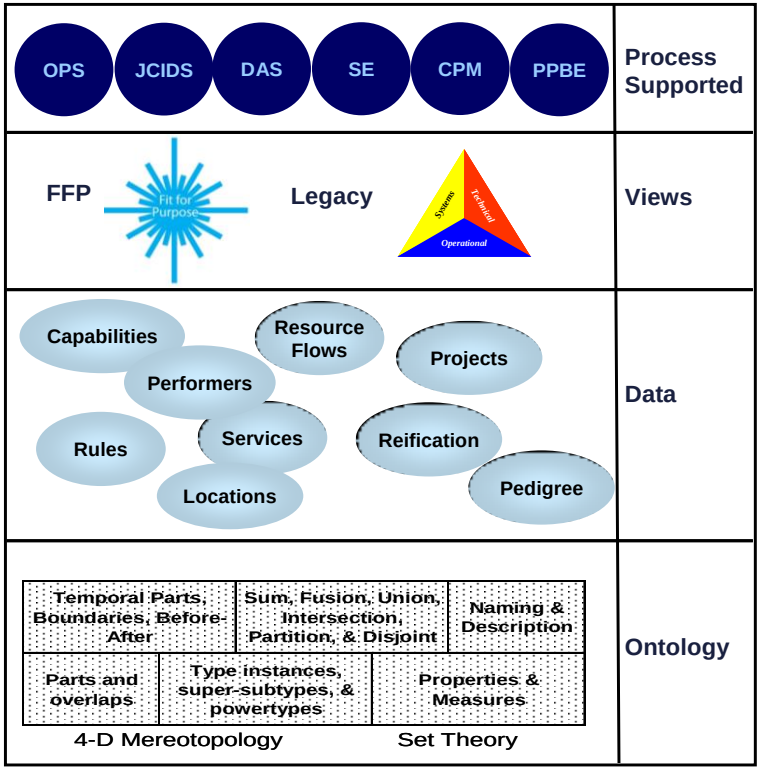


Based on models and authoritative information (data), the architectural description can support desired presentations for multiple purposes.

DM2-Views-FFP Fit Together

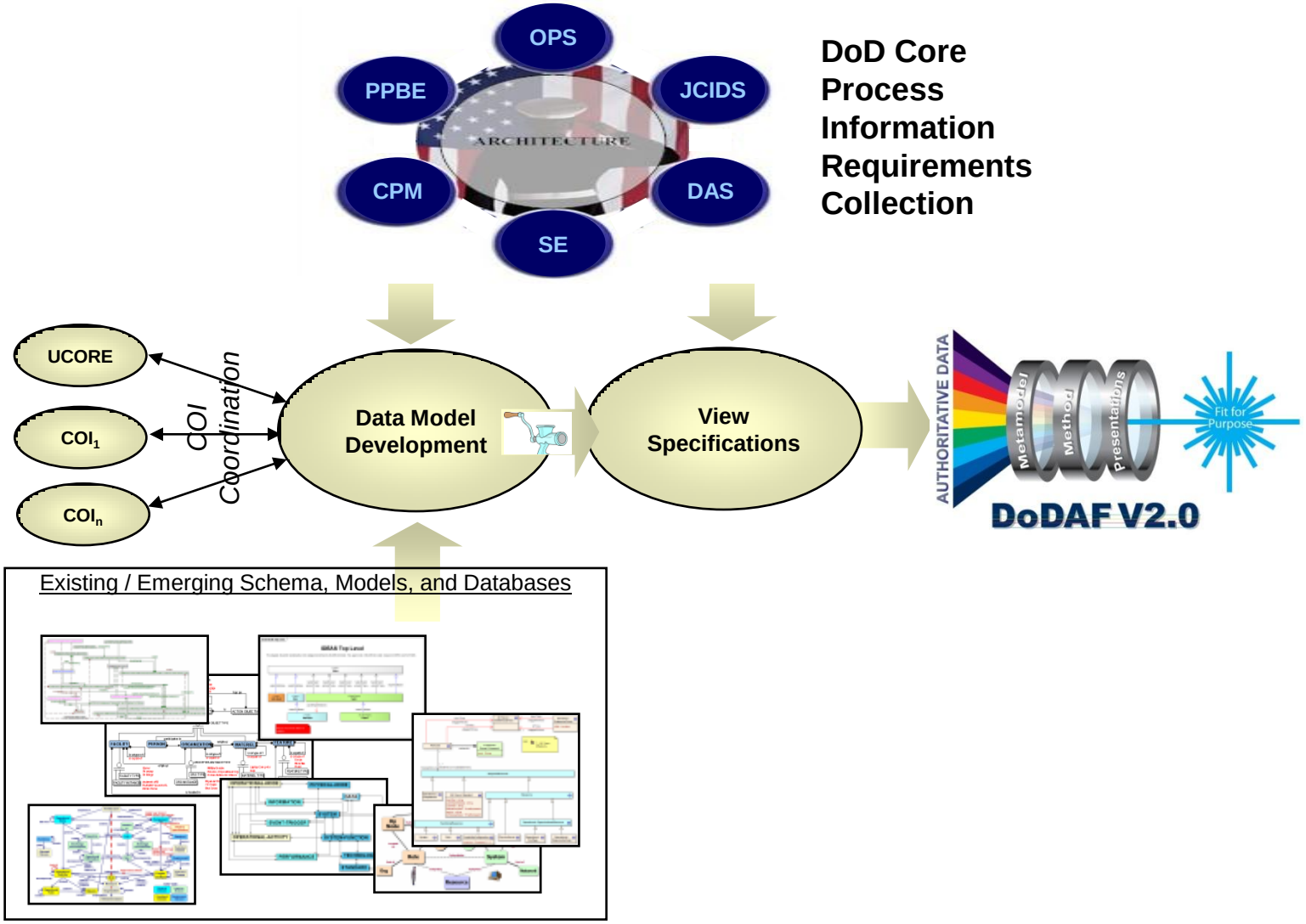
The 52 DoDAF models and the DM2 are related via a matrix*

1. Model (view) specifications
   - Operational
   - Capabilities
   - Services
   - Systems
   - Data and Information
   - Standards
   - Projects
2. DM2
   - Conceptual Data Model
   - Logical Data Model
   - Physical Exchange Specification



* 52 DoDAF models X 250 DM2 data elements, referred to as the "monster matrix" because it has ~ 13,000 decision cells

Top-Down / Bottom-Up Development



Tool Characterization

- Primary Functionality
  - Develop → Integrate → Analyze
- Core Process Supported →

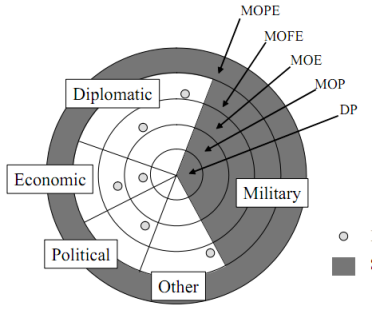
- Type of Architecture →

EA
RM
DoD EA
Capability
Reference
Segment
Solutions
Component

- Business Application(s) Suited for →

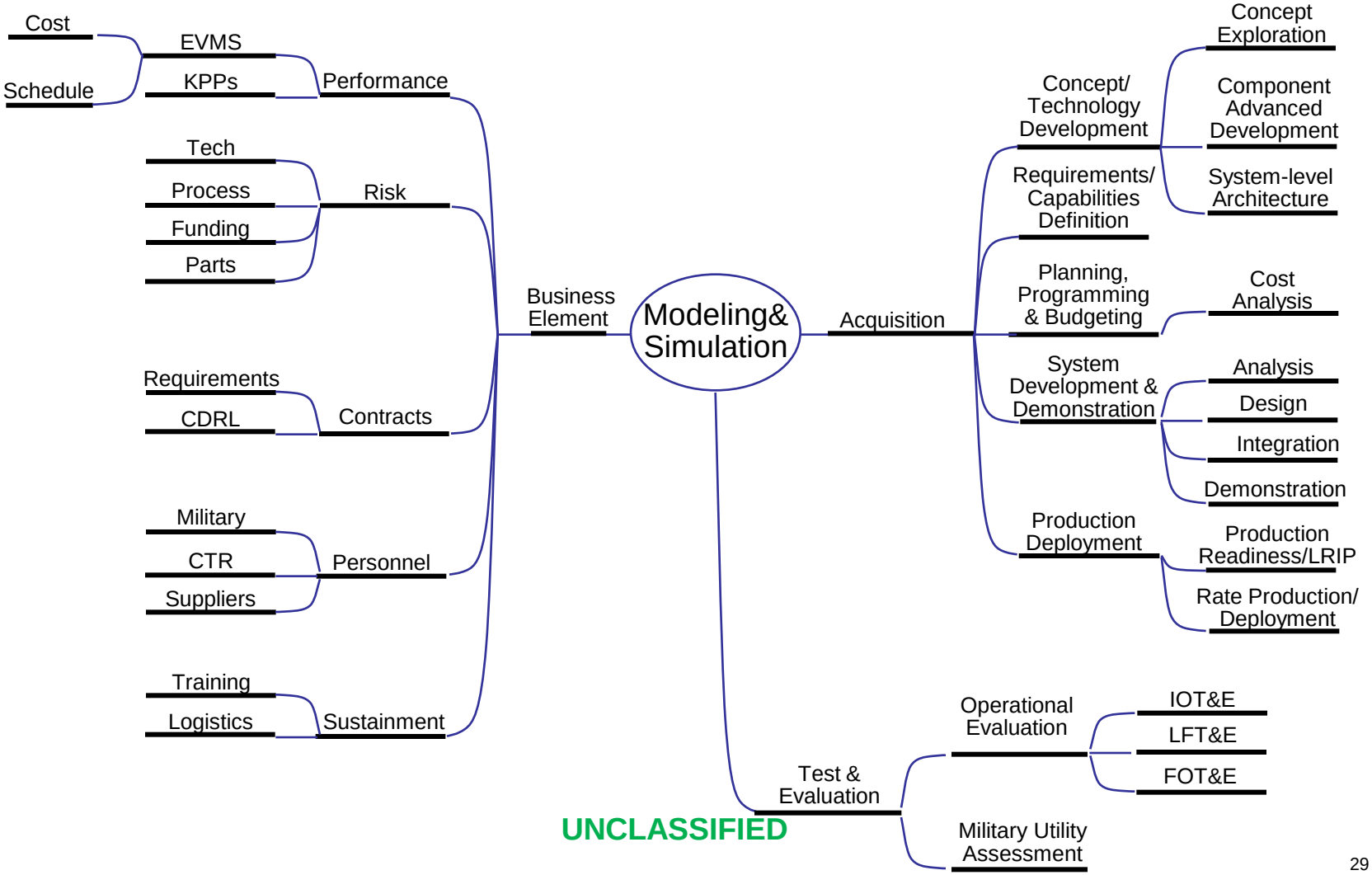
Force Support
Battlespace Awareness
Force Application
Logistics
Command and Control
Net-Centric
Protection
Building Partnerships
Corporate Management and Support

