
BTA

BUSINESS TRANSFORMATION AGENCY

# BEA 4.0 Summary

## September 28, 2006

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# Introduction

The Business Enterprise Architecture (BEA) is the enterprise architecture for the Department of Defense's (DoD) business information infrastructure and includes processes, data, data standards, business rules, operating requirements, and information exchanges. The BEA was built using a set of integrated DoD Architecture Framework (DoDAF) products, including All View, Operational, System, and Technical Standards products. The BEA defines, from a technical perspective, the Department's business transformation priorities, the business capabilities required to support those priorities, and the combinations of systems and initiatives that enable these capabilities. The major milestones for the systems and initiatives that are critical to achieving the transformation priorities are outlined in the Enterprise Transition Plan (ETP). Although the ETP is a separate document, the BEA and the ETP are integrated and cross referenced at the appropriate intersections.

The BEA is scheduled to be released every six months with BEA 3.0, released in September 2005, as the initial baseline.

The transformation effort guiding BEA development focuses on providing tangible outcomes for a limited set of priorities and on developing an architecture that is linked, realistic, and actionable. The scope of the BEA, defined by six Business Enterprise Priorities (BEPs), permits the BEA to evolve in a controlled and consistent fashion.

BEA 4.0 addressed selected architecture gaps identified in both the BEA 3.1 AV-1 Overview and Summary and the March 15, 2006 Congressional Report. In addition, some architecture cleanup work was completed as determined for each BEP and seven additional HTML enhancements were included with the BEA 4.0 release. A summary of the gaps addressed between BEA 3.1, released in March 2006, and BEA 4.0, released in September 2006, is highlighted below and described in more detail in subsequent sections of this document.

**Table 1: Gaps Addressed by BEP for BEA 4.0**

| BEP | Gaps Addressed in BEA 4.0 |
|---|---|
| **Acquisition Visibility (AV)** | • DoD Decision Support System |
| **Financial Visibility (FV)** | • Planning, Programming, and Budgeting (PPB)<br>• Funds Distribution (FD) |
| **Real Property Accountability (RPA)** | • Hazardous Materials (HAZMAT)<br>• Non-Defense Environmental Restoration Program (non-DERP) Environmental Liabilities (EL)<br>• Construction in Progress (CIP)<br>• System Views to Support Real Property & Installations Lifecycle Management (RPILM) |
| **Common Supplier Engagement (CSE)** | • Addressed associated changes from other BEPs |
| **Materiel Visibility (MV)** | • Addressed associated changes from other BEPs |
| **Personnel Visibility (PV)** | • Addressed associated changes from other BEPs |

# Purpose

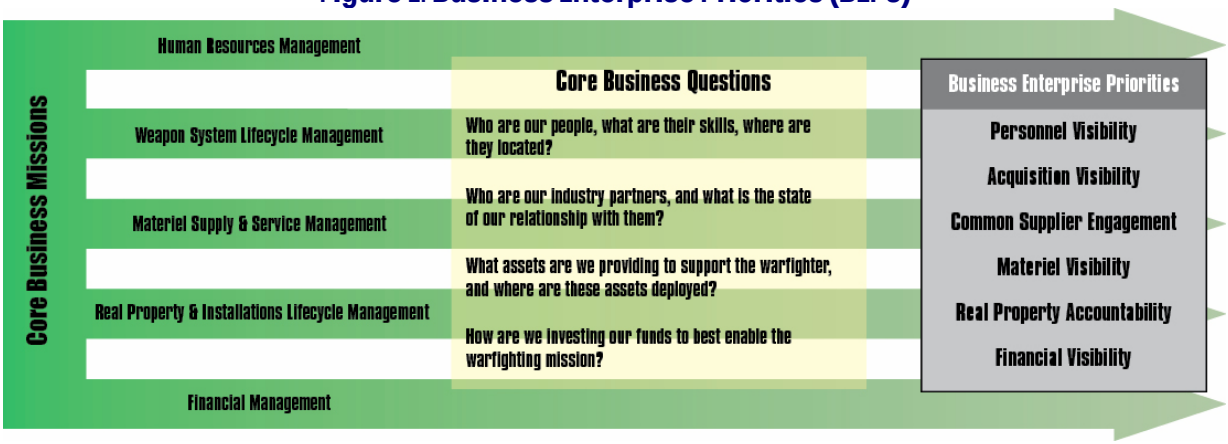
The purpose of this document is to provide a high-level summary of the following:

- What is the BEA;
- What is different between BEA 3.1 and BEA 4.0; and
- What new HTML enhancements are provided in BEA 4.0?

# What is the Same in BEA 4.0?

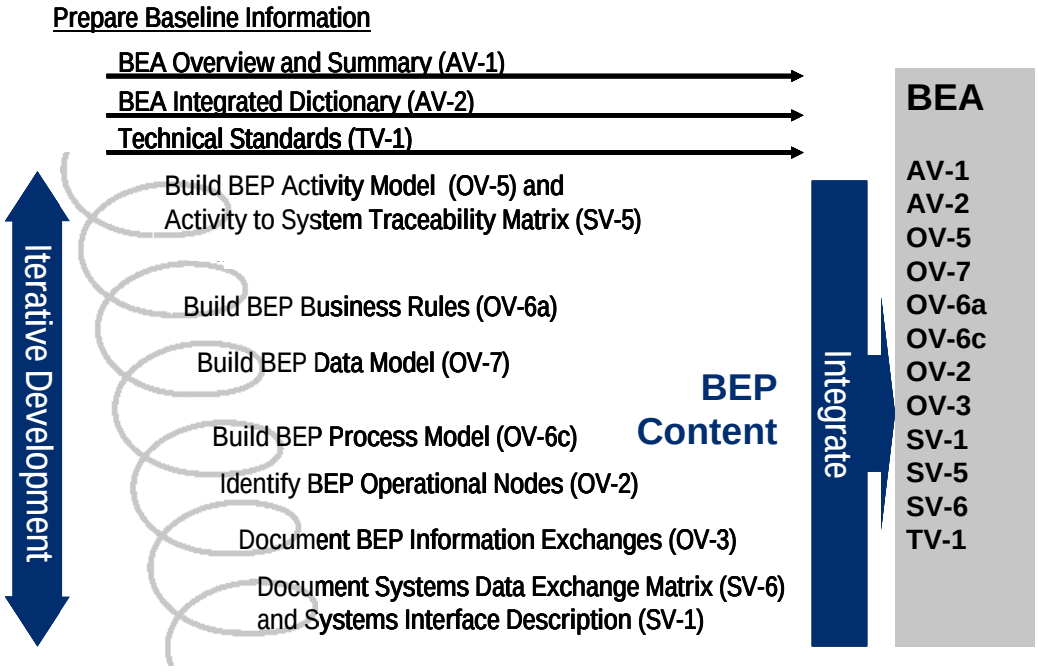
The basic tenets of the BEA have not changed. Like BEA 3.0 and BEA 3.1, BEA 4.0 addresses only DoD enterprise-level business and strategic plans, goals, objectives, and strategies. BEA 4.0 continues to be an outcome-based architecture focused on six BEPs within DoD's five Core Business Missions (CBMs) [1] as depicted in Figure 1: Business Enterprise Priorities. There were no additional BEPs identified for the 4.0 release.

**Figure 1: Business Enterprise Priorities (BEPs)**




In addition, the same development methodology was followed with BEA 4.0 as with BEA 3.1. The necessary and sufficient set of DoDAF products to meet BEA objectives and the development sequence employed for BEA 4.0 remains constant, as presented in Figure 2: BEA Spiral Development. In addition, Independent Verification and Validation (IV&V) continued their role as an embedded member and active participant in all areas of the development process. IV&V delivers reports of their findings for each architecture release.

**Figure 2: BEA Spiral Development**




[1] For additional information on the concepts of CBMs, BEPs, and capabilities, reference the BEA 4.0 AV-1 Overview and Summary Information and the September 2006 update to the ETP in the BTA Report to Congress of September 28, 2006. Definition of terms used in this document can be found in the BEA 4.0 AV-2 Integrated Dictionary.

# What is Different in BEA 4.0?

BEA 4.0 includes all work that was completed after the BEA 3.1 release on March 15, 2006. This section highlights the BEA 4.0 development effort in the following order:

- Interim Architecture Improvements
- Major Architecture Content Additions/Modifications (Gaps)
- Cleanup
- BEA to ETP Integration
- Decision Memorandum
- Supporting Products

# Interim Architecture Improvements

The BTA team completed some interim architecture improvements during the interim time between the release of BEA 3.1 and the official kick-off of BEA 4.0 on April 7, 2006. These improvements did not include changes to the BEP content and focused mainly on significant improvements to the OV-6c Business Process Models, which are featured below.

## OV-6c Business Process Model Improvements

The BEA OV-6c Business Process Models were restructured to reduce data redundancy and ensure adherence to process modeling standards that were updated in response to an improvement analysis, resulting in improved visualization, usability, and technical quality of the diagrams. A summary of the enhancements follows:

- Applied a standard "look and feel" across the diagrams.
- Transformed the models from being data object-centric to process-centric.
- Eliminated numerous process modeling standards violations.
- Improved diagram descriptions to establish a clear purpose for the diagram and convey the complete "story" of the diagram.
- Developed a clear "start" and "end" event for each diagram.
- Represented the right detail at the right level.
- Eliminated excessive data redundancy.
- Ensured that all diagrams are contiguous and eliminated "orphan" process steps (standalone process steps with no linkage to other objects within the diagram).
- Concealed the detail in some sub-processes to avoid the display of duplicate views of child diagrams.
- Ensured that correct symbols were used to represent each business concept (process steps, events, gateways etc.).

# Major Architecture Content Additions/Modifications (Gaps)

BEA 4.0 development efforts focused on improving gaps discussed in the Congressional Report delivered on March 15, 2006 and the gaps identified in the BEA 3.1 AV-1 Overview and Summary. The seven major areas of content improvements are listed below, organized by BEP.

| BEP | Gaps Addressed in BEA 4.0 |
|---|---|
| **Acquisition Visibility (AV)** | • DoD Decision Support System |
| **Financial Visibility (FV)** | • Planning, Programming, and Budgeting (PPB)<br>• Funds Distribution (FD) |
| **Real Property Accountability (RPA)** | • Hazardous Materials (HAZMAT)<br>• Non-Defense Environmental Restoration Program (non-DERP) Environmental Liabilities (EL)<br>• Construction in Progress (CIP)<br>• System Views to Support Real Property & Installations Lifecycle Management (RPILM) |
| **Common Supplier Engagement (CSE)** | • Addressed associated changes from other BEPs |
| **Materiel Visibility (MV)** | • Addressed associated changes from other BEPs |
| **Personnel Visibility (PV)** | • Addressed associated changes from other BEPs |

# Acquisition Visibility (AV)

## Gap Addressed: DoD Decision Support System

### *Overview*

BEA 4.0 development continued to focus on critical executive-level business processes that were identified as gaps in previous BEA releases. These business activities drive many other business processes within DoD. The activity "Manage the DoD Decision Support System" was re-positioned and re-named on the BEA Operational Activity Node Tree as "Execute the DoD Decision Support System." The DoD Decision Support System encompasses the collection and integration of the three principal decision-making processes DoD employs to identify military capability needs, conduct strategic planning, develop materiel and non-materiel solutions, allocate resources, and acquire weapon systems and automated information systems. These decision processes include: the Joint Capabilities Integration and Development System (JCIDS); the Planning, Programming and Budgeting System (PPB); and the Defense Acquisition System. This change continues the documentation of the executive-level decision-making business activities within the Department; captures the Department's executive-level and cross-cutting business activities; and provides the capacity to identify critical touch points with the Components. These efforts support future spiral development of the PPB, JCIDS and Defense Acquisition System processes in future releases of the BEA.

### *DoD Decision Support System Updates for BEA 4.0*

In addition to the high-level changes discussed above, the following changes to the existing BEA Operational Activity Node Tree was restructured and leveled to provide for consistency and clarity. Additional changes to support this major realignment are detailed below.

- **OV-2 Operational Node:**
  - Updated the Weapon System Lifecycle Management (WSLM) needlines in the OV-2 to accurately represent the current operational activities depicted in the OV-5.
- **OV-5 Operational Activity Node Tree:**
  - Added the following high-level decision-making activities to the diagram under activity "Execute the DoD Decision Support System":
    - "Execute the Joint Capabilities Integration and Development System (JCIDS)"
    - "Execute the Planning, Programming and Budgeting System (PPB)"
    - "Manage the Defense Acquisition System"
  - Added the following six child activities to describe the critical aspects of "Execute Joint Capabilities Integration and Development System (JCIDS)":
    - Develop Capability Documents
    - Develop Joint Operational Concepts
    - Manage Capability Performance Attributes

        - Manage Certification Validation Approval and Reviews
        - Manage Concept Development
        - Perform Capabilities Based Assessment and Analysis
    - Added the following four child activities to describe the aspects of "Manage Defense Acquisition System":
        - Conduct Acquisition Decision Review
        - Conduct Affordability Assessment Review
        - Conduct Executive Assessment Review
        - Conduct Technical Reviews
    - Deleted all previous child activities under "Apply the Defense Acquisition Management Framework" and replaced them with the following six child activities to describe the phases and decision points of the Acquisition Framework:
        - Manage Concept Refinement
        - Manage Pre-Concept Refinement
        - Manage Production and Deployment
        - Manage System Development and Demonstration
        - Manage Technology Development
        - Monitor Operations and Support
    - Added "Conduct Executive Level Contract Management Oversight and Reporting" as a child activity of "Manage Acquisition Business Functional Areas".
    - Moved "Generate Requirements Response" activity under "Execute Acquisition Management Integration" activity. This activity is intended to be replaced in BEA 4.1.
- **Updates to existing OV-5 Activity Models:**
    - Execute Acquisition Management Integration Diagram:
        - Relocated "Generate Requirements Response" as an interim solution for BEA 4.0, with all ICOMs as they were represented on the BEA 3.1 "Perform Planning" diagram.
        - This diagram also temporarily addresses "Generate Requirements Response" which encompasses activities related to the development of a comprehensive business approach to implement National Security Strategy objectives. "Generate Requirements Response" is intended to be eliminated in the next version of the BEA and its ICOMs properly dispersed throughout the BEA as warranted. Future versions of the BEA will further define requirement response activities so that they accurately illustrate the business processes related to the requirement.
        - Updated appropriate definitions and references/mappings to other activity diagrams, business capabilities, and stakeholder information.
        - Updated the diagram description.
    - Moved all Inputs, Controls, Outputs, and Mechanisms (ICOMs) that were flowing in and out of the "Manage the DoD Decision Support System" on BEA 3.1 diagram to the "Manage Defense Acquisition System" BEA 4.0 activity.
    - Updated ICOMs on the Manage Business Functional Areas Diagram and Execute DoD Acquisition Diagram
        - Updated appropriate references/mappings to other activity diagrams, business capabilities, and stakeholder information.
- **OV-5 Activity to OV-6c Business Process mappings:**
    - Changed mapping to reflect the lowest leaf level activity that resulted from leveling the OV-5.
- **SV-5 Operational Activity to System Functions Traceability Matrix:**
    - Updated operational activities aligned to the "Manage Acquisition Oversight Integration" capability to reflect the leaf level operational activities "Conduct Acquisition Assessment", "Conduct Periodic and Ad-hoc Reporting", and "Manage Capabilities Based Acquisition". The system (DAMIR) and system functions that were mapped to the old "Manage Acquisition Oversight Integration" activity in BEA 3.1 are now appropriately mapped to these leaf level activities.
- **SV-6 Systems Data Exchange Matrix:**
    - Moved the "Contract or Order Data" system data exchange from the Multi-CBM-WSLMSE system interface to the SPS-WSLMSE system interface. This was done to show "Contract

or Order Data" coming to the WSLMSE system entity from the SPS system entity vice the Multi-CBM system entity as depicted in BEA 3.1. This was accomplished as part of CSE's SV-1 cleanup.

- Added the "Hazardous Process Description" system data exchange to the WSLMSE-RPILM SE system interface to depict information touch points between WSLM and RPILM as agreed in BEA 4.0 HAZMAT workshops. This change is consistent with Acquisition Visibility's OV-5, OV-6c, OV-2 and OV-3 diagrams. This was accomplished in support of Real Property Accountability's SV-1 work for CIP.

# Financial Visibility (FV)

## Gap Addressed: Planning, Programming, and Budgeting (PPB)

### *Overview*

BEA 4.0 addressed critical Financial Visibility gaps as discussed in both the September 30, 2005 and March 15, 2006 release of the ETP.

Planning, Programming, and Budgeting provides a vehicle for Defense leadership to examine and analyze decisions by taking into consideration influencing environmental factors such as threats, political and economic climates, technological developments, and resource availability. The processes within PPB are based on and are consistent with the objectives, policies, priorities, and strategies derived from National Security Decision directives, and shift DoD's focus from straight financial discipline to increased attention and emphasis on program performance and results.

For BEA 4.0 development, the effort was led by FV representatives to update and decompose the PPB content in the BEA to include updated DoD and other federal Planning, Programming, and Budgeting guidance (e.g., OMB Circular A-11). Related products were also analyzed and updated to integrate into the BEA as a result of these changes and decomposition.

### *PPB Updates for BEA 4.0*

- **OV-2 Operational Nodes:**
  - Updated needlines and operational nodes in accordance with other relevant products to ensure integration.
- **OV-3 Information Exchanges:**
  - Updated Information Exchange Matrix based on updated OV-5 and OV-2 architecture products.
- **OV-5 Operational Activity Node Tree and Activity Models:**
  - Added the following fifteen new child activities to describe high-level activities involved in Planning, Programming, and Budgeting:
    - Perform Executive Level Planning
    - Evaluate Strategic Goals
    - Issue Fiscal Guidance
    - Develop Program Guidance
    - Evaluate Program Information
    - Develop and Resolve Programmatic Issues
    - Issue Program Decision Memorandum
    - Update FYDP
    - Collect Program and Budget Information
    - Develop Budget Guidance
    - Evaluate Budget Submission
    - Conduct Budget Review
    - Issue Budget Decision
    - Incorporate Program Decisions
    - Negotiate OMB Passback
  - Identified applicable external requirements and generated controls constraining the above activities.

- **OV-6a Business Rules:**
  - Added ten new business rules constraining the PPB process. Details of the changed business rules can also be found in the Laws, Regulations and Policies (LRP) reports.
- **OV-6c Business Process Models:**
  - Added four new process models describing the sequencing of the high-level PPB processes:
    - "Perform Budgeting", "Perform Programming", and "Perform Planning, Programming, Budget, Support Congressional Budget Review, Funds Distribution and Control"
- **OV-7 Logical Data Model:**
  - Updated the following two logical data model views with content for PPB:
    - Defense Resource Plan view
    - Standard Financial Information Structure view.
  - Removed four duplicative views that mirrored the content in Defense Resource Plan:
    - Business Plan Budget
    - Business Plans
    - Program Planning and Administration
    - Strategic Plans
- **SV-1 Systems Interface Description:**
  - Updated in accordance with other relevant products to ensure integration.
- **SV-5 Operational Activity to Systems Traceability Matrix:**
  - Updated and related system functions to operational activities and business capabilities from the Planning, Programming, and Budgeting activity decomposition.
- **SV-6 Systems Data Exchange Matrix:**
  - Updated the SV-6 to incorporate new system data exchanges from the decomposition of Planning, Programming, and Budgeting activities.

## Gap Addressed: Funds Distribution (FD)

### *Overview*

BEA 4.0 focused on further developing the architecture to accurately represent the initiative called Enterprise Funds Distribution (EFD). The scope of this initiative includes tracking congressional actions beginning with decisions made during congressional budget review hearings, continuing through the president's budget decisions, and ultimately through the distribution of funds to different business operations for execution and funds control.

The EFD initiative will assist in transformation of the Department's funds management and distribution capabilities to: streamline funds distribution processes for all DoD appropriations and standardize funds distribution data across the enterprise; automate the audit trail between the president's budget submission and appropriations enactments; automate and integrate funds authorization documents (FADs), track reprogrammed funds, and electronically track funds distributed for execution; and provide full visibility of appropriated funds as they pass through and across different levels of the enterprise.

### *FD Updates for BEA 4.0*

- **OV-2 Operational Nodes:**
  - Updated needlines and oeprational nodes in accordance with other relevant products to ensure integration.
- **OV-3 Information Exchanges:**
  - Updated Information Exchange Matrix based on updated OV-5 and OV-2 architecture products.
- **OV-5 Operational Activity Node Tree and Activity Models:**
  - Added the following seven new child activities to describe Funds Distribution:
    - Track Congressional Actions
    - Execute Continuing Resolution
    - Execute Apportionment Allocate Funds
    - Allocate Funds
    - Manage Baseline for Reprogramming

        - Perform Reprogramming
        - Execute Recission and Deferrals
    - Identified applicable external requirements and generated controls constraining the appropriate activities.
- **OV-6a Business Rules:**
    - Added twenty-eight new business rules for Funds Distribution. Details of the changed business rules can also be found in the LRP reports.
- **OV-6c Business Process Models:**
    - Added eight new process models describing the sequencing of the Funds Distribution process:
        - Manage Execution Fund Account
        - Execute Apportionment and Allocation
        - Execute Continuing Resolution
        - Execute Recission and Deferral
        - Manage Report of Programs
        - Perform Reprogramming
        - Manage Baseline for Reprogramming
        - Track Congressional Actions
- **OV-7 Logical Data Model:**
    - Added one new logical data model view titled Funds Distribution.
    - Updated the following two logical data model views with content for Funds Distribution:
        - Defense Resource Plan view
        - Standard Financial Information Structure view
- **SV-1 Systems Interface Description:**
    - Updated in accordance with other relevant products to ensure integration.
- **SV-5 Operational Activity to Systems Traceability Matrix:**
    - Updated and related system functions to operational activities and business capabilities from the Funds Distribution activity decomposition.
- **SV-6 Systems Data Exchange Matrix:**
    - Updated the SV-6 to incorporate new system data exchanges from the addition of Funds Distribution and Control content.

# Real Property Accountability (RPA)

## Gap Addressed: Hazardous Materials (HAZMAT)

### *Overview*

BEA 4.0 development continued the effort to enhance the common business process models and logical data model views that develop HAZMAT process controls, which are represented as Environmental, Safety, and Occupational Health (ESOH) operational controls in the context of DoD Environmental Management Systems. Data and processes necessary to support the Hazardous Materials Process Control and Information Management capability were also further developed, with the focus on the data requirements for Product Hazard Data and Process Authorization and accompanying high-level views of the activities and processes. The result is the initial integration of sound ESOH management into mission activities to reduce data calls, improve interoperability, reduce costs, and most importantly, protect people, property, environment, and mission capability.

### *HAZMAT Updates for BEA 4.0*

- **OV-2 Operational Nodes:**
    - Updated OV-2 diagram and needlines to reflect HAZMAT representation through several activities as opposed to the high-level Perform ESOH Services activity in BEA 3.1. These decomposed activities are outlined on the RPILM node.
- **OV-3 Information Exchanges:**
    - Updated the source and destination activities associated with existing information exchanges that supported EL based upon the decomposition of the Perform Environment Safety Occupational Health activity.

- **OV-5 Operational Activity Node Tree and Activity Models:**
  - Decomposed HAZMAT one level in the Perform ESOH Services OV-5 diagram. The decomposition used the OV-5 Node Tree from BEA 3.1 as a baseline; however, several new ICOMs were introduced representing Hazardous Materials Process Control and Information Management. The following HAZMAT-related activities existed on the BEA 3.1 Node Tree and were incorporated in the new decomposed OV-5 view with a full set of associated ICOMs:
    - Perform ESOH Aspect Identification
    - Perform ESOH Aspect Assessment
    - Assess ESOH Risk
    - Develop ESOH Solution
    - Implement ESOH Solution
    - Develop ESOH Control Agreement
- **OV-6a Business Rules:**
  - Added two operational business rules to clarify and control the development of HAZMAT process controls. Details of the changed business rules can also be found in the LRP reports.
- **OV-6c Business Process Models:**
  - Added two new message flows into the event "Start Perform ESOH Services":
    - ESOH Issue Communications from External Non-DoD User or Non-DoD Source
    - ESOH Issue Communications from Warfighter or DoD User or DoD Source
  - Added the following new sequence flows, with initiating events and their attached data objects, from "Start Perform ESOH Services" to "Perform ESOH Aspect Identification":
    - Plan
    - Disposal Evidence
    - ESOH Issue Communication
    - Real Property Placed in Service Notification
    - Real Property Operation Ceased Notification
  - Attached new data objects into "Perform ESOH Aspect Identification":
    - Hazardous Process Description
    - Occupation Safety Analysis Information
  - Added new messages to "Perform ESOH Aspect Assessment":
    - Chemical and Regulatory Reference Information
    - Supplier Product Hazard Information (with data object) from External Non-DoD User or Non-DoD Source
    - Supplier Product Hazard Information (with data object) from Materiel Supply and Service Management
  - Associated new data objects from "Perform ESOH Aspect Assessment":
    - ESOH Issue Description
    - Product Hazard Information Master
  - Attached a new data object into "Assess ESOH Risk":
    - Product Hazard Information Master
  - Associated a new data object to "Develop ESOH Control Agreement":
    - Product Hazard Information Master
  - Attached a new data object from "Implement ESOH Solution":
    - Performance Information
- **OV-7 Logical Data Model:**
  - Created the following two new OV-7 views with the entity, attributes, and relationship necessary to support Hazmat data requirements:
    - The RPA – Hazardous Process Authorization view provides the data requirements needed by DoD's ESOH functional community to make a decision on the procurement, issuance, and control of hazardous materials used in hazardous processes (units of work) performed by the DoD. These data requirements were collaboratively identified and defined by subject matter experts from DoD Components and within the ESOH functional community, as well as strong representation from the logistics community. They establish a foundation to enhance

weapon systems and installations lifecycle management by reducing operating costs as well as risks to people, property, environment, and mission capability.

- The Product Hazard Data (PHD) view depicts, from a high-level perspective, the kinds of information necessary to identify, describe, and track hazard-related information or the lack thereof, related to DoD consumables, and DoD materiel assets (which include products obtained or generated by DoD; materials found by, donated to, captured by, or loaned to DoD; and byproducts created via DoD processes). In general, this information includes data from material safety data sheets (MSDS), DoD and governmental sources, and reference sources such as the chemical abstract service (CAS) and regulatory reference data providers.

## Gap Addressed: Environmental Liabilities (EL)

### *Overview*

BEA 4.0 development extended the existing environmental liabilities data model to incorporate the data and other views necessary to create an auditable environmental liability estimate for all environmental liabilities and properly reflect that estimate through the appropriate links to accounting transactions. In BEA 3.0, the Environmental Liabilities process associated with recognizing, valuing, and reporting all environmental liabilities and data requirements needed to support the DERP portion of these liabilities was integrated into the BEA. For BEA 4.0 the focus was on developing and integrating the data requirements needed to support the remaining non-DERP environmental liabilities. This will enable the Department to have a complete, accurate, and visible inventory of environmental liabilities reconciled with asset records and will help to eliminate a material weakness.

### *EL Updates for BEA 4.0*

- **OV-2 Operational Nodes:**
  - Updated the OV-2 diagram and needlines to reflect ESOH representation through several activity levels as opposed to only the high-level Perform ESOH Services activity as represented in BEA 3.1. As such, the RPILM node outlines these decomposed activities along with the activity Develop Environmental Liability Information.
- **OV-3 Information Exchanges:**
  - Updated the source and destination activities associated with existing information exchanges that supported EL based upon the decomposition of the Perform Environment Safety Occupational Health activity.
- **OV-5 Operational Activity Node Tree and Activity Models:**
  - Decomposed the Perform ESOH Services OV-5, which is where the recognition, valuation, and reporting of environmental liabilities activities are represented. This decomposition utilized many of the existing ICOMs from BEA 3.1 but also introduced several new ICOMs representing ESOH operations and environmental liabilities. The decomposition used the OV-5 Node Tree from BEA 3.1 as a baseline. The following activities and the associated ICOMs represent the newly decomposed and integrated OV-5:
    - Perform ESOH Aspect Identification
    - Perform ESOH Aspect Assessment
    - Assess ESOH Risk
    - Develop ESOH Solution
    - Implement ESOH Solution
    - Develop ESOH Control Agreement
    - Develop Environmental Liability Information
- **OV-6a Business Rules:**
  - Added twenty-two operational business rules that apply to the recognition, valuation, and reporting of environmental liabilities. Details of the changed business rules can also be found in the LRP reports.
- **OV-7 Logical Data Model:**
  - Incorporated the construct for non-DERP Environmental Liabilities data into the existing DERP Environmental Liability data view, which includes the data necessary to create an auditable non-DERP environmental liability estimate and properly reflect that estimate

through the appropriate links to accounting transactions. This data view is required to support the reporting of both current and non-current environmental liabilities. The following are the specific changes made to accomplish the above objective:

- Added a new subject area diagram, RPA – Environmental Liability
- Renamed twelve entities that existed in BEA 3.1 that are unique to ESOH part of RPILM in the subject area diagram, RPA – Environmental Liability.
  - Simply renamed two entities, while ten entities were renamed and had attribute changes.
- Added seventeen entities that are unique to ESOH part of RPILM in the subject area diagram, RPA – Environmental Liability.
- Deleted two subject diagrams RPA- DERP Environmental Liability and RPA – ESOH Area of Interest
  - The former is being replaced by RPA – Environmental Liability and the latter is a relic that has become redundant because of changes in BEA 3.1. It does contain two entities that are unique to ESOH: GROUP-OF-INTEREST and AREA-PLACE of INTEREST. The former is proposed for deletion at the recommendation of the EL Working Group and will be considered in future releases of the BEA. The latter is represented in RPA – Environmental Liability as INTEREST-AREA.
- Renamed the following two entities, in addition to renaming their attributes and descriptions as required by the entity name change.
  - Renamed the entity ENVIRONMENTAL-LIABILITY-ACCRUED-COST-CATEGORY to ENVIRONMENTAL-LIABILITY-SECONDARY-CATEGORY.
  - Renamed the entity ENVIRONMENTAL-LIABILITY-LINE-COST-CATEGORY to ENVIRONMENTAL-LIABILITY-TERTIARY-CATEGORY

- Changed one aspect of the OV-7 Logical Data Model that affected another BEP, Financial Visibility.
  - Added an optional, non-identifying relationship from INTEREST-AREA-SOLUTION to LIABILITY-TRANSACTION, which results in the primary key for INTEREST-AREA-SOLUTION, (Interest_Area_Identifier + Interest_Area_Solution_Identifier), appearing as a foreign key with LIABILITY-TRANSACTION. This relationship is required to support the reporting of an environment liability, a current liability, a non-current liability, or a recognized liability.

## Gap Addressed: Construction in Progress (CIP)

### *Overview*

BEA 4.0 development enhanced real property accountability and visibility by modifying processes that will allow reliable and consistent reporting of construction project costs to Congress and financial managers as well as contribute to the achievement and sustainment of a clean audit opinion. Construction in Progress (CIP) refers to the accounting term for the temporary classification of assets that are being built prior to being placed in service. The focus of the work was to standardize the processes, business rules, and data used to calculate, record, and report the value of the CIP account.

### *CIP Updates for BEA 4.0*

- **OV-2 Operational Nodes:**
  - Added the following activities to the RPILM operational node, in addition to updating the needlines, that were created during the Perform Asset Accountabilty decomposition:
    - Perform Asset Valuation
    - Conduct Physical Inventory
    - Maintain Asset Information
- **OV-3 Information Exchanges:**
  - Added information exchanges to support the ICOMs developed during the Perform Asset Accountability decomposition. The information exchanges to support CIP follow:

        - Work Order Information
        - Construction Requirement
        - Property Expense
- **OV-5 Operational Activity Node Tree and Activity Models:**
    - RPILM along with MV supported the development of CIP with the decomposition of the Perform Asset Accountability activity. This activity was decomposed into Perform Asset Valuation, Conduct Physical Inventory, and Maintain Asset Information activities. The ICOMs to support CIP follow:
        - Work Order Information
        - Construction Requirement
        - Property Expense
- **OV-6a Business Rules:**
    - Developed forty-nine business rules to support the calculation, recording, and reporting the value of the Construction in Progress account. Details of the changed business rules can also be found in the LRP reports.
- **OV-6c Business Process Models:**
    - The RPA-MV CIP process model that was developed depicts the timely and consistent posting of newly constructed and transferred assets and their costs from CIP accounts into real property accounts.
        - Created the process Develop and Update Work Order to depict the process of developing a work order based upon a requirement. This process was subsequently decomposed into the following processes:
            - Receive and Prioritize Requirements
            - Define Work
            - Classify Work
            - Prepare Detailed Scope and Current Working Estimate
            - Authorize Work Order
        - Decomposed the process Perform Build Make Maintain and Sustainment to expose the following six processes:
            - Conduct Architectural Design
            - Review and Inspect Design
            - Request Design Approval Per Milestone
            - Receive Design Approval Response
            - Complete Review and Approve Final Design Solution
            - Perform Construction Restoration Modernization
        - Decomposed the existing process Create CIP or Work in Progess (WIP) to expose the following processes:
            - Determine If CIP and or WIP Account is Required
            - Associate Project Identification to Appropriate WIP Account
            - Associate Project Identification to Appropriate CIP account
            - Validate Account Structure
            - Establish CIP and or WIP account
        - Decomposed the existing process Update CIP and or WIP Account to expose the following processes:
            - Receive Project Evidence
            - Process and Submit Validated Evidence
            - Record CIP and or WIP Financial Transactions
        - Incorporated data objects, message flows, and sequence flows to illustrate the calculation, recording, and reporting of value of the CIP account.
- **OV-7 Logical Data Model:**
    - Modified minor aspects of the RPA Asset Accountability OV-7 logical data model view to provide support to the CIP body of work.
        - Added the entity PROPERTY-ACTION-CONTRACT-LINE-ITEM to depict a contractual instrument for a property action.

- Created the entity PROPERTY-CONSTRUCTION as a subtype of the entity PROPERTY-ACQUISITION to capture the information regarding a property acquired through construction.
- Modified the RPA-Document view by deleting the following attributes from the model:
  - Document_Routing_Code
  - Document_Media_Type_Code
  - Document_Media_Format_Code
- Added the entities PHYSICAL-MEDIA-TYPE, DOCUMENT-FORMAT, and DOCUMENT-FORMAT-PHYSICAL-MEDIA-TYPE to support various physical media types.
- Modified the entities DOCUMENT and DOCUMENT-MEDIA to support various physical media types.

### Gap Addressed: System Views to support Real Property & Installations Lifecycle Management (RPILM)

***Overview***

BEA 4.0 development incorporated Knowledge Based Corporate Report System (KBCRS), Hazardous Material Information Repository System (HMIRS), Real Property Asset Database (RPAD), and Real Property Unique Identifier Registry (RPUIR) as enterprise systems and their related component systems into the BEA. KBCRS supports Environmental Liabilities and HMIRS supports Hazardous Materials Management. RPAD and RPUIR support real property accountability and inventory.

***Systems View Updates for BEA 4.0 to support RPILM***

- **SV-1 Systems Interface:**
  - Created system entities for KBCRS, HMIRS, RPAD, and RPUIR, which reside in the RPILM system node.
  - Added two new system functions named Manage Asset Record and Manage Asset Valuation to support the decomposition of the "Perform Asset Accountability" activity and the systems that were incorporated.
  - Incorporated the key component systems and their interfaces with these enterprise systems.
- **SV-5 Activity to System Traceability Matrix:**
  - Aligned the newly created system functions and operational activities from the ESOH and "Perform Asset Accountability" activity decomposition.
- **SV-6 Document Systems Data Exchange Matrix:**
  - Updated the SV-6 to incorporate changes as a result of the SV-1.

## Common Supplier Engagement (CSE), Personnel Visibility (PV), and Materiel Visibility (MV)

CSE, PV, and MV representatives assisted with AV, FV, and RPA architecture development work, in addition to conducting their own architecture cleanup, as described in the following section.

# Cleanup

There were several other minor architectural changes made in BEA 4.0 to improve the overall integrity and alignment of the architecture that did not significantly affect the functional content of the architecture. Cleanup was performed for all BEPs, except RPA in which all architecture changes were considered new content.

## Acquisition Visibility (AV)

Cleanup addressed general technical clean-up and content refinement changes to the OV-2 Operational Node and the OV-5 Activity Models. These included adding acronyms and their full descriptions to the glossary and correcting a duplicated definition.

## Common Supplier Engagement (CSE)

Cleanup addressed general technical cleanup and content refinement changes throughout the CSE suite of BEA products, including updates to the intragovernmental transactions (IGT) process integrated into BEA 3.1. The cleanup effort enhanced the technical validity and improved the content clarity of the BEA by ensuring that all architectural products are mutually consistent, aligned, and integrated. The technical cleanup changes included basic grammar and spelling corrections as well as modeling changes for improved clarity. The content refinement changes addressed or corrected gaps in content that were created within the scope of one of the previous releases, and included updates for consistency, flow, alignment, and integration between the BEA products.

In addition, representatives from FV and CSE worked on minor IGT-related content refinement updates to improve a process that addresses one of the DoD's material weaknesses (financial eliminations) by way of standardized, consolidated, and integrated processes and system components. Improvements provide the opportunity for significantly enhanced visibility into both the buying and selling elements of intragovernmental transactions within the Department and across the Federal Government.

## Financial Visibility (FV)

Cleanup consisted of correctly representing USSGL in the architecture based on recent GAO comments. The FV ICOM 'General Ledger Mapping Rule' was renamed to 'USSGL Transaction Library' and the definition of the newly renamed ICOM was modified. This modification should provide clarity to the Components to use this library in conjunction with the SFIS structure and BEIS, as it provides source system data required to link operational business events to a standard set of detailed DoD general ledger postings consistent with the Treasury Financial Manual (TFM) in the Laws, Regulations and Policies Repository.

In addition, there was a cleanup effort to provide additional clarity for business rules related to SFIS. This modification provided a greater level of detail for the rules needed to successfully implement SFIS and mapped the SFIS business rules to relevant data elements in the BEA. This cleanup effort will make BEA the authoritative source for SFIS business rules that will help deploy interoperable systems across the Department.

## Materiel Visibility (MV)

Cleanup consisted of adding a mechanism named Logistics Master Data to the OV-5 Activity Model (and the related Acronym [LMD] to the AV-2). Adding this mechanism aligns the BEA with the ETP and highlights the LMD initiative so other systems and initiatives can leverage its functionality.

## Personnel Visibility (PV)

The cleanup effort included the following two OV-5 Activity definition changes that did not have an impact on other BEPs or product views; "Administer Position Management" and "Manage Organizational Structure".

## Real Property Accountability (RPA)

RPA representatives focused on architecture content changes.

# Architecture Statistics by Release

Descriptive statistics are gathered for major object changes to the architecture for each release. Comparing object counts by release helps portray a sense of magnitude for each architecture effort. These statistics are listed in Table 2: Object Count Changes by Product and BEA Release and Table 3: Diagram Count per Release. In addition, the specific object counts as compared to the previous release are rolled up by product in Figure 3: Percent Change in Objects per Product by BEA Release. Not only does this graph convey a sense of level of effort by release, but the graph also provides a sense of which products were most affected by each release.

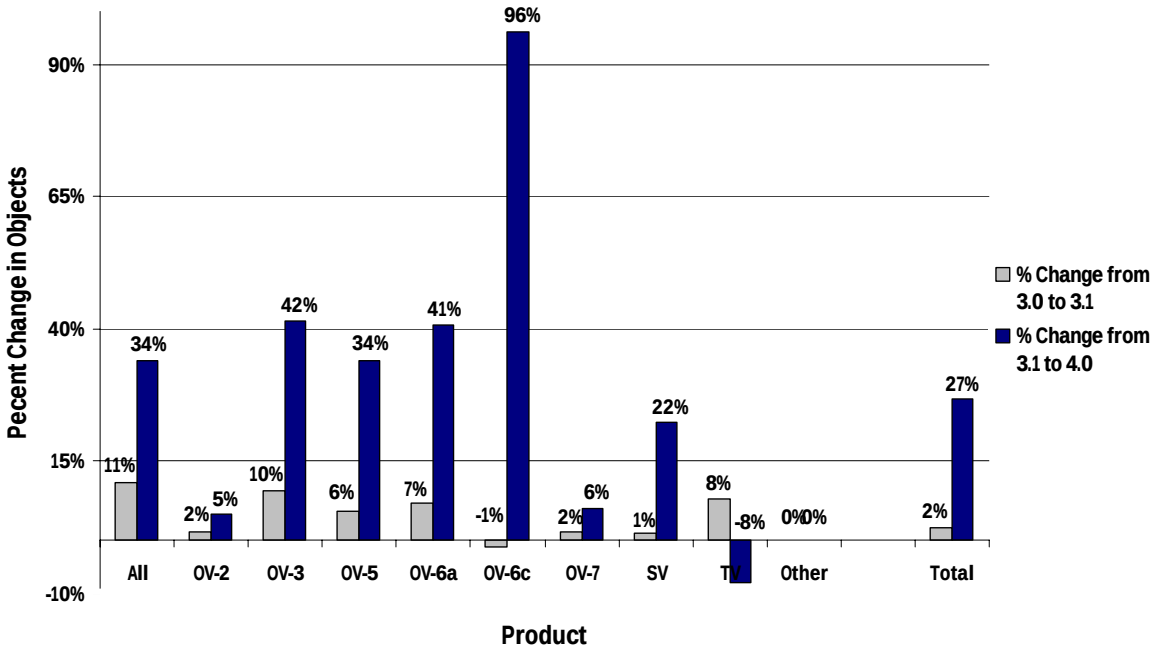
## Table 2: Object Counts by Product and BEA Release

| Object by Product | 3.0 Count | 3.1 Count | 4.0 Count | Net Change from 3.0 to 3.1 | Net Change from 3.1 to 4.0 | % Change from 3.0 to 3.1 | % Change from 3.1 to 4.0 |
|---|---|---|---|---|---|---|---|
| **All** | | | | | | | |
| Acronym | 573 | 614 | 859 | 41 | 245 | 7% | 40% |
| Term | 95 | 127 | 134 | 32 | 7 | 34% | 6% |
| **OV-2** | | | | | | | |
| Need Line | 105 | 107 | 113 | 2 | 6 | 2% | 6% |
| Operational Node | 14 | 14 | 14 | 0 | 0 | 0% | 0% |
| **OV-3** | | | | | | | |
| Information Exchange | 242 | 265 | 375 | 23 | 110 | 10% | 42% |
| **OV-5** | | | | | | | |
| ICOM Arrow | 363 | 394 | 544 | 31 | 150 | 9% | 38% |
| Operational Activity | 163 | 161 | 199 | -2 | 38 | -1% | 24% |
| **OV-6a** | | | | | | | |
| Business Rule | 643 | 689 | 969 | 46 | 280 | 7% | 41% |
| **OV-6c** | | | | | | | |
| BPM Event | 249 | 204 | 344 | -45 | 140 | -18% | 69% |
| BPM Process | 427 | 439 | 573 | 12 | 134 | 3% | 31% |
| Data Element Synonym | 1063 | 1036 | 2790 | -27 | 1754 | -3% | 169% |
| Data Object | 389 | 415 | 529 | 26 | 114 | 7% | 27% |
| Gateway | 101 | 107 | 95 | 6 | -12 | 6% | -11% |
| Participant | 14 | 15 | 15 | 1 | 0 | 7% | 0% |
| **OV-7** | | | | | | | |
| Attribute | 3840 | 3706 | 3984 | -134 | 278 | -3% | 8% |
| Data Domain | 234 | 260 | 142 | 26 | -118 | 11% | -45% |
| Data Element | 2139 | 2252 | 2419 | 113 | 167 | 5% | 7% |
| Entity | 603 | 649 | 709 | 46 | 60 | 8% | 9% |
| Relationship | 747 | 812 | 892 | 65 | 80 | 9% | 10% |
| **SV** | | | | | | | |
| System Data Exchange | 212 | 214 | 261 | 2 | 47 | 1% | 22% |
| System Entity | 46 | 46 | 64 | 0 | 18 | 0% | 39% |
| System Function | 67 | 67 | 68 | 0 | 1 | 0% | 1% |
| System Interface | 132 | 136 | 175 | 4 | 39 | 3% | 29% |
| System Node | 8 | 8 | 8 | 0 | 0 | 0% | 0% |
| **TV** | | | | | | | |
| Enterprise Sub-Services | 9 | 9 | 10 | 0 | 1 | 0% | 11% |
| Standard | 308 | 335 | 301 | 27 | -34 | 9% | -10% |
| Technical Service | 23 | 23 | 27 | 0 | 4 | 0% | 17% |
| Technology Service Area | 4 | 4 | 4 | 0 | 0 | 0% | 0% |
| **Other** | | | | 0 | | | |
| Business Capability | 30 | 30 | 30 | | 0 | 0% | 0% |
| **Total** | **12843** | **13138** | **16647** | **295** | **3509** | **2%** | **27%** |

## Table 3: Diagram Count per Release

| Diagram Count | 3.0 Count | 3.1 Count | 4.0 Count | Net Change from 3.0 to 3.1 | Net Change from 3.1 to 4.0 | % Change from 3.0 to 3.1 | % Change from 3.1 to 4.0 |
|---|---|---|---|---|---|---|---|
| OV-2 Op. Node Connectivity | 9 | 9 | 9 | 0 | 0 | 0% | 0% |
| OV-5 Activity Model | 25 | 25 | 31 | 0 | 6 | 0% | 24% |
| OV-5 Node Tree | 1 | 1 | 1 | 0 | 0 | 0% | 0% |
| OV-6c Business Process | 51 | 52 | 67 | 1 | 15 | 2% | 29% |
| OV-7 Logical Data Model | 32 | 32 | 30 | 0 | -2 | 0% | -6% |
| SV-1 Systems Interface | 7 | 8 | 12 | 1 | 4 | 14% | 50% |
| **Total** | **125** | **127** | **150** | **2** | **23** | **2%** | **18%** |

**Figure 3: Percent Change in Objects per Product by BEA Release**




# Business Enterprise Architecture (BEA) to Enterprise Transition Plan (ETP) Integration

As the two seminal products that document the business transformation within the DoD, it is imperative that the BEA and the ETP stay fully aligned. To support this alignment, BEA 4.0 introduced a new enterprise Change Request (CR) to address changes across the BEA to ensure integration with the ETP. The relationship between the BEA and the ETP is characterized in Figure 8: Linking BEA to the ETP. Representatives from Financial Visibility and Personnel Visibility utilized this CR for the following changes:

## Financial Visibility

- Added Defense Agencies Initiative (DAI) and Strategic Resource Decision System (SRDS) initiative as mechanisms to operational activities.
- Removed Defense Cash Accounting System (DCAS) from the BEA and accommodated its functionality to the existing Business Enterprise Information Services (BEIS).

## Personnel Visibility

- Removed the Armed Forces Health Longitudinal Technology Application (AHLTA) system from the BEA since it is a TRICARE Management Activity (TMA) system. Starting with BEA 4.0, TMA has been designated a Component and as such, their systems/capabilities will not be addressed at the DoD Enterprise level.
- Updated the OV-5 mechanisms and the SV-1, SV-5, and SV-6 system functions for the realignment of the BEA and ETP for Defense Civilian Personnel Data System (DCPDS), