

# OFFICE OF INFORMATION AND TECHNOLOGY

## OneVA EA Architecture Development Methodology (ADM)

*Pre-Decisional*

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**VA**



**U.S. Department of Veterans Affairs**  
Office of Information and Technology

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## Table of Contents

- 1 Introduction .....1
  - 1.1 Challenge .....1
  - 1.2 Audience .....1
  - 1.3 OneVA EA Scope .....2
  - 1.4 Relationship to Other Documents .....4
  - 1.5 Focus of the ADM .....5
- 2 OneVA EA Federated Development Approach .....6
  - 2.1 Key Concepts .....7
    - 2.1.1 Integrated Architecture .....7
    - 2.1.2 Federation and Architectures .....7
  - 2.2 OneVA EA Development Approach .....10
    - 2.2.1 Governance .....10
    - 2.2.2 Content Development .....15
    - 2.2.3 Data Integration and Aggregation .....20
  - 2.3 Configuration Management Process .....21
    - 2.3.1 Configuration Control Board .....21
    - 2.3.2 Configuration Items .....21
- Appendix A Acronyms .....22
- Appendix B References .....23
- Appendix C Repeatable 6 Step Process .....24

## Table of Figures

- Figure 1 OneVA EA Content Scope .....3
- Figure 2 ADM Relationship to Other Documents .....4
- Figure 3 OneVA EA Federation .....6
- Figure 4 Actual Federation Alignment .....9
- Figure 6 Six Step Method .....10
- Figure 7 OneVA EA Development Approach .....10
- Figure 8 OneVA EA Governance Structure .....11
- Figure 9 OneVA EA OMP Process .....13

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# 1 Introduction

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The *OneVA EA Architecture Development Methodology (ADM)*<sup>1</sup> document describes the overall process for developing the OneVA Enterprise Architecture (OneVA EA), one of the primary tools used to drive transformation within the Department of Veterans Affairs. The OneVA EA includes three architecture levels; VA-wide, Segment<sup>2</sup> and Solution (See Figure 3 OneVA EA Federation). The ADM reflects the current methodology for developing content in the VA environment where architecture content is owned and developed by different entities with different priorities but must be able to be integrated<sup>3</sup> at the VA-wide level (i.e., a federated approach). It accommodates lessons learned across the architecture development life-cycle as well as Government and industry leading EA practices.

The ADM includes an overview of the OneVA EA process steps in the OneVA EA release cycle. It also identifies the current technology and tools used to develop the OneVA EA. Lastly, the ADM identifies the areas that require direct participation of the Governance bodies responsible for overseeing development of the OneVA EA.

New releases of the VA-wide level of the OneVA EA occur on a semiannual basis to provide a stable foundation for its use both within VA decision processes and as a cross reference to Segment and Solution architectures within the VA. The long-term plan is to implement the requisite processes and technology to enable more effective and efficient integration of data. This enables a more flexible process for publishing the OneVA EA such that information can be made available soon after it's created.

## 1.1 Challenge

As stated earlier, architecture content is being developed at different levels within the VA, in different cycles, and in different tools. The challenge is to answer the question: How do we bring all this valuable information together in a way that maintains its integrity while making it available to the decision-makers of the VA? This ADM is one of the documents that provide the requisite guidance to answer this question. Other documents such as the Configuration Management Plan (CMP) and OneVA EA Style Guide are complementary to the ADM providing more prescriptive guidance on how the OneVA EA will be developed and maintained to achieve its Mission and Vision.

## 1.2 Audience

The following groups either oversee or contribute to OneVA EA content and, as a result, are the intended audience for this ADM.

- Governance bodies associated with direction and oversight of the OneVA EA (Detailed in Section 2.2.1)

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<sup>1</sup> The Open Group defines an architecture development methodology as a step-by-step approach to develop and use an enterprise architecture.

<sup>2</sup> A part of the overall EA that documents one or more lines of business, including all levels and threads. Common Approach to Federal Enterprise Architecture (CAF), May 2, 2012. Per CAF, a thread is a cross-cutting concern involving all domains.

<sup>3</sup> To combine (two or more things) to form or create something. Having different parts working together as a unit. Merriam-Webster Dictionary

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- Architects of the Administrations and Staff Offices that are responsible for the functional and technical content respectively
  - OneVA EA Development Team responsible for working with the functional and technical content owners to further the development of the OneVA EA
  - Solution architects responsible for the design of systems, services and non-technical solutions implemented within the VA.

By reviewing this document each of these groups should develop a high level understanding of the approach to developing the OneVA EA and their role within this approach.

### 1.3 OneVA EA Scope

The Common Approach to Federal Enterprise Architecture (CAF) identifies an “enterprise-wide” (i.e., VA-wide) architecture as the only mechanism to provide a complete view of the information necessary to make the most informed decisions possible to realize desired VA-wide outcomes. That said, the underlined terms in the side panel emphasize the scope of the OneVA EA. The OneVA EA development methodology supports the identification, definition and capture of the different types of data that can be amalgamated to form an enterprise architecture that comprises VA-wide, Segment and Solution levels.

*Only an enterprise-wide architecture can provide an integrated view of strategic, business, and technology domains across all lines of business, services, and systems – which is key to optimizing mission capabilities and resource utilization. At present, there is no other management best practice, other than EA, that can serve as a context for enterprise-wide planning and decision making.<sup>1</sup>*

Figure 1 OneVA EA Content Scope, depicts the scope of the VA information envisioned to be available via the OneVA EA. The figure provides a high level view of some of the types of strategic, business and technology content of the OneVA EA. This content resides at the appropriate level of the VA; VA-wide, Segment or Solution level. The technical functions made available via the VA Enterprise Architecture Management Suite (VEAMS) allow the content to be created, linked and visualized for strategic, tactical and operational purposes.