- Analytics Supported →



- DoDAF 2 Conformance
  - Conceptual → Logical → Physical → Semantic

An M&S Taxonomy



UNCLASSIFIED

COTS Tools

- We invite vendors in to brief and demo their tools at quarterly “Vendor’s Days”
- We try to categorize them by functionality, types of analyses that can be performed, modeling languages and standards, etc.

Tool Name	Vendor	Modeling Languages Supported	Primary Functionality		
			Model Development	Repository / Integration	Analysis / M&S
Abacus	Avolution	Archimate, BPMN, UML			x
Accept 360	Acceptsoftware			x	
Adaptive EA Manager	Adaptive	UML or CWM		x	
Altova Enterprise Suite	Altova	UML	x		
Architecture Engine	Rividium		x		x
ARIS	Software AG		x		
Artisan	Atego	UML	x		
ASG-Rochade	ASG Software Solutions			x	
BiZZdesign Architect	BiZZdesign	Archimate			
CORE	ViTech		x		x
Corporate Modeler	Casewise	Archimate, BPMN, UML	x		
Data Enabled Enterprise Modeler (DE2M)	Pragmatica Innovations		x	x	x
EA Webmodeler	Aglinese		x		
Enterprise Architect	Sparx	UML	x		

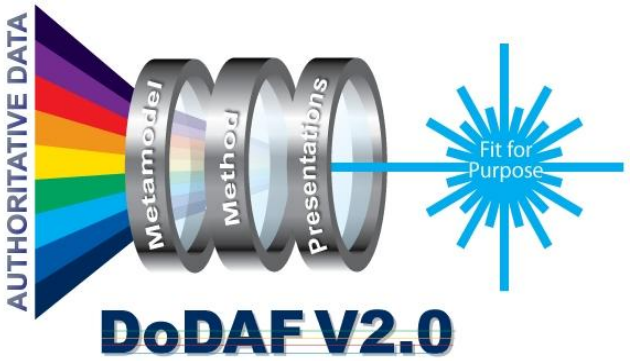
COTS Tools

Tool Name	Vendor	Modeling Languages Supported	Primary Functionality		
			Model Development	Repository / Integration	Analysis / M&S
Enterprise Elements	Enterprise Elements	UML		x	
Envision VIP	Future Tech Systems				
EVA Netmodeler	Promis			x	x
InterChange	Trident Systems	many		x	
iServer	orbussoftware		x		x
IT Portfolio Manager	Adaptive			x	
Magic Draw	No Magic	UML	x		
MAP Suite	Intelligile Corporation		x		
MDWorkbench	Sodius		x		
MEGA Suite for DoDAF	Mega	UML	x		
Metastorm ProVision	Metastorm	BPMN	x		
Naval Simulation System - 4 Aces	METRON				x
NetViz	CA		x		
OPNET	OPNET				x

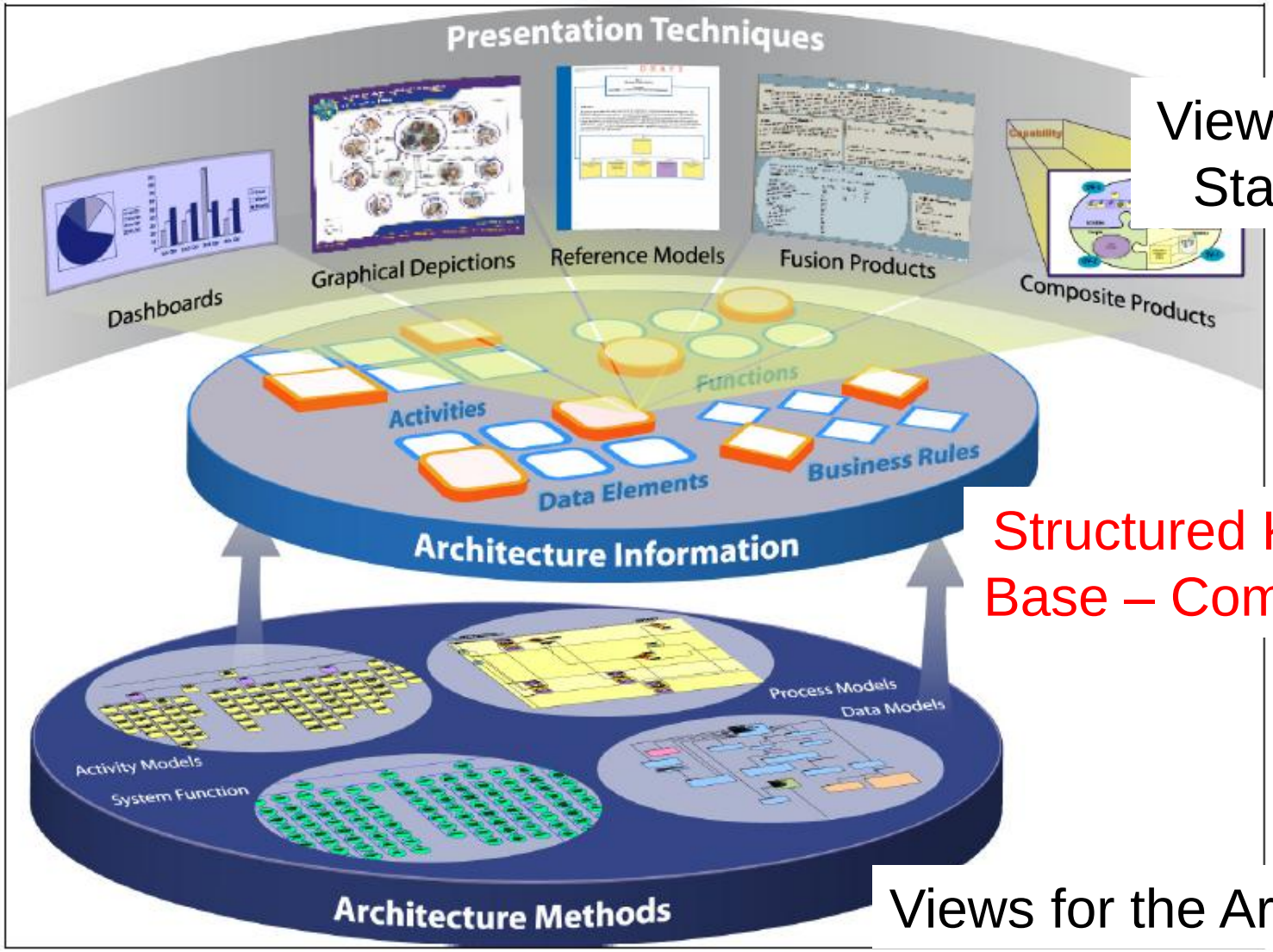
Tool Name	Vendor	Modeling Languages Supported	Primary Functionality		
			Model Development	Repository / Integration	Analysis / M&S
PBO180	Eagle Optimization				x
planningIT	alfabet			x	
PowerDesigner	Sybase			x	x
QEA (QualiWare Enterprise Architecture)	QualiWare		x	x	
R2EAsults	In2itive			x	
Rational System Architect	IBM		x		
Rhapsody	IBM	UML	x		
Risk and Decision Analysis	Palisade			x	
Salamander MOOD	Salamander		x		
Select Solution Factory	Select Business Solutions	BPMN, UML	x		
SimonTool	Simon Labs		x		
SimProcess	CACI	BPMN			x
System Architecture Management Utility (SAMU)	Atoll Technologies			x	x
Troux Standards	Troux Technologies	UML	x		
UDEF Explorer	Knotion Consulting		x		
Visible Advantage	Visible			x	

Summary

- DoDAF 2 responds to DoD's six core processes
- It is:
  1. Data centric – authoritative data
  2. Employs a metamodel Concept
  3. Six-step process for development and use
  4. Collects and renders architecture views in 6 basic viewpoints + 2 supporting viewpoints
  5. Encourages collection and rendering of architecture in Fit-For-Purpose views
- There are many tools with different purposes available and in development



