Implementing DoDAF Mandates

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AFIT/LSS
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Version #1.1
Mandates

DoDAF V2.0

Breaking Barriers ... Since 1947
Mandates - Theory

Enterprise Information Environment MA EA

- Business MA EA
- Warfighting MA EA
- Intelligence MA EA

Solution Architectures

- Department of the Army EA
- Department of the Navy EA
- Department of the Air Force EA

Reference Models
- OMB FEA

Tools
- DARS
- DITPR

Tech Stds
- DISR

Arch Guidance
- DODAF

Laws, Regs, and Policy
- Laws
- Regs
- Policy

Breaking Barriers ... Since 1947
Mandates - Reality
## Capability Requirement Documents

<table>
<thead>
<tr>
<th>CBA</th>
<th>Capability Requirement Documents</th>
</tr>
</thead>
<tbody>
<tr>
<td>a: Study Initiation Notice</td>
<td>Note 1: CBA DODAF views are leveraged for ICDs and CDDs/CPDs.</td>
</tr>
<tr>
<td>b: CBA Focus</td>
<td>Note 2: DODAF views must be updated as required when generating successor documents.</td>
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<tr>
<td>AV-1, AV-2</td>
<td>Note 3: The AV-1 and AV-2 are not CBA required views, but capture content that is part of the ICD/CDD/CPD.</td>
</tr>
<tr>
<td>c: CBA Operational Context</td>
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<tr>
<td>d: Capability Requirement and Gap Identification</td>
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<tr>
<td>e: Risk Assessment</td>
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<tr>
<td>f: Non-material approaches</td>
<td></td>
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<tr>
<td>g: Material approaches</td>
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</tr>
<tr>
<td>h: Documentation.</td>
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</tbody>
</table>

### ICD Section 1: Operational Context

- OV-1
- OV-2
- OV-5a
- OV-4

### ICD Section 3: Capability Requirements and Capability Gaps/Overlaps

- CV-2
- CV-6
- CV-3

### Analysis of Alternatives

- SV-8: CDD/CPD Section 3: Capability Discussion
- SV-7: CDD/CPD Section 5: KPPs, KSAs, APAs
<table>
<thead>
<tr>
<th>Document</th>
<th>OV-1</th>
<th>OV-32</th>
<th>OV-4</th>
<th>OV-5a</th>
<th>CV-2</th>
<th>CV-3</th>
<th>CV-6</th>
<th>SW-7</th>
<th>SW-8</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICD/DCR</td>
<td>S</td>
<td>S</td>
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<td>S</td>
<td>S/P</td>
<td>S/P</td>
</tr>
<tr>
<td>CDD/CPP</td>
<td>Note 1</td>
<td>Note 1</td>
<td>Note 1</td>
<td>Note 1</td>
<td>S/P</td>
<td>S/P</td>
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</tbody>
</table>

**Note 2**
S: The CBA or other prior analysis determines the CBA or other prior analysis is responsible for development of the architecture data. S/P: The Sponsor, or operational user/representative, is responsible for development of the architecture. Components may have additional architectural (e.g. – HQDA requires the SV-10c, USMC requires SV-11). The OV-5a must use UJT’s and Service task list extensions, if applicable, for alignment of activities. In cases where the program supports an activity not the shortcomings are to be identified in the activity taxonomy, incorporation upon the next update of the UJTL, in accordance using the tools available at the URL in reference sss1.

**Note 3**
IS-ICDs and IS-CDDs are required to provide the DODAF views generated document reuse and leverage in integration processes. In cases of they shall be generated and of this manual for integration and management. The CBA or other prior analysis determines the CBA or other prior analysis is responsible for development of the architecture data. S/P: The Sponsor, or operational user/representative, is responsible for development of the architecture. Components may have additional architectural (e.g. – HQDA requires the SV-10c, USMC requires SV-11). The OV-5a must use UJT’s and Service task list extensions, if applicable, for alignment of activities. In cases where the program supports an activity not the shortcomings are to be identified in the activity taxonomy, incorporation upon the next update of the UJTL, in accordance using the tools available at the URL in reference sss1.

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**Tell me how you fit in DoD.**
Prove to me you’ve thought out how we’ll operate this.

**Tell me how you’re in the JCA’s future plans.**
Prove to me you’re in the JCA’s future plans.

**Tell me how this system evolves (Evolutionary Acq).**
Trace activities to capability fulfillment.

**Tell me how you’ll measure success or failure.**
Decompose as far as you need to achieve “understandable” “bite-sized” chunks.