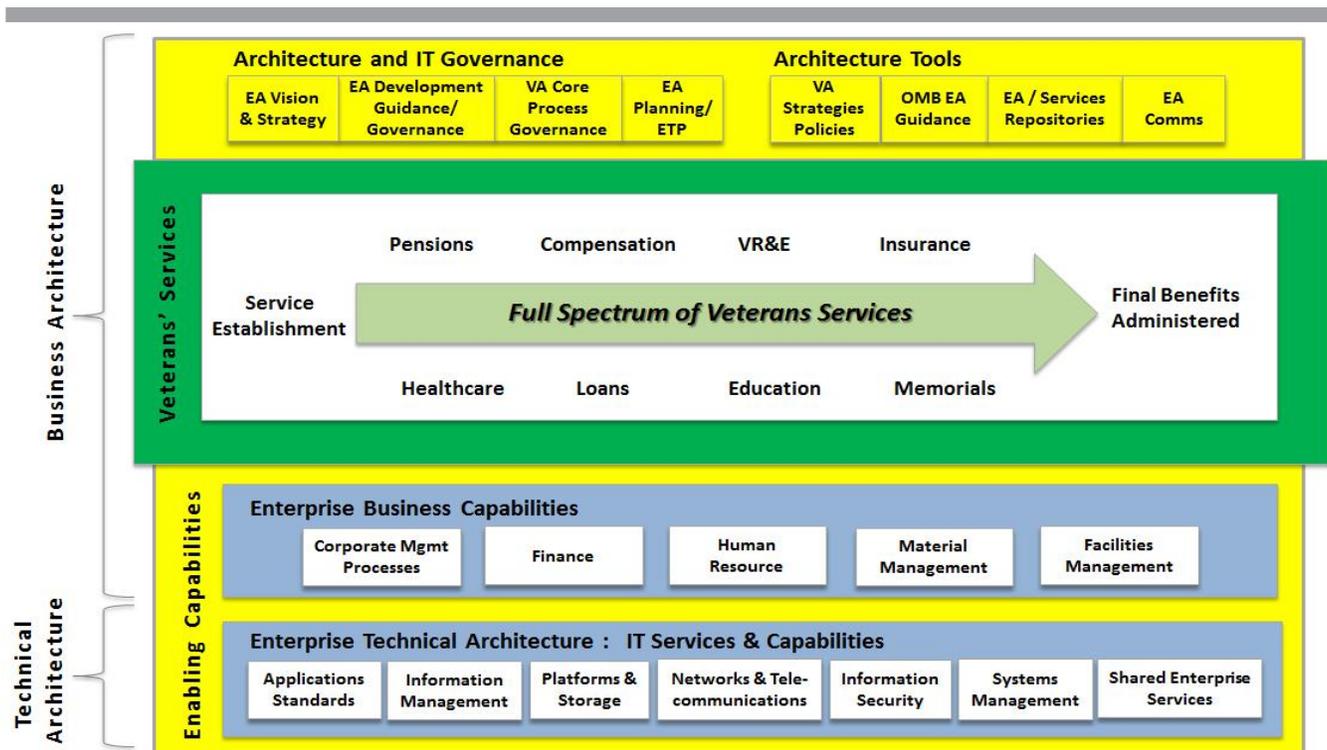


Figure 1 OneVA EA Content Scope

The OneVA EA captures and organizes content to allow a process of translating business and technical strategy into information that is used to guide and constrain business and technology investments. This information is captured and presented in many ways (e.g., tabular reports, models, dashboards) that describe the VA's current and future states and enable its evolution.

## 1.4 Relationship to Other Documents

This ADM is not intended to be a stand-alone document. It must be complemented with other guidance to properly realize development of a value-added OneVA EA. Figure 2 ADM Relationship to Other Documents, depicts the different sources of additional guidance complementary to this ADM. More detailed descriptions of the documents and their relationships to the ADM immediately follow the figure.

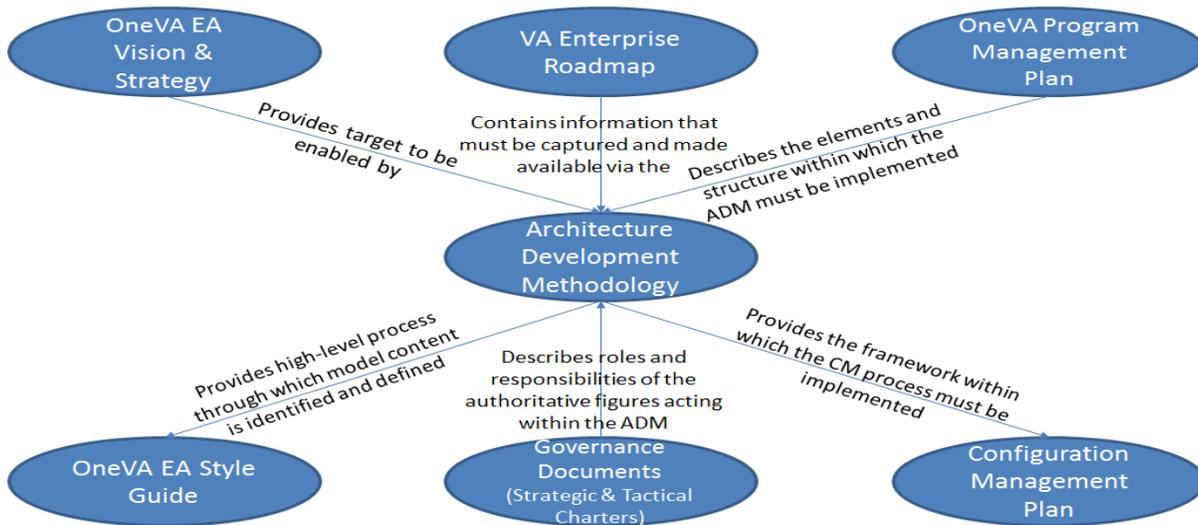


Figure 2 ADM Relationship to Other Documents

Document Title	Description	Relationship to ADM
<b>VA Enterprise Roadmap</b>	Provides an integrated view of mission and IT capabilities supporting VA transformation. Advances enterprise integration by collecting and aligning strategic goals, objectives, and transformation plans of VHA, VBA, NCA and OIT with the strategic goals and objectives developed through OPP.	Provides combined views of information that serve as sources of data requirements that drive OneVA EA content development.
<b>OneVA EA Vision &amp; Strategy</b>	Describes the supporting principles that guide and constrain development and use, goals/outcomes that guide content and evolutionary elements for achieving the OneVA EA's mission.	Provides the high-level target decision processes within which the ADM must operate and enable the creation of value-added information.
<b>OneVA EA Program Management Plan</b>	Describes the key parts of the VA Office of Information Technology (OIT) in which the OneVA EA Program functions and the key resources required for the development, use and maintenance of the OneVA EA.	Describes the types of resources that are required to realize/effect the OneVA EA Approach.
<b>OneVA EA Style Guide (ASG)</b>	Describes the methods, rules and modeling conventions implemented to develop the OneVA EA.	The ASG provides the prescriptive techniques necessary to complement the higher-level guidance contained within this ADM.
<b>Governance</b>	Describes the roles and responsibilities of the	Provides the prescriptive guidance as to

Document Title	Description	Relationship to ADM
<b>Documents (Strategic Charters)</b>	Governance entities that oversee the strategic direction of the OneVA EA	how requirements that drive OneVA EA development are approved and prioritized as part of this ADM.
<b>Governance Documents (Tactical Charters)</b>	Describes the roles and responsibilities of the Governance entities that oversee the tactical development of the OneVA EA.	Provides prescriptive guidance as to how the participants within these entities work socialize and elaborate the requirements that are defined via the ADM.
<b>Configuration Management Plan</b>	Describes the process used to manage and track changes to the OneVA EA content, structure and its supporting tool environment.	Identifies the specific outputs of the ADM as configuration items and complements it with the detailed process for tracking changes to all OneVA EA-related items.

## 1.5 Focus of the ADM

The ADM is the central guidance document that focuses on the way the OneVA EA is developed to ensure that the content can be used to help the VA achieve the outcomes as described in the CAF<sup>4</sup>. As stated in section 1, the OneVA EA is being developed within a federated environment and must include guidance for development of content within this environment (See Figure 3 OneVA EA Federation).

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<sup>4</sup> The CAF identifies the following four outcomes; improve service delivery, functional integration, resource optimization and enable the architecture to serve as an authoritative reference.

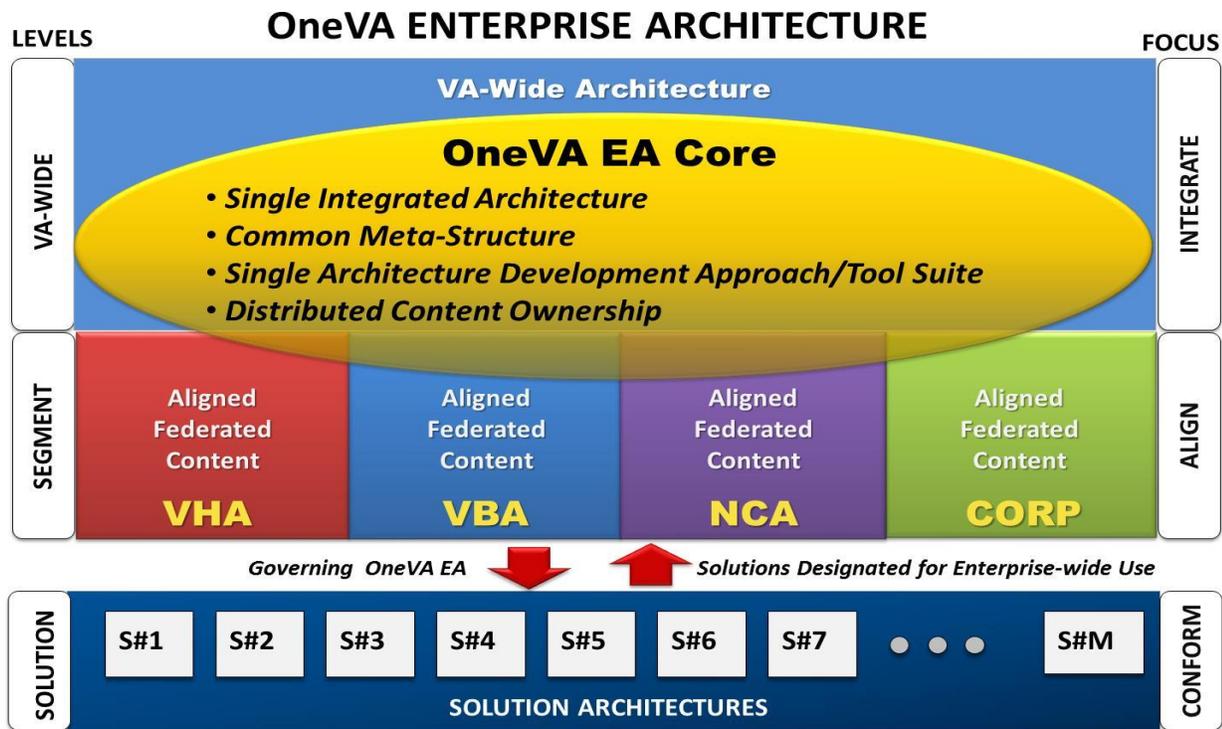


Figure 3 OneVA EA Federation

The focus of this ADM is on the “OneVA EA Core” as shown within Figure 3 OneVA EA Federation. The OneVA EA must contain a certain amount of linkage/overlap between the VA-wide and Segment levels to create a virtual single integrated architecture. In order for this single architecture to be created, there must be commonalities within the underlying metamodels/metastructures of the architectures at each level. Additionally, a common approach to development, to include tooling, must be implemented to ensure that value-added data and information is created and made available at each level of the VA.

The ADM describes a federated development approach whereby content, distributed throughout and owned by different entities at each of the three levels (VA-wide, Segment, Solution), is developed and linked to enable;

- synchronization and socialization of requirements that drive content development
- development of Segment level architecture to support VA-wide priorities while also addressing their individual priorities (i.e., content specific to the Administrations and Staff Offices)
- integration and aggregation of value-added enterprise data

## 2 OneVA EA Federated Development Approach

This section of the ADM is broken down into 4 areas as listed below. These areas are intended to enable common understanding of key concepts/terms used frequently within the approach. It also describes in detail the overall approach and more tactical processes implemented therein to enable successful development of the architecture.

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The key concepts are terms that are intended to improve understanding and communication of the guidance as described in this document. The OneVA EA Development Approach discusses the governance, overarching development, and configuration management processes required to effect successful development of the OneVA EA. Lastly, it discusses the repeatable process intended to guide architecture development at the VA-wide, Segment and Solution levels to ensure value-added content development.

## 2.1 Key Concepts

### 2.1.1 *Integrated Architecture*

The individual architectures at the VA-wide, Segment and Solution levels are assumed to comprise integrated data, models and products. That is, within each level, a higher-level data item is linked to other lower-level data items thus enabling a “line of sight”. For example, the OneVA EA metamodel supports linkage of Major Initiatives to Business Functions to Systems. This creates a “line of sight” from the higher level construct of Major Initiative to the lowest level construct of System.

The OneVA EA is evolving to achieve this level of integration from a holistic perspective using a federated approach whereby the “line of sight” can be created using data from each level of the OneVA EA. This is further described in subsequent sections.

### 2.1.2 *Federation and Architectures*

Federation is an approach to enterprise architecture development, maintenance and use that links, locates, and aggregates disparate architectures and architecture information. A federated approach to architecture recognizes the uniqueness and specific purpose of disparate architectures, and allows for their autonomy and local governance, while enabling the enterprise to benefit from the combined content of these disparate architectures that span the enterprise.

#### *Federation Concept*

Figure 3 OneVA EA Federation, illustrates the concept of federation. In this federation, top level or parent architectures are used to “link to” and level set content in lower level architectures. At the VA, VA-wide (i.e., top level) taxonomies comprise architectural elements that serve as “linking points” to lower level more detailed architectures (i.e., Segment and Solution architectures). The VA-wide level provides the scope of the VA enterprise and sufficient detail that answers specific questions within VA at the corresponding level. The top level or parent architectures at the VA-wide and Segment level are used for strategic and tactical purposes. Lower level or child architectures at the Segment and Solution levels are narrower but deeper architectures that expand upon a higher level architecture. The lower level architectures contain the details used for tactical and operational purposes.

Federation is enabled by aligning the higher level architecture to the lower level architecture(s). The Segment level architectures contain increased detail and are aligned to lower level Solution Architectures that contain the implementation details. Alignment of the VA-wide level directly to the Solution Architectures is also done in certain areas where a VA-wide construct (e.g., Components in the Application Reference Model [ARM]) are

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aligned to services and systems within the Solution Architecture. The alignment of content across all segment architectures (i.e., VHA, VBA, NCA and Corporate) in conjunction with alignment across all levels ((i.e., VA-wide, Segment and Solution) enables better stakeholder decision making within Enterprise, Segment and Solution levels.<sup>5</sup>

Aligning architectures maximizes the re-use of existing architectures thus lessening negative impact of new enterprise priorities on Segment and Solution architecture development. Alignment linkages between the architectures are relatively easy to maintain as long as there is commonality in the linked architectural elements. The alignment is performed in sets of parent-child relationships from VA-wide to Segment to Solution levels. The parent-child relationship analogy is used herein.

### *Federation Alignment*

Business Functions are one of the focal alignment elements<sup>6</sup> in the federation. The rationale here is that each of the architectures that make up the VA-wide and Segment levels has functional decompositions as the hub to which other architectural elements are linked or mapped. For example, the VA-wide level has the Business Reference Model, VHA has its Business Function Framework (BFF) and VBA and NCA each have their Business Functional Models (BFMs). Each of these models depicts the breadth and depth of their associated lines of business. The functions contained therein serve as linking mechanisms between the physically separated architectures and combine to describe the Veteran-focused mission functions of the VA.

There are two types of federation alignment described herein; Actual Federation Alignment and Virtual Federation Alignment. Figure 4 Actual Federation Alignment, illustrates actual federation alignment through Business Functions. The Parent architecture contains high level Business Functions that are decomposed in a hierarchy. The combination of actual lines of business and the number of levels of decomposition represents the current business functionality scope of the Parent architecture. The amount of detail contained in the Parent architecture is determined by scope and intended use of the Parent architecture.

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<sup>5</sup> The alignment is done on an as-needed basis driven by business need.

<sup>6</sup> The Application Reference Model (ARM) is planned to be used to enable linkage of systems to the technical functions/capabilities they provide.