DoDAF V2.0 Vision



Views for Other Stakeholders

Structured Knowledge Base – Common Model

Views for the Architect

Elements of Quality Architecture

- *Single Architecture Framework*
- *Policy, Direction, Guidance*
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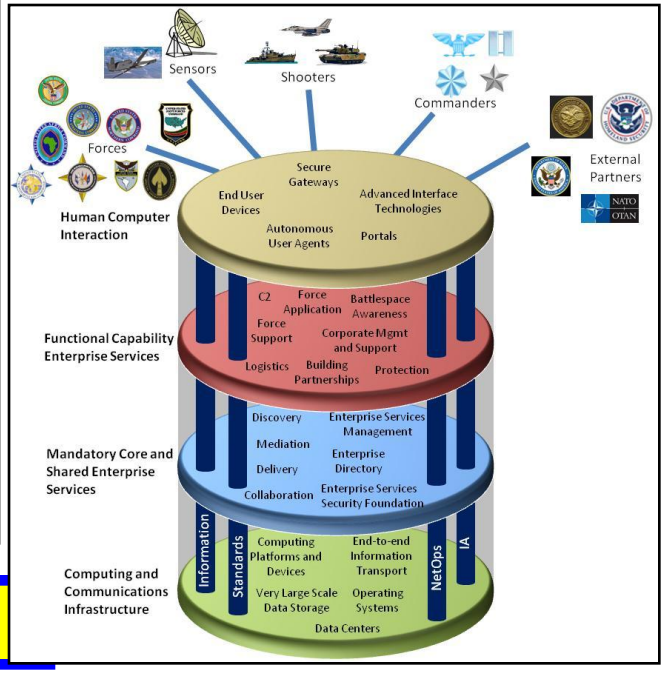
- *Architecture Tools*
- *Certified Architects*

Enabling efficient and effective acquisition of hardware, software and services used by DoD in missions



Common Architecture Framework Approach

http://www.defenselink.mil/cio-nii/sites/diea/

Defense Information Enterprise Architecture

April 11, 2008 | DIEA Mission | DIEA Priorites | Contact Us

DIEA 1.0 Products

- **DIEA Architecture Description (OV-1)**
- Project Charter (AV-1)
- Hierarchical Activity Model (OV-5)
- Principles and Rules (OV-6a)
- Glossary (AV-2)
- ----------
- FAQs

Net-Centric Guidance

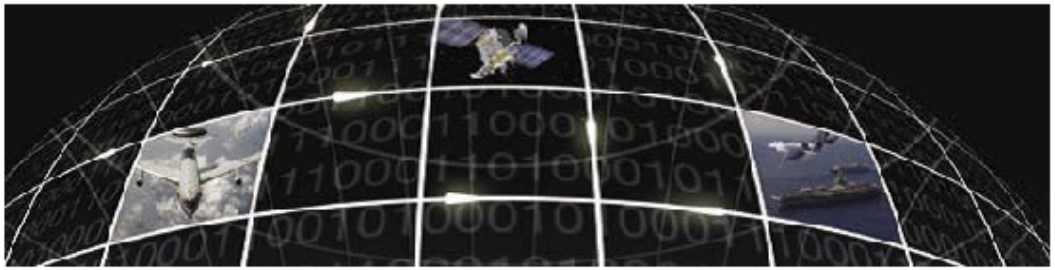
- DoD CIO Homepage
- DoD CIO Strategic Plan
- DoD Net-Centric Data Strategy
- DoD Net-Centric Services Strategy
- DoD Information Assurance Policy
- DoD Information Sharing Strategy
- DoD IT Portfolio Management Directive
- DoD Telecommunications Directive

Transition Partners

- Defense Business Transformation

Privacy and Web Policies

"Lead the DoD Enterprise to Achieve an Information Advantage for our People and Mission Partners"



Defense Information Enterprise Architecture Release

The Defense Information Enterprise Architecture version 1.0 (DIEA 1.0) provides a common Defense Information Enterprise foundation to support accelerated Department of Defense (DoD) transformation to net-centric operations. It presents the vision of net-centric operations and establishes near term priorities to address critical barriers that must be overcome in order to achieve the vision.

The Defense Information Enterprise Architecture consolidates underlying DoD Net-Centric policies to provide guidance for all DoD, across all portfolios, enabling informed discussions among decision-makers about key issues, and underpinning process improvements throughout the Department. Defense Information Enterprise Architecture 1.0 highlights the key principles, rules, constraints and best practices to which applicable DoD programs, regardless of Component or portfolio, must adhere in order to enable agile, collaborative net-centric operations.

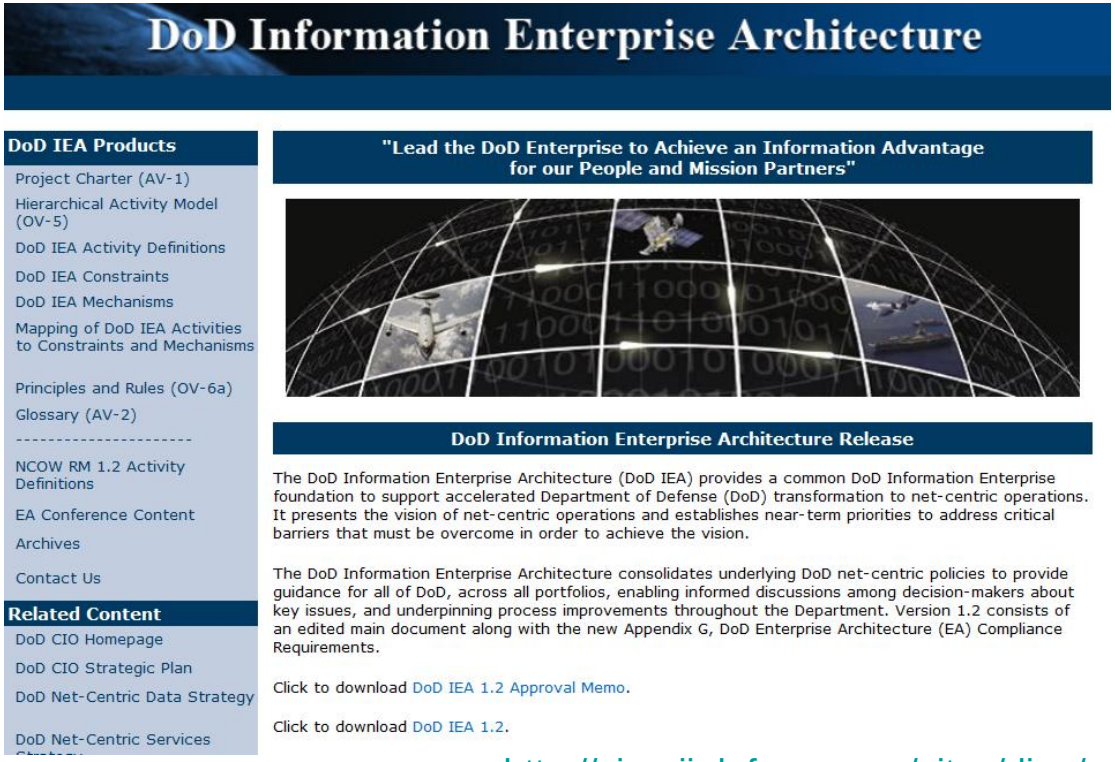
Defense Information Enterprise Architecture Products

This website represents the main method for distributing Defense Information Enterprise Architecture 1.0. The full set of Defense Information Enterprise Architecture 1.0 products are available from the left side menu entitled "DIEA 1.0 Products" where users can access:

Department of Defense (DoD) Information Enterprise Architecture (IEA) Version 2.0

DoD IEA v1.2 is the Current Architecture for the DoD IE

- DoD IEA v1.2 was developed as a common foundation to support **accelerated DoD transformation to net-centric operations**
- Version 1.2 contains:
  - an executive summary (AV-1)
  - operational activities (OV-5) with their constraints and mechanisms
  - a set of high-level principles and rules (OV-6a)
  - DoD EA compliance requirements (Appendix G)
- Focuses only on principles and rules for DOD CIO Priority Areas



http://cio-nii.defense.gov/sites/diea/

New Organizational Priorities Drive Expansion of the DoD IEA

- The enhanced role of the DoD CIO as IT investment authority requires clearer, stronger IEA and EA Compliance to:
  - identify gaps in current IE implementation
  - Evaluate acceptability of IT investments
- DoD CIO needs a way to determine where more guidance is needed –Reference Architecture, GTP, and Technical Direction development
- Additional architecture is needed to measure progress in achieving the IE Vision
- IT Enterprise Strategy and Roadmap (ITESR) initiatives require guidance and direction provided by architecture
- Federation with/alignment of subordinate architectures requires a more robust, standard set of DoD IEA information (i.e., Capabilities/Services)

DoD IEA v2.0 Provides the Information Required by Organizational Priorities

What is the DoD IEA v2.0?

The **DoD IEA** is the architecture and standards, and the organizing framework for describing the DoD desired Information Enterprise and for guiding the development of the DoD information technology capabilities

What's the scope?

- Describes the ways and means, activities, functions, and measures for achieving the IE capabilities, as well as DoD IEA/GIG 2.0 ORA convergence
- Contains the DoD IE information needed by the stakeholders (IT leaders, program managers, etc.) in the form they need it
- Provides "line of sight" traceability
- Aligns IE architecture, reference architecture, and technical architecture to the IEA 2.0 (DCC RA, JEN RA etc.)