Always trace to a JCA leaf. You probably won’t fulfill the entire JCA leaf, but your capability chunk right under the JCA leaf should be described well enough for planners to understand what part of the JCA leaf you WILL and WILL NOT fulfill.

This becomes your capability taxonomy. Definitions of your taxonomy elements should be in your AV-2/dictionary.
Decompose as far as you need to achieve “understandable” “bite-sized” chunks. Always trace your top item(s) to UJTLs, or to BEA/DoDIEA activities if applicable.

This becomes your activity taxonomy. Definitions of your taxonomy elements should be in your AV-2/dictionary.
<table>
<thead>
<tr>
<th>Document</th>
<th>AV-2</th>
<th>S-TE</th>
<th>OV-5b</th>
<th>OV-6c</th>
<th>DIV-1</th>
<th>DIV-2</th>
<th>DIV-3</th>
<th>PV-2</th>
<th>SV-1</th>
<th>SV-2 or SvcV-2</th>
<th>SV-4 or SvcV-4</th>
<th>SV-5a or SvcV-5</th>
<th>SV-6 or SvcV-6</th>
<th>StdV-1</th>
<th>StdV-2</th>
</tr>
</thead>
<tbody>
<tr>
<td>IS-ICD (RDPs/CPs)</td>
<td>S</td>
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<td>CDD/CPD</td>
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</tr>
</tbody>
</table>

The Sponsor uses the **OV-2**, **OV-4**, and **OV-5a**, required by KPP. In cases where the Sponsor proposes SV-2, the OV-2 and SV-2 will be provided for review along with the architecture data. The component may have additional architecture data from the previous CDDs/CPDs (e.g., HQDA requires the SV-10c, etc.).

**Note 2**

The technical architecture is generated by the sponsor. The technical architecture must be current at the time of submission. Use of non-official and/or other notification methods in the Statement of Work is not official and will not be considered.

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**Teach me your language.**

**Tie your business to its data.**

**Prove to me you’re in someone’s portfolio.**

**What resources are flowing in/out of your system?**

**What are the key data and their important attributes?**

**With who do you need interoperable interfaces?**
Governing documents:

- Joint Interoperability Test Command (JITC) IPG v2
  (http://nit-jitc.nit.disa.mil/isg/downloads/IPG_Version_2.pdf)
- AFGM 2015-33-03 (http://static.e-publishing.af.mil/production/
  1/saf_cio_a6/publication/afgm2015-33-03/afgm2015-33-03.pdf)

- Always: AV-1/-2; OV-1/-2/-3/-5b/-6c; SV-1/-2/-5a/-6/-7; StdV-1
- Add for interoperability certification (per JITC IPG): DIV-2/-3;
  SvcV-1/-2/-4/-5/-6/-7
- Add for systems using SDDP or subject to CCA (i.e. business): CVs (all); DIV-1; OV-4; PVs (all); StdV-2; SV-4/-5b
  - References: AFMAN 17-1402 (AF CCA Compliance Guide);
    AFMAN 33-402 (SDDP)
  - Get them from http://static.e-publishing.af.mil/
DoDAF Model Questions

- What will this org. or system do for DoD? [CV-1]
- What are the “bite size” pieces of capability? [CV-2]
- How will this all change over time? [CV-3]
- How do the pieces relate to each other and to external pieces? [CV-4]
- How will we coordinate deploying this? [CV-5]
- How can I cross-check “what” with “how”? [CV-6&7]
- What is the operational “big picture”? structure? [OV-1]
- Who are the operational players? [OV-2]
- What resources do they exchange? [OV-3]
- What is the Command & Control [OV-4]
- What activities are performed and how do resources flow? [OV-5s]
- How will we actually DO the mission? [OV-6s]
DoDADF Model Questions

What service do I provide for what resources (SvcV-1)?
How do I access/use the service (SvcV-2)?
Which systems provide which services (SvcV-3a)? Which services interact with Services (SvcV-3b)?
How is this service provided (activities) (SvcV-4)?
How do my service activities relate to my operational activities (SvcV-5)?

What do I interface with overall (SV-1)?
What travels along the interfaces (SV-2)?
What do I interface with for this architecture (SV-3)?
What functions do I perform (SV-4)?
What hardware delivers my functions (SV-5a)? What activities do my functions perform (SV-5b)?

What resources flow across my service boundary (SvcV-6)?
How is my service performance measured (SvcV-7)?
How will my service evolve (SvcV-8)?
What technology or skills do I presume (SvcV-9)?
How do I behave operationally (SvcV-10s)?

What are the specifics of my external interface (SV-6)?
How is my system performance measured (SV-7)?
How will my system evolve (SV-8)?
What technology or skills do I presume (SV-9)?
How do I behave operationally (SV-10s)?
**DoDAF Model Questions**

What are the key capability-related relationships among programs in my Portfolio? (PV-1)
Which programs in my portfolio deliver which capability increments? (PV-3)

When do capability increments from the programs in my portfolio appear or disappear? (PV-2)

What is my architecture program plan (purpose, scope, resources…) (AV-1)?
What are my language and key data and their attributes (AV-2)?

What current standards are in my architectural description? (StdV-1)
What draft/emerging standards are in my architectural description? (StdV-2)

At the ~O-6 level, tie this expensive data to “the business.” (DIV-1)
What is the Physical (code-to) Data Model? (DIV-2)

What is the Logical Data Model? (DIV-2)
How Did DoD Envision This?

B r e a k i n g  B a r r i e r s  ...  S i n c e  1 9 4 7
How Did DoD Envision This?

1. Determine the intended use of the architecture
   - Stakeholder requirements
   - Purpose
   - Critical Issues
   - Target Objectives
   - Key Trade-offs
   - Decision Points
   - Probable analysis methods

2. Determine scope of architecture
   - Geographical, operational, and functional bounds
   - Technological bounds
   - Time frame(s)
   - Architecture resource and schedule constraints

3. Determine data required to support architecture development
   - Required architectural characteristics
     - Architectural data entities
     - Levels of detail
     - Units of measure
     - Associated Metadata

4. Collect, organize, correlate, and store architecture data
   - Automated repositories
   - Activity Models
   - Data Models
   - Dynamic Models
   - Organizational Models
   - Metadata registration

5. Conduct Analyses in support of architecture objectives
   - Shortfall Analyses
   - Capacity Analyses
   - Interoperability assessments
   - Business Process analysis
   - Test architecture completeness, accuracy and sufficiency

6. Document Results IAW Architecture Framework
   - Architecture presentations and views
   - Reusable architecture data
   - Analysis reports
How Did DoD Envision This?

Breaking Barriers ... Since 1947
How Did DoD Envision This?
Standardize!

- Requires architects to develop/document taxonomies
  - Capabilities
  - Operational Activities
  - Services
  - Service/System Functions
- And encourages re-use and “start from here”
  - Joint Capability Areas (& HHQ capability taxonomies)
  - DoD business activities, Joint Mission Threads, UJTLs
  - Joint Common System Function List
So Why Isn’t This Working?

- Lack of DoD-level “intellectual infrastructure”
  - Authoritative Data (AF currently working on this! 😊)
  - Taxonomies
  - Patterns / Ontologies / Domain Information Models / Primitives
- Premature roll-out
  - Mostly lacking intellectual infrastructure
  - No education (or mandate) on Model-Based Architecture
  - Initial approvers and gate-keepers ignorant of purpose
  - No standard tool
- Huge amount of bad practices are now ingrained
  - Along with lots of legacy documents
  - No DoD support/mandate ($) for common tool
To Realize the Dream...

Breaking Barriers ... Since 1947
That said…Let’s be Real…

Know what you’re trying to conform/align to:

- Find/review any MAJCOM or higher-level enterprise architecture (like AF EA) guides and instructions
- Review the most current NR KPP guidance (JCIDS Manual)*
- Review the most current BEA guidance*
- Review the most current DoD IEA guidance*
- Review the most current JCA / JMT / JCSFL documents
- Review the most current DoDAF (or evolved name thereof)

This is challenging and iterative: you’re developing a picture of what you’re architecting along with the constraints imposed by the above

* If this is your domain (Business, DoDIN, NR KPP, JCIDS)
Sources

- (DoD) Business Enterprise Architecture (BEA)

- DoD Information Enterprise Architecture (DoD IEA)

- Joint Capability Areas (JCAs)
  - https://www.intelink.gov/wiki/Joint_Capability_Areas

- Joint Mission Threads (JMTs)

- Joint Common System Function List (JCSFL)
  - https://www.intelink.gov/wiki/JCSFL
More Sources

- GIG Technical Profiles (GTPs)
  - https://gtg.csd.disa.mil/ (Account required)

- DoDI 8330.01 (Interoperability IT, Including NSS)

- JCIDS Manual
  - https://intellipedia.intelink.gov/wiki/JCIDS

- Uniform Joint Task List (UJTL)
Penultimate Chart!

SORRY
THERE ARE NO SILVER BULLETS....

THIS DISPLEASES ME
Q&A

- Agree?
- Disagree?
- What is still most mystifying?