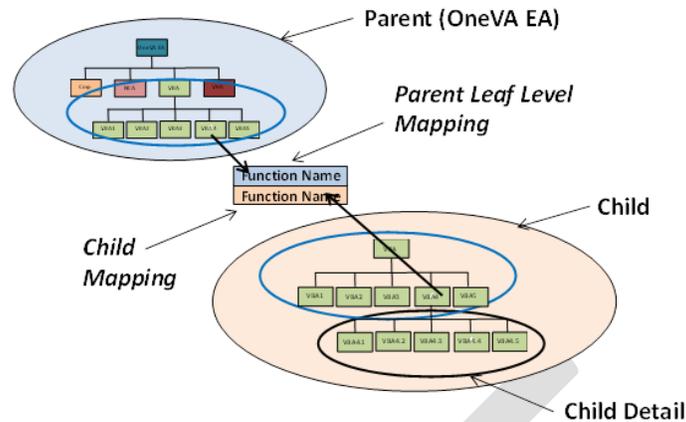


Figure 4 Actual Federation Alignment

The “actual alignment” establishes the link between a Parent enterprise Business Function and a Child Business Function. This is further detailed in 2.2.2 Content Development. Virtual Alignment is achieved by a navigational path between other architectural elements based on the Actual Alignment of Business Functions.

Other architectural elements can be visualized in a federation, but most of these elements are derived, in one way or another, from the Business Functions<sup>7</sup>. The following figure illustrates virtual alignment. The following example explains this concept of virtual alignment.

Example: The VHA BFF has its lowest-level functions mapped to VHA IT Projects and VHA Business Process Models. These VHA Business Functions are also linked/mapped to the lowest-level business functions of the VA-wide level BRM. Therefore, the VHA IT Projects and VHA Business Process Models are “virtually aligned” to the VA-wide Business Functions.

### Six Step Development Method

The Six Step Development Method is a process by which value-added architecture is developed. This method combines the commonalities of the Federal Enterprise Architecture Framework (FEA), The Open Group Architecture Framework (TOGAF) and the DoD Architecture Framework (DoDAF) to describe a standard process that can be used to develop architectures at any level; VA-wide, Segment or Solution. The method emphasizes identification of intended user(s) and definition of their requirements upfront and suggests user involvement throughout the process or development lifecycle (See Figure 5 Six Step Method). This 6-Step Method, or some variation thereof, is followed to develop architecture content at each level of the VA and is the heart of the overall OneVA EA Development Approach.

<sup>7</sup> This derived relationship of elements is enabled only when the child architectures are also integrated “within themselves” creating a line of sight within the child architecture.



Figure 5 Six Step Method

## 2.2 OneVA EA Development Approach

The goal of the OneVA EA Development Approach is to produce an enterprise architecture that serves as an enterprise decision support capability for the VA. In order to do so, this approach accommodates multi-level governance and requirements definition (strategic and tactical), a repeatable architecture development process<sup>8</sup>, and data integration & aggregation functions necessary to ensure a synchronized, value-added enterprise capability for more informed decision-making (See Figure 6 OneVA EA Development Approach).

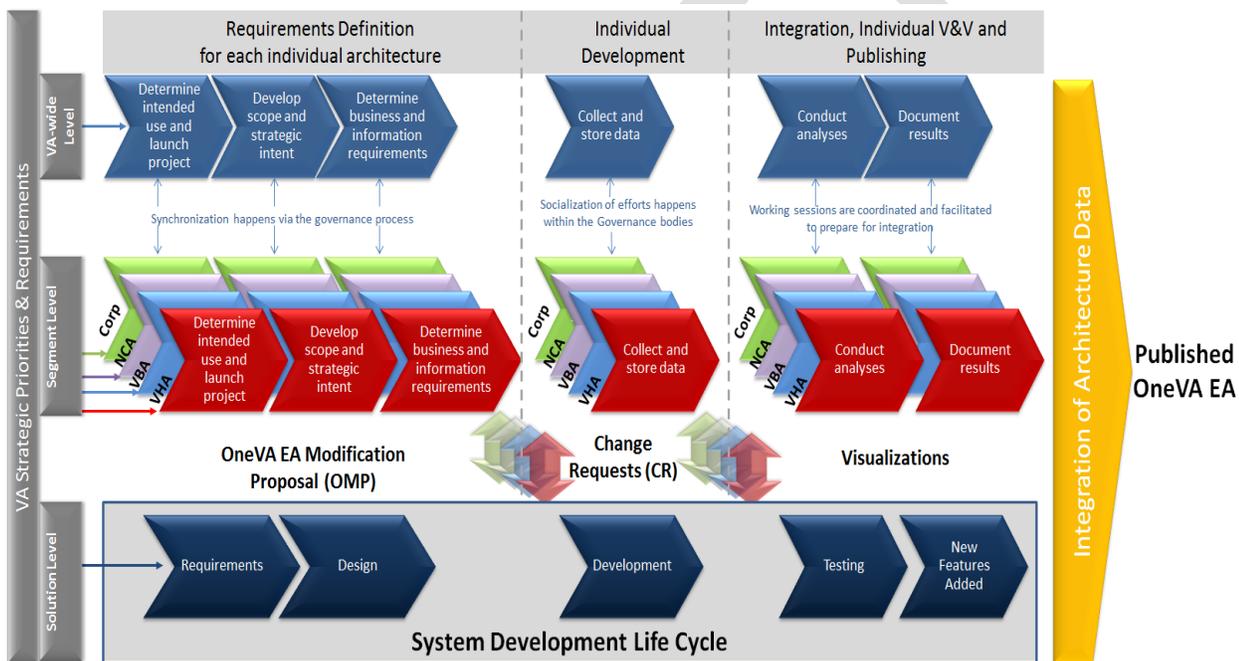


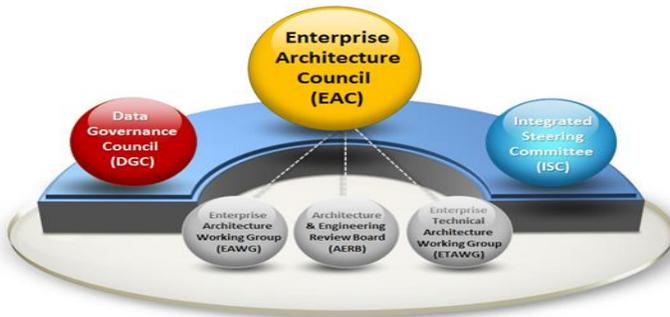
Figure 6 OneVA EA Development Approach

### 2.2.1 Governance

The primary purpose of OneVA EA governance is to ensure that the OneVA EA is planned, developed and evolved in a manner that enables it to be used as an enterprise decision support capability to inform VA decision

<sup>8</sup> This repeatable process was derived from the FEA and DoD processes for architecture development.

making-processes. There are two levels of planning that impact OneVA EA development; strategic level planning and tactical level planning. Strategic level planning results in strategic level requirements that impact either multiple or all segments of the OneVA EA. Strategic level requirements help set the direction for the overall architecture. Tactical level planning deals more with the development of the releases of the OneVA EA and the individual architectures at the segment and solution levels.



*Figure 7 OneVA EA Governance Structure*

There is a two-tiered governance structure in place to oversee OneVA EA planning and requirements definition at both levels. The first tier is strategic level governance which is performed by a combination of the Enterprise Architecture Council (EAC), Data Governance Council (DGC) and Integrated Steering Committee (ISC). The second tier is more tactical in nature and comprises the Enterprise Architecture Working Group (EAWG), Architecture and Engineering Review Board (AERB) and the Enterprise Technical Architecture Working Group (ETAWG). This two-tiered structure is depicted in Figure 8 OneVA EA Governance Structure.

The EAC is the primary body setting direction for the VA-wide level of the OneVA EA. The EAC review and validates the planned recurring releases of the OneVA EA. Other entities such as the Data Governance Council (DGC) and Integrated Steering Committee (ITSC) are involved in the strategic governance process through participation/representation within the EAC. The DGC guides the enforcement of data standards and data governance policy for every information technology project and business process initiative. The ISC supports integration of new initiatives across the VA by sponsoring and directing research into integration opportunities across the Administrations and OI&T.

The EAWG is the action arm of the EAC. In this capacity, it serves as the primary body responsible for ensuring that the higher-level requirements coming from the EAC are decomposed into more detailed requirements that are documented within a OneVA EA Modification Proposal (OMP). These more detailed requirements are used to plan and scope the different releases of the OneVA EA and the architectures at the segment and solution levels. The ETAWG is responsible for ensuring that technical requirements, including hardware, software and infrastructure are adequately defined to enable proper support to the defined business need. All requirements are documented as part of the OMP. The AERB is a user of the architecture content to assess compliance to the ETA. In this role, it may propose changes to architecture content that are driven by changes that may be necessitated by via the compliance assessments.

### *Requirements Definition and Prioritization*

As stated earlier, requirements definition and prioritization is an integral part of the OneVA EA Development Approach and is accomplished via the first three steps of the Six Step Development Method. It creates input to both guide the overall architecture and plan the different releases of the content therein as shown in Figure 6

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OneVA EA Development Approach. The requirements definition and prioritization function is a primary focus of the OneVA EA governance process.

As shown in the OneVA EA Development Approach, there are requirements being defined at different times and at different levels of the VA. It is paramount that the governance process recognizes this and enables these requirements to be further refined from an enterprise perspective while preserving a certain amount of autonomy for the segment and solution levels. The mechanism used to capture the requirements identified at each level must enable them to be documented with sufficient detail to support value-added socialization within the EAC. For VA-wide requirements, sufficient detail must be included to enable EAC approval and prioritization.

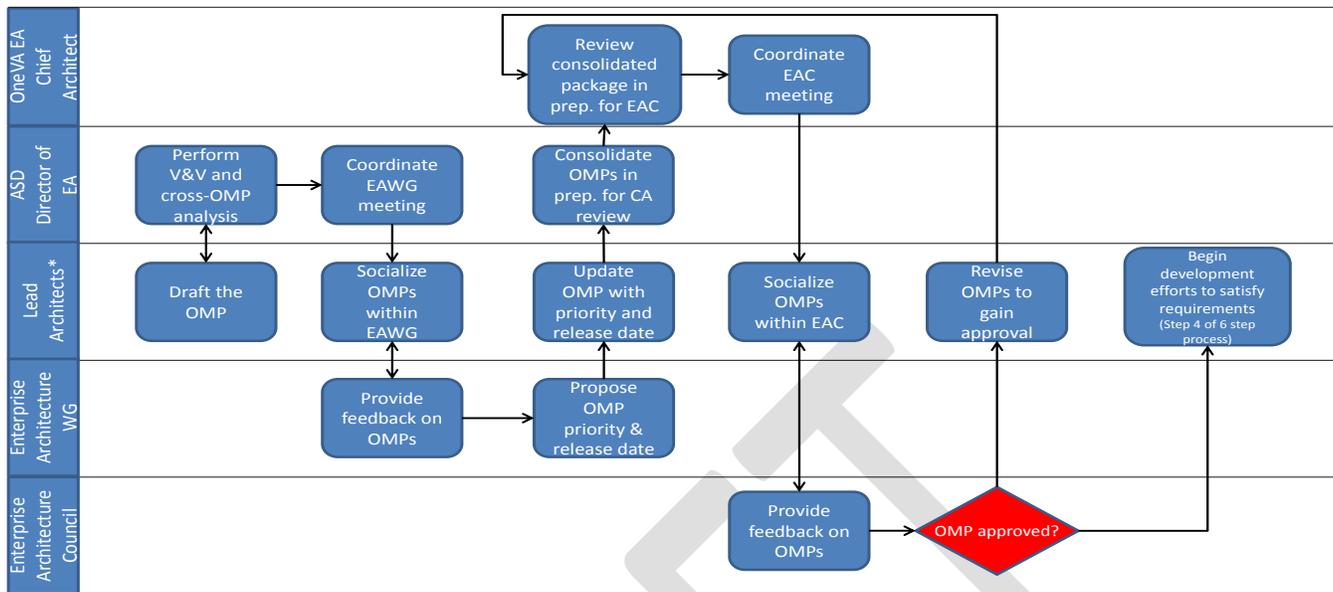
The following rules are complementary to the Governance process and must be adhered to by the participants in the process.

1. Each segment level entity must have a process defined for receiving, defining and prioritizing EAC-approved business needs/requirements that guide development efforts for their individual architectures.
2. Each segment level process identifies, at a minimum, the following information that will be captured within the OMP.
  - a. Business sponsor for the need/requirement
  - b. Questions to be answered to address the previously identified business need/requirement.
    - i. The questions must be defined at a level that enables identification of the requisite data elements.
  - c. Other Segments (if any) that must be involved to address the requirement
  - d. The actual data elements required to answer the questions and the stewards of that data. This should include the following:
    - i. Types of products that require modification (e.g., process models, standards, etc.)
    - ii. Whether changes to the OeVA EA metamodel are required
  - e. Documentation of the location of the requisite data
  - f. Documentation of IT needs or capability needs (This came from PM summit)
  - g. Format(s) in which the resultant information must be visualized/presented
  - h. Estimate of the level of effort required to address the need/requirement
  - i. Date on which the information required to support the need will be published
3. Those segment level entities that do not have a process already defined will adopt the process described herein. [Please note that “adopt” does not mean that one would have to follow the process “step-by-step”. The segments can have variations of the process as long as it yields the above minimum data requirements.]

Figure 8 OneVA EA OMP Process, depicts the process followed within the OneVA EA governance structure to synchronize, prioritize and socialize the business needs/requirements that drive development<sup>9</sup> at all levels of the OneVA EA. Brief descriptions of the roles and responsibilities of each participant in the process immediately follow the figure.

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<sup>9</sup> In this context, development can be creation of data and information, development of specialized reports, models and/or visualizations, development of additional technical capabilities or any combination thereof.



Lead Architects – Comprises architects at each level of the VA

Figure 8 OneVA EA OMP Process

Descriptions of each of the process steps in the OneVA EA OMP Process are provided below:

Process Step	Description	Outcome/Output
<b>Draft the OMP</b>	The Lead architect(s) describe the specific business need to be addressed by this architecture effort. The description should contain, at a minimum, the information listed in item 2 preceding the process graphic.	Draft OMP with the minimum mandatory information included.
<b>Perform V&amp;V and cross-OMP analysis</b>	The Director of EA reviews the OMPs to verify that the requisite information is present. Analysis is also done to validate that the information listed is all that's needed to satisfy the business need. Also, at this point a determination is made as to what other OI&T entities need to be aware of and involved in this requirement.	Proposed mods to the OMP to ensure that the correct level of granularity is present in the OMP. Consolidated set of OMPs with identified areas for collaboration.
<b>Coordinate EAWG meeting</b>	The Director of EA ensures availability of all requisite participants and sets the agenda for the EAWG meeting within which the OMP(s) will be discussed.	EAWG agenda comprising OMPs and issues requiring EAWG attention/input.
<b>Socialize OMPs within EAWG</b>	The Lead Architect presents the business need described within the OMP to the EAWG attendees. He/she describes in detail the need and how the information generated to address the need is intended to be used. The Lead Architect also discusses the date on which the capture of the requisite information will be completed.	Enterprise awareness of the needs to be addressed within the OneVA EA and the information and technical capabilities required to be developed to address the need.
<b>Provide feedback on OMPs</b>	Members of the EAWG ask questions to gain a clear understanding of the business need described in the OMP and its impact (if any) on any other segments.	Proposed modifications to the OMPs to clarify understanding of the needs.
<b>Propose OMP priority and release date</b>	The Director of EA, as Chair of the EAWG, leads discussion on the OMPs to propose priority and release date for the information to be made available via the OneVA EA.	Agreed upon priority and release date in which the information can be available.

Process Step	Description	Outcome/Output
<b>Update OMP w/priority and release date</b>	The Lead Architect updates the OMP per feedback from the EAWG. He/she is also expected to discuss the outcomes from the EAWG and proposed prioritization with the appropriate persons within his/her organization.	Updated OMP including more detailed information and timeframe for release to be presented to the EAC.
<b>Consolidate OMPs in preparation for Chief Architect review</b>	The Director of EA collects the OMPs being submitted by the Lead Architects and prepares a consolidated package that highlights areas for collaboration, reuse and any issues that need to be addressed at the EAC level.	Areas for collaboration and reuse. Potential issues that may impact each need.
<b>Review consolidated package in preparation for EAC</b>	The OneVA EA Chief Architect reviews the consolidated package and the highlights identified by the Director of EA. The Chief Architect finalizes the consolidated OMP package to be presented to the EAC for approval.	Finalized consolidated OMPs for presentation to EAC.
<b>Coordinate EAC meeting</b>	The Chief Architect ensures availability of all requisite participants and sets the agenda for the EAC meeting within which the OMPs will be discussed.	EAWG agenda comprising OMPs and issues requiring EAC attention/input.
<b>Socialize OMPs within EAC</b>	The Lead Architects present their respective OMPs to the EAC for approval.	Presentation of business need from owning Segment.
<b>Provide feedback on OMPs</b>	The EAC participants ask any questions for clarification and provide any additional feedback necessary to make a decision on the OMP.	Approval or disapproval of OMPs for development.
<b>Revise OMPs to gain EAC approval</b>	This step happens only if the EAC disapproves the OMP. If so, the Lead Architect modifies the OMP to address the EAC content and sends it back to the OneVA EA Chief Architect to be included in the agenda for the upcoming EAC meeting.	Updated OMP to be reviewed by the Chief Architect and presented to the EAC.
<b>Begin development efforts to satisfy business need</b>	Once OMPs are approved, the development phase begins. It is important to note that development can be many things depending on what's required to address the need. For example, if the need requires only a new "dashboard" that aggregates existing information, then development of the dashboard begins. If the need requires information from multiple segments, then the development includes content development at each of the segments and integration of that content.	Requisite information, visualization and technical capabilities developed to address the business need described within the approved OMP.

Roles and responsibilities of the participants are described below:

Participant	Responsibility	Rationale
<b>OneVA EA Chief Architect</b>	As the Chair of the EAC, facilitate socialization of OMPs with the EAC.	To ensure that the business needs/requirements are reviewed from an "enterprise perspective"
<b>ASD Director of EA</b>	Manage the process for defining and collecting the OMPs.	To ensure that requisite information for OMPs is captured to enable proper socialization and prioritization
<b>Segment Lead Architects</b>	Engage sponsor of business need/requirement to understand, define, and capture the requisite data within the OMP. Also to present the OMP within the EAWG and EAC.	To ensure that the owners of the business content take ownership of the definition of the requirements and are involved throughout the process.
<b>Enterprise Architecture Council</b>	Review, approve/disapprove, and	To ensure that VA strategic

Participant	Responsibility	Rationale
<b>(EAC)</b>	prioritize OMPs as a collection of VA business needs/requirements.	direction is addressed and priorities are set accordingly.
<b>Enterprise Architecture WG (EAWG)</b>	As the action arm of the EAC, elaborate on business needs/requirements. Also socialization forum for all business needs/requirements that drive architecture content development.	To ensure that the requirements presented to the EAC are understood by all segments of VA and enable enterprise awareness of these requirements.

### 2.2.2 Content Development

The fourth step of the Six Step Method focuses on the development of content. The data/models that are either newly created or updated are driven by the business and data requirements defined within the OMP. It is important that the standard taxonomies implemented within the OneVA EA Core are used when “mapping” objects between repositories and between models. Also, it is within this step where the Actual Federation Alignment takes place (See Figure 4 Actual Federation Alignment). For example, this is where the business functions of a segment architecture are mapped to business functions in the OneVA EA BRM thus supporting aggregation of data from different levels of the VA.

As stated earlier, architecture content will be developed within all levels of the VA (i.e., VA-wide, Segment and Solution). It is also understood that this development will occur in parallel as shown in Figure 6 OneVA EA Development Approach. One of the goals of this ADM is to provide sufficient guidance to support the integration and aggregation of the content developed at each level of the VA. This ADM is not intended to prescribe to each segment “step-by-step” instructions on how to develop their individual architectures. However, in order to support the integration and aggregation of data, there must be sufficient prescriptive guidance to enable the OneVA EA Core to create the point to which other architecture content can be “federated” or linked thus enabling the creation of value-added lines-of-sight<sup>10</sup>. These lines-of-sight can then be used to answer questions such as:

- How many systems do we have supporting the Disability Evaluation process?
- How much IT money are we spending to create the electronic health record?
- What are we doing from process and systems perspectives to address the backlog issue?

In order to create this line-of-sight, the following items (at a minimum) must be followed.

- Use of the OneVA EA metamodel
- Use of standard taxonomies
- Mapping of objects between architectures
- Integration within the Segment architectures
- Use of Change Requests to manage changes to the OneVA EA
- Communication process to enable integration of the data created within the individual architectures

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<sup>10</sup> An example of a line-of-sight is Enterprise Capability → Business Function → System → Dollars spent on each system

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## OneVA EA Metamodel

The OneVA EA metamodel is used to enable both “federation” (i.e., linking or mapping) of architecture content and integration of architecture data at the VA-wide, Segment and Solution levels. The OneVA EA metamodel is a normalized model that accommodates the core data types, structures and relationships<sup>11</sup> of the Segment architectures. Conversely, each segment architecture must include, at a minimum, this cross-segment core data set as part of its metamodel. Adherence to the OneVA EA metamodel means:

- Core objects/entities within the metamodel are represented within the segment metamodels. For example, the OneVA EA metamodel has an object called “business function”. There must be an object equivalent to “business function” within the Segment metamodel.
- The relationships between the objects/entities within the metamodel (this includes cardinality) must remain true within the segment metamodel. For example, there is a one-to-many relationship between “business function” and “system” within the OneVA EA metamodel. This same relationship must be allowed within the segment metamodel.
- The OneVA EA metamodel can be extended beyond the “core”. Any metamodel extensions must be socialized within the EAWG.

## Standard Taxonomies

Standard taxonomies are used in two ways within the OneVA EA; as structures for certain products and as instance data within certain products. For example, the taxonomy for the OneVA EA Business Reference Model (BRM) is depicted in Figure 10 OneVA EA BRM Taxonomy. This taxonomy is used as the main organizing construct of the OneVA EA and the data contained therein. The BRM taxonomy provides the structure for describing “what VA does as a business”.

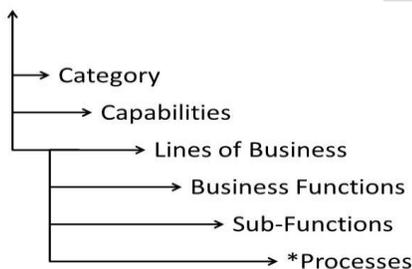


Figure 9 OneVA EA BRM Taxonomy

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<sup>11</sup> In this context, “Core data types, structures and relationships” means the data that is required to be common across all segment architectures to enable integration and aggregation of the data to support informed decision-making within the VA.

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The actual titles/names in combination with the definitions of the specific “Capabilities”, “Lines of Business”, “Business Functions”, “Sub-Functions” and “Processes” provide the instance data. It is the instances defined at certain levels of the taxonomy (e.g., Provide HealthCare) that provide the points to which links/mappings are made. The Application Reference Model (ARM) and Technical Reference Model (TRM) are other taxonomies that are used within the OneVA EA as enablers for federation and integration of architecture data across the VA. The ARM is used to map or tag systems using a standard vocabulary to provide a standard way to describe technical functions that each system or service performs. The TRM is used to map or tag systems and corresponding software and hardware using a standard vocabulary to provide a standard way to describe the technologies used within the system or service.

### *Mapping of Objects Between Architectures*

As stated earlier, the OneVA EA BRM is the main organizing construct of the OneVA EA. It is used as the “hub” to which other objects within the OneVA EA are mapped. The functions of the OneVA EA BRM will be mapped to the following OneVA EA objects.

- Capabilities within the VA Capabilities Model (VACM)
- Organizations within the VA Functional Organization Manual (FOM)
- FEA BRM functions
- Systems listed within the Systems Inventory.
- Entities and attributes of the Conceptual and Logical Data Models
- Other OneVA EA objects as driven by the needs described within the OMP

At the Segment level, the Administration and Corporate functional hierarchies are mapped to the OneVA EA BRM. This mapping is described as “Actual Federation Alignment” as depicted in Figure 4 Actual Federation Alignment. It is here where there must be standard labels for the type of relationship a specific mapping represents. For example, if there were a one-to-one mapping between a business function at the VA-wide level and a business function at the Segment level, it would mean that the two functions are the same thus equal. This means that it is an “equivalent” relationship. If there were a one-to-many relationship between a business function at the VA-wide level and a business function at the Segment level, it would mean that the different Segment level functions are combined to equal the VA-wide function. This means that it is a “part of” relationship whereas each Segment level function is a part of the VA-wide function.

### *Integration within segment architectures*

The value of the overall OneVA EA is directly related to the value inherent within the Segment and Solution architectures that are part of it. This value can be gauged only by the quality of the information the architectures contain and the use of that information within VA decision processes. In turn, the quality of the information and its use are directly related to the “integrated” nature of the architecture housing the information. In this

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context, “integrated” means that relationships between objects<sup>12</sup> are captured within the architecture in such a way that a line-of-sight is created. This line-of-sight realizes the interrelationships of the objects and can be used to aggregate the objects to form information that can be used within VA decision processes.

Each segment architecture must be an integrated architecture that implements the aforementioned line-of-sight concept to aggregate the information it contains so that it can be effectively used by VA decision-makers. An example of this integration is the OneVA EA and Capabilities, Business Functions and Systems it contains. A simple thread exists where Capabilities are linked to Business Functions that are, in turn linked to Systems<sup>13</sup>. This thread enables one to answer the questions such as “What systems are in place to support management of income security?” This thread is actually implemented within the OneVA EA repository.

Another example of this integration is within the Healthcare Segment. The VHA Business Architecture contains Business Needs, Business Functions and Tracked VHA IT projects. A simple thread exists where Business Functions are linked to Business Needs and Business Needs are linked to Tracked VHA IT Projects. This enables one to answer the question “What IT projects are underway that support providing access to healthcare?” This thread is actually implemented within the VHA Business Architecture Repository.

It is the integrated nature of the different architectures that make up the OneVA EA that maximizes the value of the information when aggregated and made available to VA decision-makers. That said, each segment architecture is required to integrate the objects/data it contains to implement the aforementioned “thread” concept as previously described.

#### *“Top-Down and Bottom-Up” Development*

Enterprise architecture development is typically thought of as a top-down exercise whereby the strategic priorities of the Agency, in this case VA, drive architecture development. This “uni-directional” approach would work well for an organization that is “brand new” and does not already have systems in place to support its mission. The VA, much like all other Government agencies, already has mission-specific and other supporting systems in operation and must leverage the important data and information these systems provide. Therefore, the OneVA EA Development Approach enables a bi-directional approach to architecture development whereby a combination of strategic elements (e.g., enterprise priorities and capabilities) and tactical elements (e.g., existing systems, services and other technology) are used to define OneVA EA content.

A good example of this is an strategic initiative to identify enterprise data standards (e.g., Customer Data Interchange). In this example, systems identified as authoritative sources for customer-specific data elements can be used to both identify the VA-wide common data elements as well as define the format of those elements. This approach ensures that strategic priorities and existing technology are leveraged together to provide value-added information to decision-makers.

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<sup>12</sup> Objects are types of information captured within the architecture (e.g., Goals, Capabilities, Business Functions, Rules, Systems, Services)

<sup>13</sup> The current OneVA EA has this “thread” done for the VBA business functions only. Creation of the thread for the VHA and NCA segments will be planned via the governance process.

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## *Engagement with the Governance Process*

As described earlier, the Governance process is used to oversee the planning, development and evolution of the OneVA EA. The OMP is the focal mechanism used to capture the business needs/requirements. Once defined, there are several types of changes that may be necessitated by the OMP. Some of these types of changes are listed below.

- Metamodel changes – This includes addition of objects that may not already be addressed by the current structure. For example, if the OneVA EA were required to capture iEHR Capabilities, the metamodel would have to be modified to enable mapping of these Capabilities to other objects.
- Content changes – This includes creation of new models as well as modification to existing models. It also includes modification to or creation of new content through other means such as updates to tabular products like the Functional Organization Manual report.
- Visualization changes – This includes creation of new reports as well as modification to existing reports. In this context, dashboards, tables and spreadsheets are considered types of reports. Simply stated, visualization changes are anything done to create different ways of seeing the data that is housed within the repository.
- VEAMS changes<sup>14</sup> - This includes any change to the current VEAMS technical functions. Current VEAMS technical capabilities include, but are not limited to, functional decomposition modeling, BPMN process modeling, modeling of system interfaces, object mapping and some basic reporting capabilities. Integration of a new dashboard capability within VEAMS is an example of a technical capability update.

The OneVA EA Change Request (CR)<sup>15</sup> is the mechanism to be used to capture the detailed descriptions of the different types of changes. CRs will be linked to the specific OMP from which the changes are drawn. There can be multiple CRs created to totally address the requirements as described in an OMP. The following rules apply to CRs for the OneVA EA.

1. The EAWG will function as the Configuration Control Board reviewing CRs for the OneVA EA.
2. All CRs that require any changes to the metamodels of the VA-wide and/or Segment architectures must be reviewed within the EAWG.
  - a. Only those metamodel changes that require update to the OneVA EA VA-wide metamodel must obtain EAWG approval.
  - b. Those metamodel changes that require changes to the Segment architecture metamodel only do not need EAWG approval.
3. There will be a CR created for each product<sup>16</sup> to be updated/modified.
4. All content CRs must capture the following information at a minimum.

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<sup>14</sup> VEAMS changes are described as changes to any technical functions that are implemented to enable certain things to be done in support of the OneVA EA. Examples of these technical capabilities are Business Intelligence, Knowledge Discovery and Management, Process Automation, Extraction/Transformation/Loading (ETL)

<sup>15</sup> This section of the ADM will be updated according to the Configuration Management Plan (CMP) which is still being developed at the time of this publication.

<sup>16</sup> OneVA EA products include: models, reports/visualizations, metamodels and tool capabilities

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- a. The OMP to which the CR is associated
  - b. The product/model to be modified
  - c. Detailed description of the changes to be made to the product/model
  - d. Impact of changes to other products/models
5. All CRs that impact the VA-wide level content will be reviewed within the EAWG and must obtain EAWG approval.
  6. All CRs that impact content in more than one segment must be reviewed within the EAWG and obtain EAWG approval.
  7. All CRs that are scoped to impact only segment-specific architecture content need only to be briefed to the EAWG for awareness but do not require EAWG approval.
  8. All CRs requiring either creation of new or modification to existing visualizations/reports that aggregate information from across the VA must be reviewed within the EAWG and obtain EAWG approval.
  9. All CRs requiring new technical capabilities to be integrated as part of the VEAMS must be reviewed within the EAWG and obtain EAWG approval.

### *2.2.3 Data Integration and Aggregation*

A methodology that supports a federated architecture development approach must address the way in which data housed and managed in different places will be integrated and aggregated. In this context, integration is viewed as merging multiple sources into a single source whereas aggregation is viewed as combining data from multiple sources wherever those sources may reside. This approach to developing the OneVA EA recognizes this subtle difference and addresses it in the following way.

The OneVA EA will “integrate” the sources of the core architectural data. The core architectural data is defined as that data which the VA-wide and Segment level architectures all capture. Currently, that is the Strategic Planning Initiatives, Major Initiatives, Strategic Goals, Business Capabilities and Business Functions. What we mean by “integrating this data” is that this information will be housed within the same tool/repository.<sup>17</sup> It will be stored according to the OneVA EA metamodel. This “integrated data source/set” will then be used as the source to which other sources/repositories of data will be mapped thus forming the foundation that enables data aggregation.

Data sources that house types of information that fall outside the aforementioned core data set will require additional mapping exercises and tagging of data. These mappings and tags will enable the data within these sources to be aggregated or “mashed up” to enable the OneVA EA to achieve its vision of becoming an authoritative reference for decision-grade information. The information within the standard taxonomies that are part of the core data set (e.g., BRM, ARM, TRM, VASI) will be used to tag other pieces of information within other data sources. This “tagging” enforces the use of a common vocabulary that is necessary for aggregating information from across the VA thus realizing the federated approach to OneVA EA development.

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<sup>17</sup> A Federation Implementation Plan will be developed to describe the way the different pieces of data and sources of data will be brought together to achieve the OneVA EA Mission. That said, this statement reflects current ideas based on the existing tool set and methodology. The Federation Implementation Plan may necessitate updates to this approach.

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## 2.3 Configuration Management Process

As stated in the subsection “Engagement with the Governance Process”, a complementary Configuration Management Plan (CMP) is being drafted. Therefore, as the CMP evolves and concepts therein are described, socialized and finalized, this section of the ADM will be updated accordingly. This version of the ADM is intended only to identify the need for a Configuration Control Board (CCB) and list some of the items that must be managed via the CM process.

### 2.3.1 Configuration Control Board

The Configuration Control Board is associated to the tactical level governance of the OneVA EA. Its purpose is to review and approve/disapprove proposed changes to the OneVA EA. In this capacity, it will be responsible for reviewing all proposed modifications to the OneVA EA as described in the OneVA EA Modification Proposals (OMPs) and their complementary Change Requests (CRs). A more detailed description of the CCB, including its membership and the process within which it operates, will be included as part of the OneVA EA Configuration Management Plan.

### 2.3.2 Configuration Items

The following list contains several types of items that impact development, use and/or publishing of the OneVA EA. Each of these items must have some type of version control associated to them in order for the OneVA EA to leverage them in the most value-added manner possible. The CMP will address the process and controls necessary to ensure that the information developed and published as part of the OneVA EA is both current and accurate.

- OneVA EA Modification Proposals
- Change Requests
- OneVA EA Metamodel
- OneVA EA Content
- OneVA EA Supporting Documentation
  - Architecture Development Methodology
  - Configuration Management Plan
  - OneVA EA Style Guide
- VA Enterprise Architecture Management Suite (VEAMS)
  - Tool Interfaces
  - Tool configurations
  - Tool versions

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## Appendix A Acronyms

Acronym	Description
<b>ADM</b>	Architecture Development Methodology
<b>AERB</b>	Architecture and Engineering Review Board
<b>APG</b>	Architecture Product Guide
<b>BPMN</b>	Business Process Model Notation
<b>CAF</b>	Common Approach to Federal Enterprise Architecture
<b>CCB</b>	Change Control Board
<b>CMP</b>	Configuration Management Plan
<b>CR</b>	Change Request
<b>DGC</b>	Data Governance Council
<b>DoDAF</b>	DoD Architecture Framework
<b>EAC</b>	Enterprise Architecture Committee
<b>EAWG</b>	Enterprise Architecture Working Group
<b>ETAWG</b>	Enterprise Technical Architecture Working Group
<b>ISC</b>	Integrated Steering Committee
<b>IT</b>	Information Technology
<b>NCA</b>	National Cemeteries Administration
<b>OneVA EA</b>	OneVA Enterprise Architecture
<b>OIT</b>	Office of Information & Technology
<b>OMP</b>	OneVA EA Modification Proposal
<b>OPP</b>	Office of Policy and Planning
<b>TOGAF</b>	The Open Group Architecture Framework
<b>VA</b>	Department of Veteran's Affairs
<b>VBA</b>	Veterans Benefits Administration
<b>VEAMS</b>	VA Enterprise Architecture Management Suite
<b>VHA</b>	Veterans Health Administration

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## Appendix B References

OneVA EA Vision and Strategy August 2014

Common Approach to Federal Enterprise Architecture (CAF) Version 2

DoD Architecture Framework 2.0

Department of VA FY 2013-2015 Enterprise Roadmap, January 2014

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# Appendix C Repeatabe 6 Step Process

## Repeatabe OneVA EA 6 Step Process

As described in Section 2.1.2, the Office of ASD has adopted the 6 Step Method as its standard repeatable process for architecture development. As illustrated within Figure 6 OneVA EA Development Approach, this process is embedded within the overall approach to OneVA EA development. The following sections provide additional information that can be used as further guidance for each step of the process..

1. *Determine intended use, participants and launch project*
  - a. Identify and engage sponsor
  - b. Identify and define sponsor needs
  - c. Document “1<sup>st</sup> level” questions to be answered
  - d. Develop purpose statement for the development effort
  - e. Identify and engage requisite participants
  - f. Engage Governance
  
2. *Determine scope and strategic intent*
  - g. Determine and document strategic intent of sponsor needs/requirements
    - i. Determine “2<sup>nd</sup> level” questions to be answered
  - h. Determine functional bounds and organizational span of sponsor needs/requirements
  - i. Determine technological bounds of sponsor needs/requirements
  - j. Prioritize sponsor needs/requirements
  - k. Determine and document timeframe (i.e., plan releases)
  - l. Validate and communicate scope, strategic intent and timeframe/release plans
  - m. Develop Use Cases to cover aforementioned information
  - n. Define visualization requirements
  
3. *Determine business and information requirements*
  - o. Assess current information against Use Cases and Questions to be Answered
  - p. Determine “Business” information needs
    - i. Policy?, Process?, Function?
  - q. Determine “Data” information needs
    - i. Data elements needed to support the needs/requirements
  - r. Determine “System” information needs
    - i. Components?, Interfaces?, Location?
  - s. Determine “Technology” information needs
    - i. TRM type of information?
  - t. Validate and communicate Business and Information Requirements (Engage governance)
  
4. *Collect and store data*
  - u. Engage sponsor to assist in collecting data
  - v. Leverage current data as a start
  - w. Develop/Modify appropriate models/visualizations
    - i. Functional?
    - ii. Process?
    - iii. Data?

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- iv. System?
  - v. Infrastructure?
  - vi. Security?

5. *Conduct Analyses and Document Results (this constitutes steps 5 and 6)*

- x. Step 5 Conduct Analyses
  - i. Engage sponsor/stakeholder to verify that collected data supports the Use Cases
  - ii. Verify that documented questions can be answered
  - iii. Verify that planned “visualizations” will meet the requirements
- y. Step 6 Document Results
  - i. Document Analysis Results of Step 5
  - ii. Generate all requisite visualizations
  - iii. Conduct “Lessons Learned” session with Team
  - iv. Conduct “Lessons Learned” session with sponsor/stakeholder
  - v. Make appropriate adjustments to implement lessons Learned in next development cycle

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