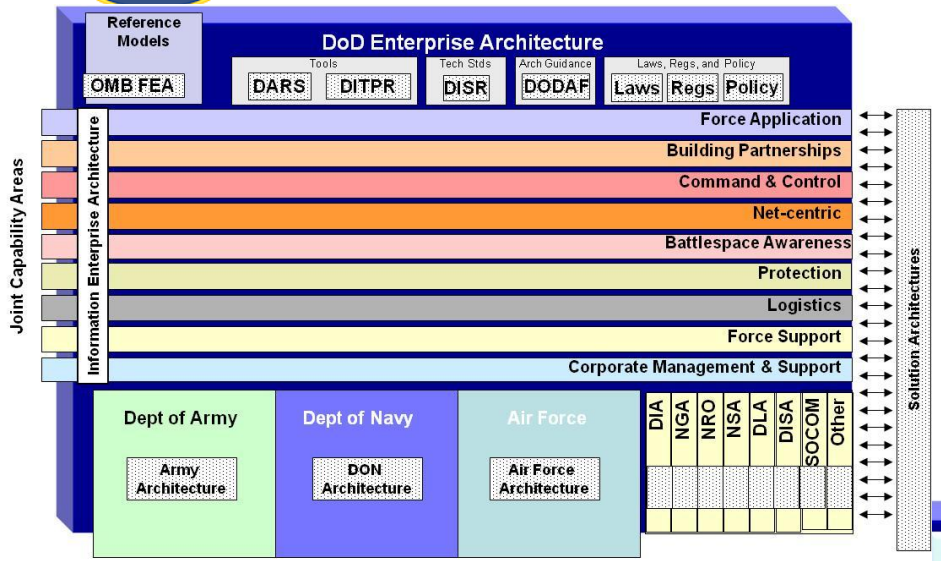
What's the value?

- Describes operational environment IE must enable
  - Provides stakeholders with operational context needed to better understand principles and rules and how to apply them
  - Identifies operational requirements that IE investments and solutions must address
- Defines capability template for required IE end state
  - Provides basis for gap analysis in support of decision-making: identify gaps, determine investments/solutions to fill gaps, measure progress in filling gaps
  - Provides baseline description of IE for use in managing change and risk associated with rapidly evolving operational needs
  - Enables compliance measurement to assess progress towards achieving required end state
- Provides a tool for use by programs and other users in identifying and navigating relevant requirements and guidance documents

DoD IEA v2.0 Provides an Expanded Scope and Greater Detail

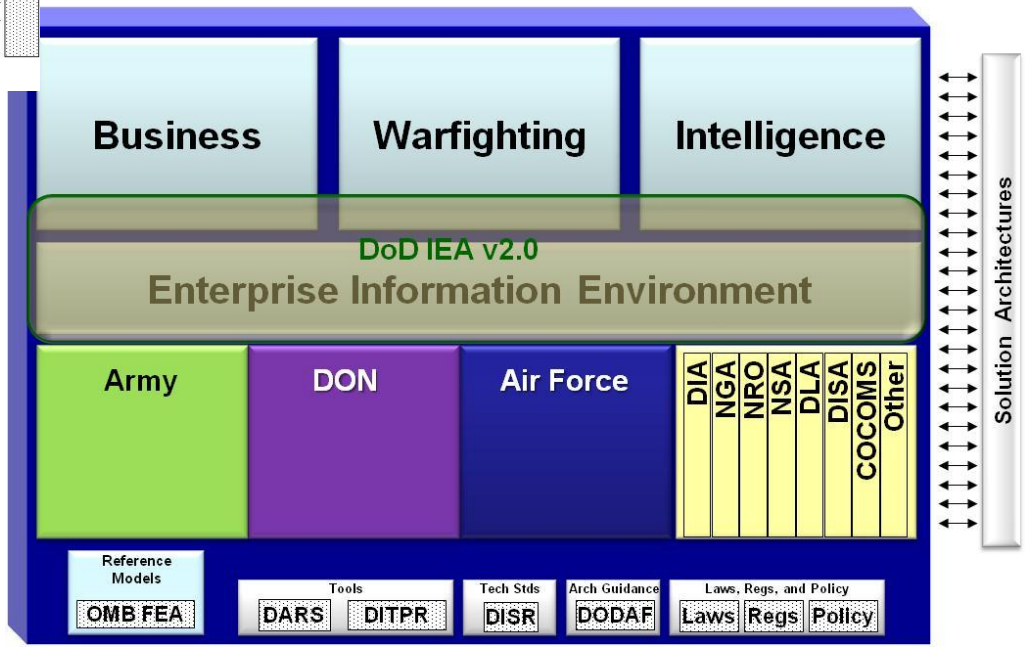
D0D IEA v1.2	DoD IEA v2.0
Provided a limited view of the DoD IE focused on the five CIO Priority Areas	Adds Mission Area and Capability perspectives to extend the view of the DoD IE
No operational context provided	Provides an operation context based on the GIG 2.0 ORA to drive DoD IE requirements
Contained operational activities, principles, and rules	Adds a vision, a capability taxonomy, merged set of operational activities, an OV-1 graphic, and an expanded set of principles and rules
Developed standard RA description and initial RAs (EANCS RA and ADORA)	Provides an expanded foundation for development of a more comprehensive set of RAs; currently includes ITIORA, DC&SC, and NORA/JEN
Provided Appendix G – EA compliance requirements	Provides expanded DoD EA guidance – future DoD EA compliance may be published separately
Consolidated underlying DoD net-centric policies to provide guidance for all of DoD	Consolidates and categorizes all IE-related policy and standards to provide a “one-stop shop” of IT guidance (IE Document Framework)

DoD IEA in Context of DoD EA



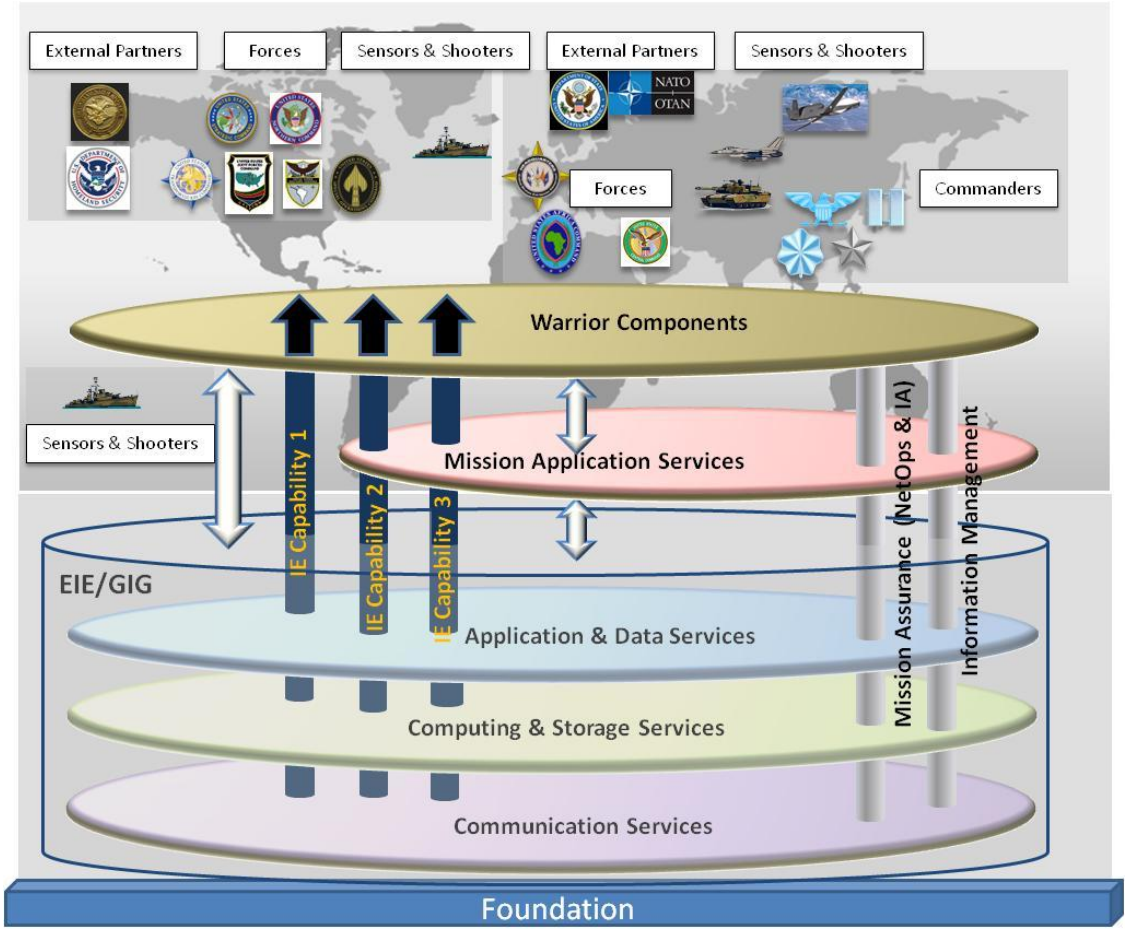
Current

Future

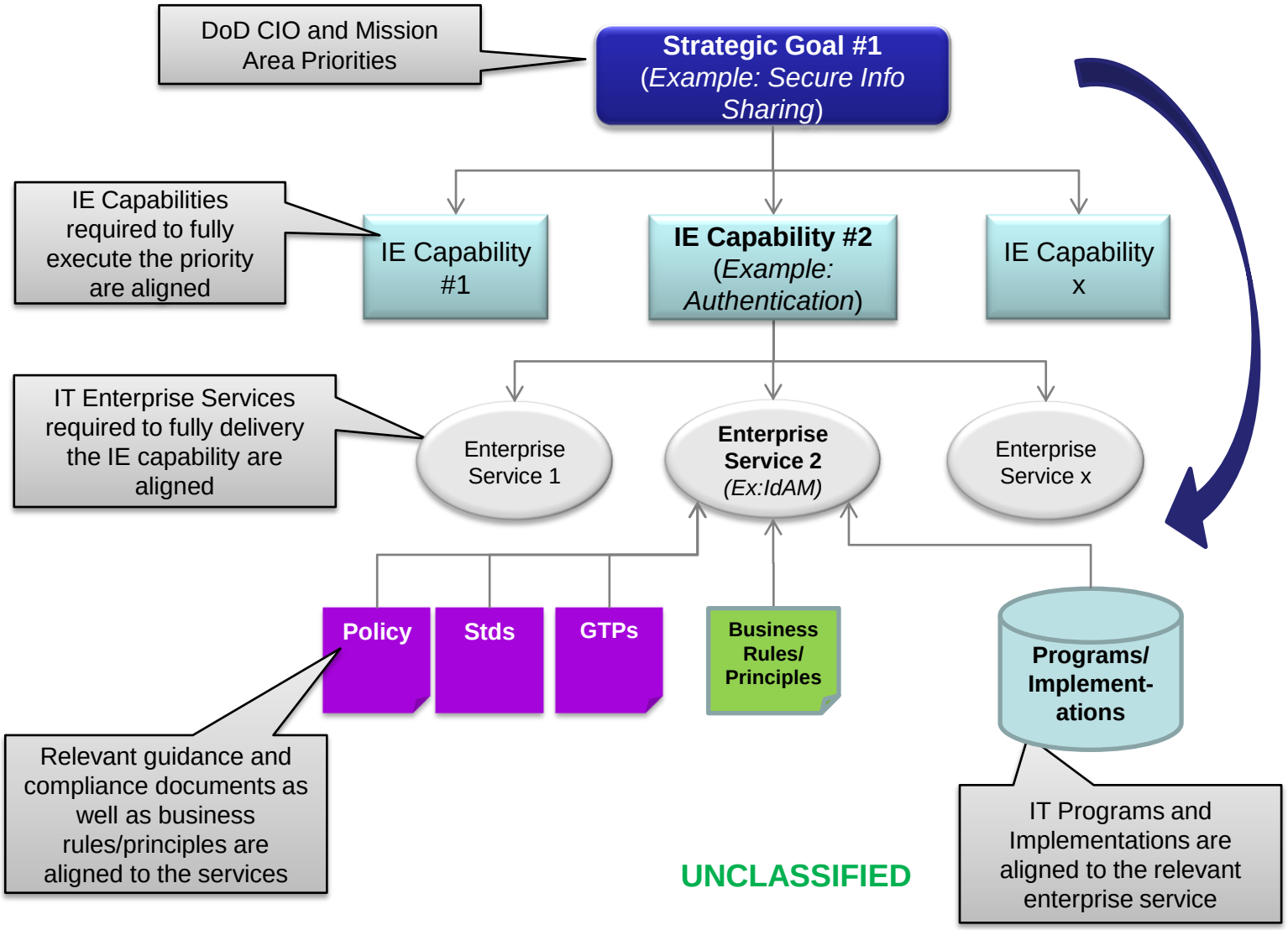


Conceptual Depiction of DoD IE

- The DoD IEA uses this conceptual depiction to describe the IE in providing guidance and direction
- Enables an IE that is capable of delivering capabilities to end users through IE services.



DoD IEA v2.0 Provides Line of Sight through IEA to IT Programs



DoD IEA Products provide the foundational information

Capabilities are documented in the CV-2/CV-1

Capabilities/ Services relationships are found in the CV-7

Services are documented in the SvcV-1/SvcV-4

Policy/Guidance are documented in the StdsV-1

Business Rules/ Principles are documented in the OV-6a

Programs/ Implementations are aligned in the Document Framework

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DoD IEA v2.0 Artifact Walk Through

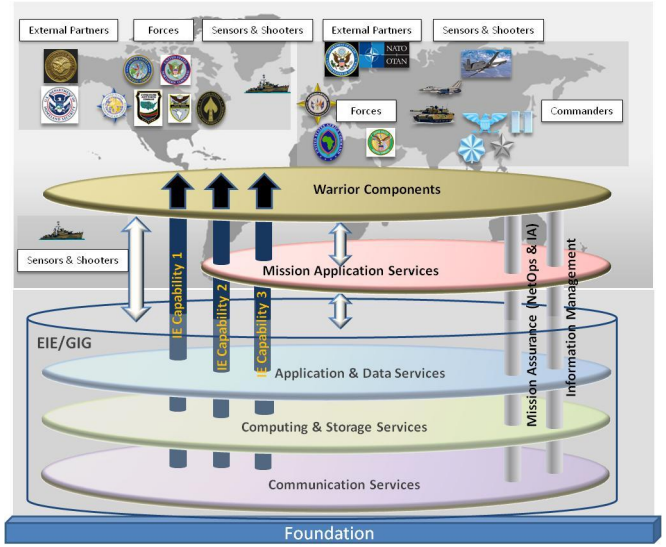
DoD IEA v2.0 Product	16 Sept 2011	30 Dec 2011	30 Apr 2012
AV-1: Exec Summary	Initial Draft	Final Draft	Signed and Approved
AV-2: Integrated Dictionary	Initial Draft	Final Draft	Signed and Approved
OV-1: Operational Concept	Initial Draft	Final Draft	Signed and Approved
OV-5a: Operational Activities	Initial Draft	Final Draft	Signed and Approved
OV-6a: Business Rules/Principles	Initial Draft	Final Draft	Signed and Approved
CV-1: DoD IE Vision	Initial Draft	Final Draft	Signed and Approved
CV-2: Capability Taxonomy	Initial Draft	Final Draft	Signed and Approved
CV-4: Capability Dependencies		Final Draft	Signed and Approved
CV-6: Capability to Operational Activity Mapping		Final Draft	Signed and Approved
CV-7: Capability to Services Mapping		Final Draft	Signed and Approved
SvcV-1: Service Interface Description		Final Draft	Signed and Approved
SvcV-4: Services Functionality Description		Final Draft	Signed and Approved
SvcV-10a: Service Rules		Final Draft	Signed and Approved
SV-10a: System Rules		Final Draft	Signed and Approved
StdV-1: Standards		Final Draft	Signed and Approved
Revised EA Compliance (Appendix G)	Initial Draft	Final Draft	Signed and Approved
Document Framework Tool	Initial Draft	Final Draft	Signed and Approved
Foundational Products: EA Management Plan,			Signed and Approved

Capability Viewpoint Describes the Desired IE Capabilities

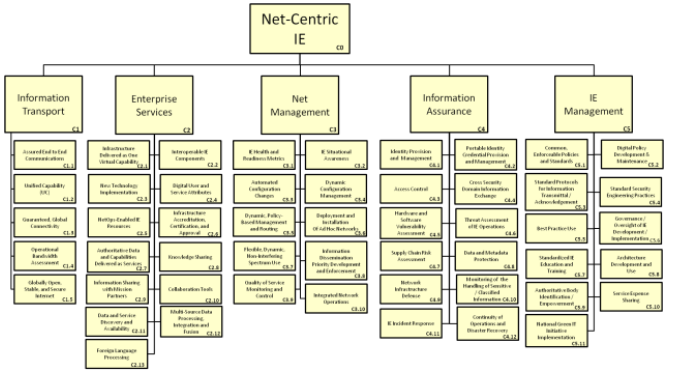
Describes the vision for the IE and the capabilities it must provide

- IE Vision (Provides a common description of the future IE)
- IE Capability Taxonomy (Establishes the capabilities provided by the future IE and what all IE decisions and solutions should strive to achieve)
- IE Capabilities Description (Aligns activities, rules, services and standards with capabilities)

IE Conceptual Depiction (CV-1)



Capability Taxonomy (CV-2)



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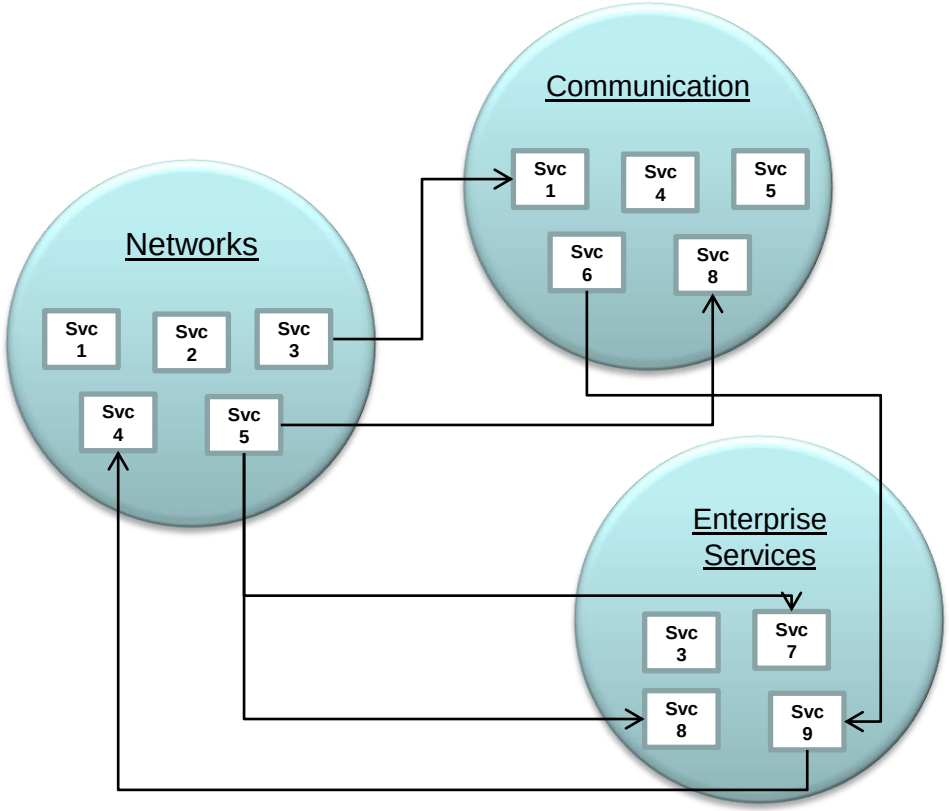
Service Viewpoint Details the Required Enterprise Services

Services Interface Description (SvcV-1)

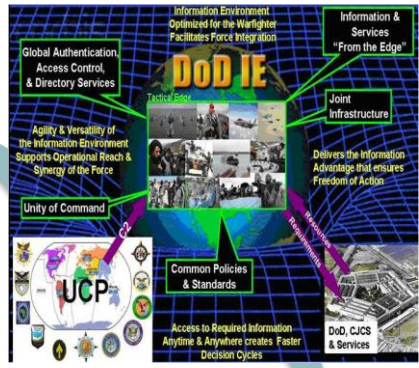
Describes services and service functionality needed to deliver IE Capabilities

- Services Context Description (Identifies and relates the type of services required to deliver capabilities)
- Functionality Description (Describes the functions needed to delivery required services—guides solution decisions and development



Operational Viewpoint Provides the Operational Context for the IE

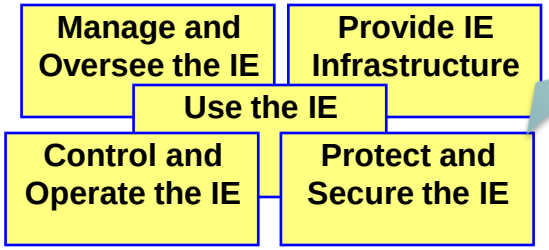
GIG 2.0



Absorbed GIG 2.0 ORA into DoD IEA

- Operational Context/Requirements (Establishes operator needs for IE support and desired operational outcomes)
- Activities (Describes what needs to be done to meet operator needs)
- Operational Rules (Controls activities to achieve desired operational outcomes)
- Aligns the DoD IEA to the FEA BRM through the Net-Centric IE JCA

Merged activities from DoD IEA v1.2 and GIG 2.0 (OV-5a)



Merged business rules from DoD IEA v1.2 and GIG 2.0 (OV-6a)

Operational Rules

- **Data is tagged to support rapid smart-push to the edge user**
- **Develop an information infrastructure based on common standards to support collaboration and information sharing**

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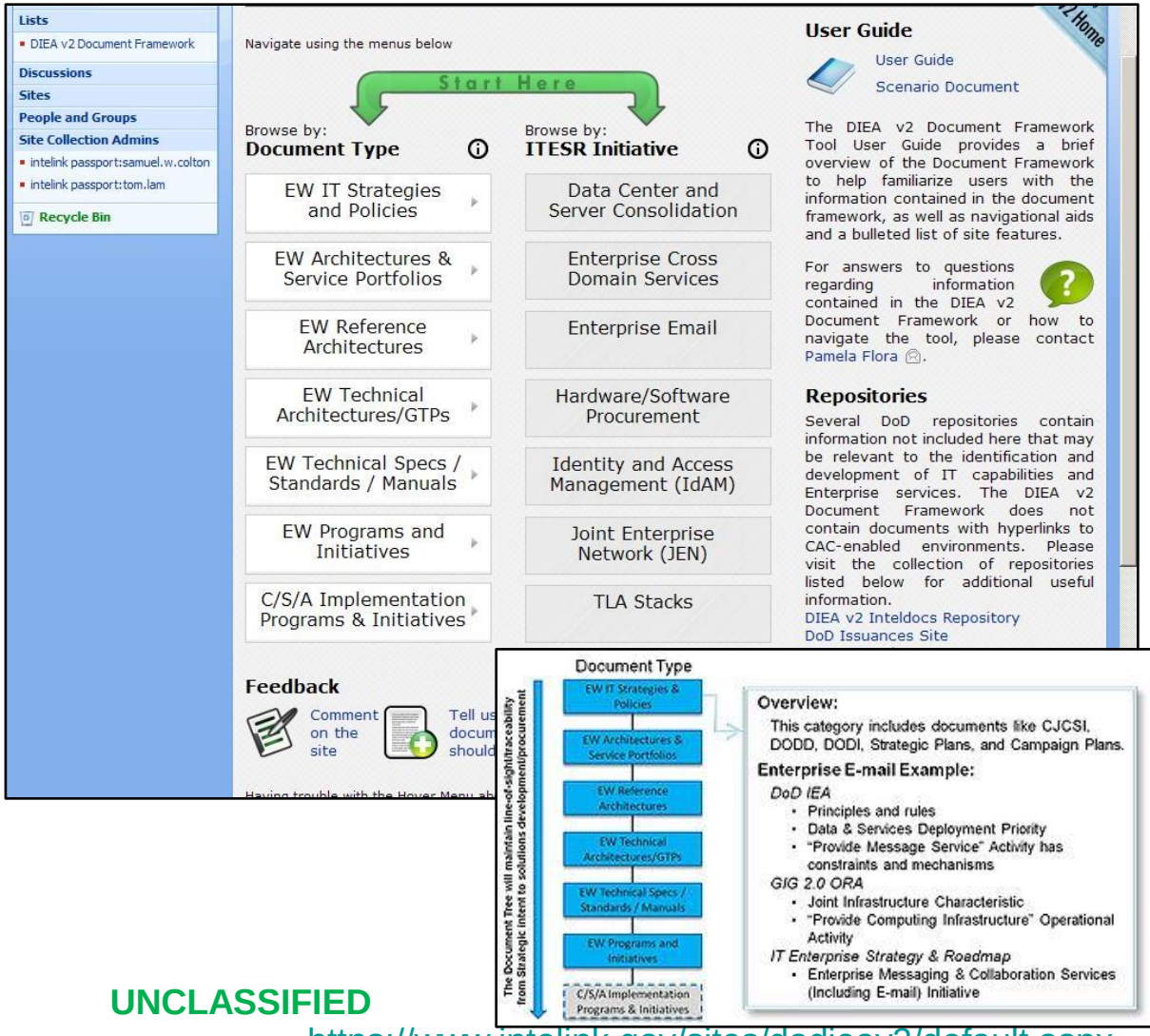
The Document Framework Makes the DoD IEA Information Accessible

- The DoD IEA v2.0 Document Framework is an interactive tool that provides line-of-sight for guidance and compliance documents from enterprise-wide IT strategies and policies down to detailed technical specs and standards.
- The Document Framework is a “one-stop shop” for the guidance and compliance documents relevant to DoD IT capability development.
- The DoD IEA v2.0 capabilities and services will be added to the framework of future Document Framework implementations and will allow traceability from organizational priorities to programs/implementations
- Enterprise-Wide Reference Architectures are contained in the Document Framework as extensions of the DoD IEA



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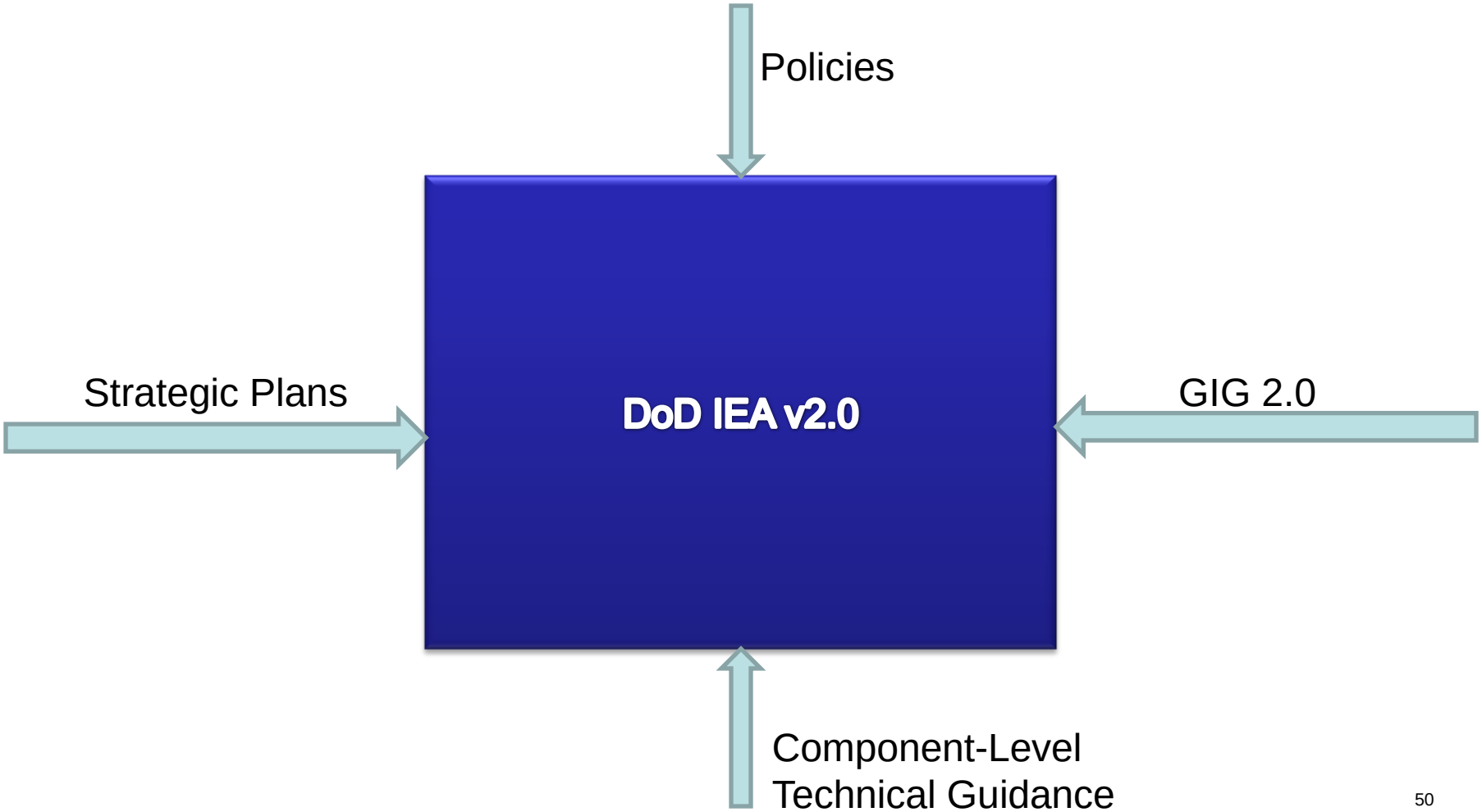
https://www.intelink.gov/sites/dodieav2/default.aspx

Expanded Appendix G Compliance Information Reflects an Enhanced IT Investment Management Role

Components of Expanded Compliance Information Facilitate IT Investment Decisions

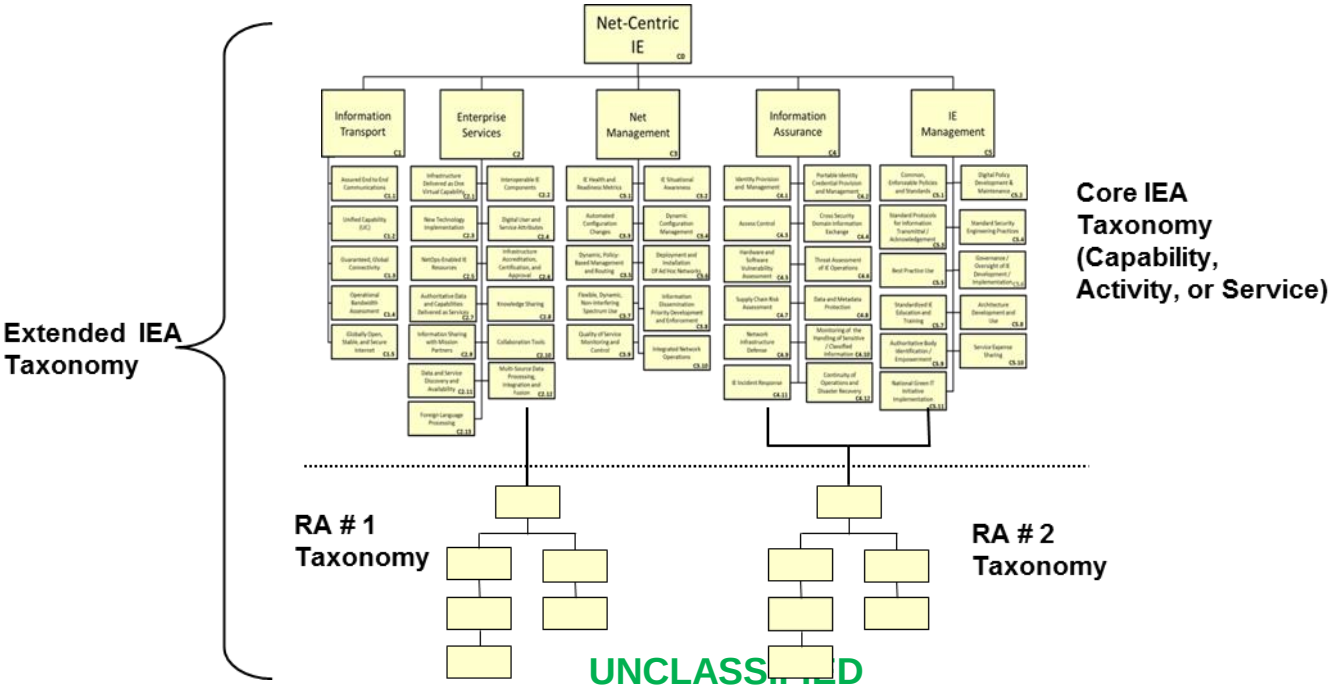
- Capability Based IEA Compliance – Simplifies compliance and evaluation by establishing IE Capabilities as the single focal point for compliance
- More Comprehensive EA Compliance – Ties IE compliance to required alignment with the DoD vision and strategy
- Document Framework – Provides a single means for determining all technical direction applicable to an investment or program

Key Documents Influenced the DoD IEA v2.0 Content



Relationship of Enterprise-wide Reference Architectures to the DoD IEA v2.0

- DoD-wide RAs are detailed “extensions” of the core DoD IEA v2.0 architectural description around the particular functional or capability area that is the subject of the RA
  - RAs can be aligned to the IEA through the IEA capability, activity, or services taxonomies (e.g. CV-2, OV-5a, SvcV-4)
  - RA rules and standards models (e.g. OV-6a, SvcV-10a, StdV-1) extend the IEA rules and standards models



Enterprise-Wide Reference Architectures* Developed by DoD CIO

Reference Architecture	Brief Description	Approval Date
Enterprise-wide Access to Network & Collaboration Services RA (EANCS RA)	Guides, standardizes, and enables the implementation of authentication and authorization capabilities to access collaboration services in support of secure information sharing across the Department.	Aug 2010
Active Directory Optimization RA (ADORA)	Guides the transformation of legacy Windows networks that use AD to improve security, facilitate secure info sharing across networks, and achieve efficiencies through network consolidation,	Feb 2011
IT Infrastructure Optimization RA (ITIORA)	Leverages Defense ITIL Catalog to provide rules and standards for the optimal level (Enterprise, Theater, Installation) from which IT services are delivered.	Oct 2011 (planned)
Data Center & Server Consolidation RA (DC&SC RA)	Defines & standardizes necessary attributes for Core DoD computing Centers integrating DoD cloud and server virtualization concepts.	Apr 2012 (planned)
Network Optimization RA (NORA)/Joint Enterprise Network RA (JEN RA)	Guides the implementation of joint networks using network virtualization or federation techniques and leveraging regional boundary protection (TLA) concepts.	Apr 2012 (planned)

**As defined in the June 2010 Reference Architecture Description Document*

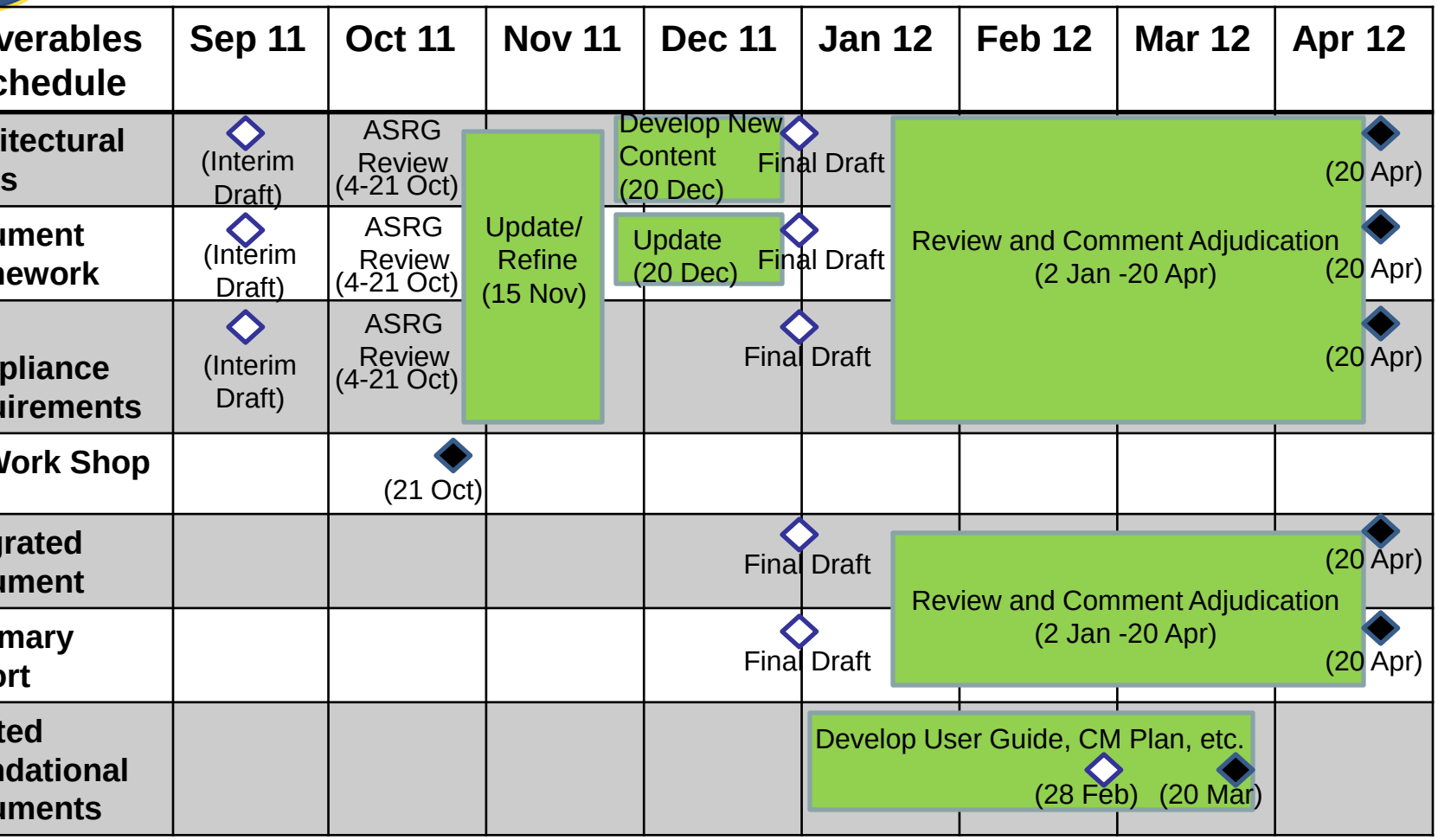
Other Enterprise-Wide Reference Architectures Are Under Development

Reference Architecture	Development Lead
NIPRNET Regional Security Architecture (NRSA) DoD Enterprise Security Architecture (DESA)	DISA PEO-MA/PEO-GE
DoD Biometrics Enterprise Architecture	BIMA
Command & Control On the Move RA (C2OTM RA)	Joint Staff (J8)
Joint Information Environment Operational RA (JIE ORA)	Joint Staff (J8)
Mission Secret Network RA	Joint Staff (J8)

What additional RAs should DoD CIO develop?

The ASRG will identify and prioritize additional Enterprise-Wide Reference Architectures.

DoD IEA Development Schedule



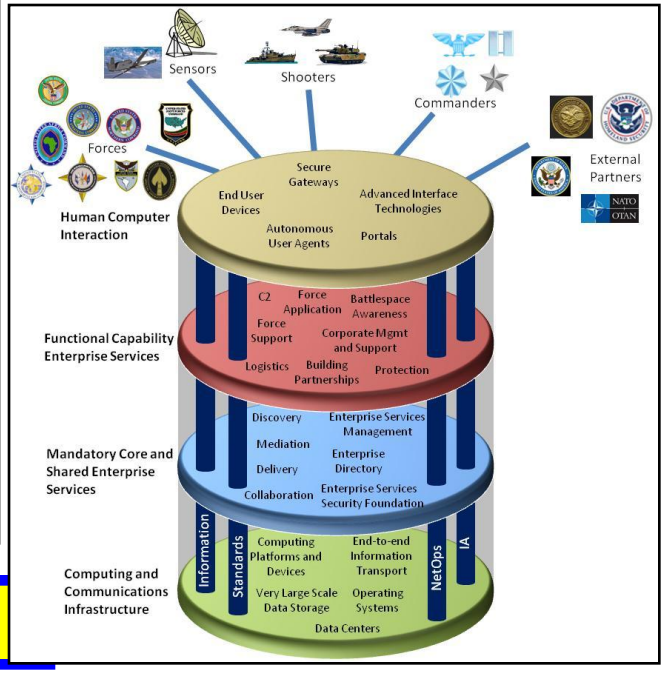
Initial Draft DoD IEA v2.0 URL for ASRG Review and Comment

https://www.intelink.gov/sites/dodieav2/default.aspx

Elements of Quality Architecture

- *Single Architecture Framework*
- *Policy, Direction, Guidance*
- *Exchange*
- *Architecture Tools*
- *Certified Architects*

Enabling efficient and effective acquisition of hardware, software and services used by DoD in missions



Common Architecture Framework Approach

UPDM – Unified Profile for DoDAF/MODAF

Adaptive
Artisan Software
ASMG
BAE Systems
DoD
DND
embeddedPlus
Generic
IBM
Thales

Lockheed Martin Co
Mitre
L3 Comms
MOD
NoMagic
Raytheon
Rolls Royce
Sparx Systems
VisumPoint
Selex

UPDM RFC

Walt Okon
DoD Support

Elements of Quality Architecture

- *Single Architecture Framework*
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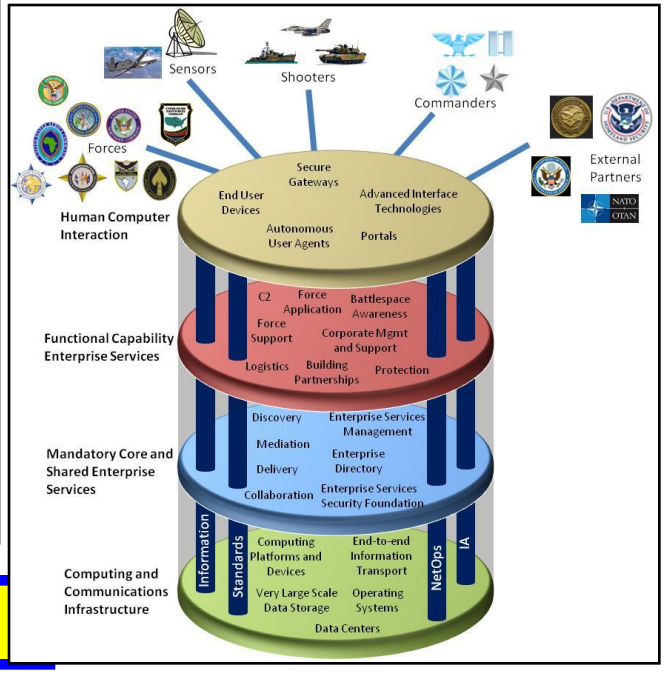
Enabling efficient and effective acquisition of hardware, software and services used by DoD in missions



Common Architecture Framework Approach

Architecture Tools

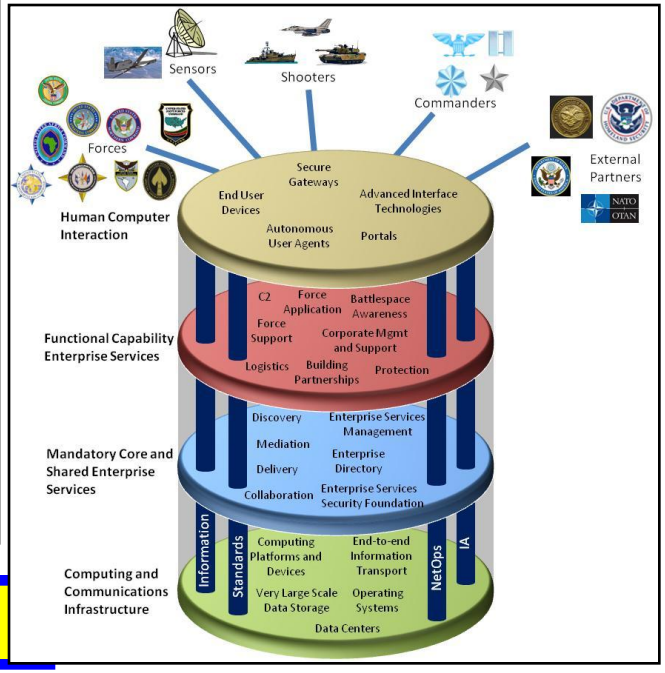
- **Guidance**
  - DoDAF v2.0
  - Federated Architecture Strategy
  - DoD IEA
- **DoD Tools**
  - DoD Architecture Registry System (DARS)
  - DoD IT Standards Registry (DISR)
  - GIG Technical Guidance (GTG) Tool
  - Meta Data Repository (MDR)

Vendor Tools are Necessary

Elements of Quality Architecture

- *Single Architecture Framework*
- *Policy, Direction, Guidance*
- *Exchange*
- *Architecture Tools*
- *Certified Architects*

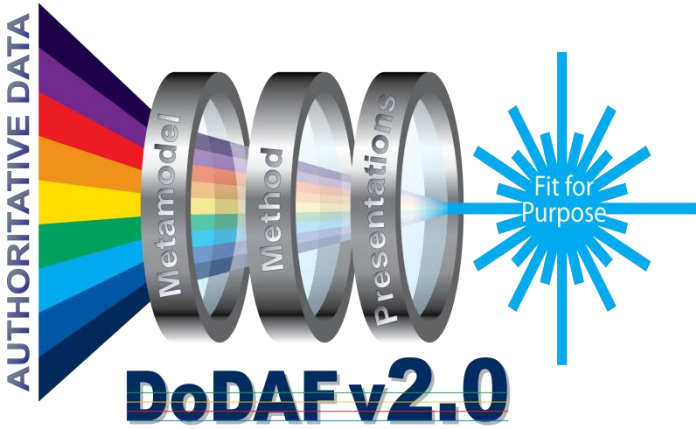
Enabling efficient and effective acquisition of hardware, software and services used by DoD in missions



Common Architecture Framework Approach

Architecture Education & Training

Certified Enterprise Architects design the information technology architecture structure enabling the efficient and effective acquisition of hardware, software and services utilized by the DoD in missions supporting the warfighters.



Common Architecture Framework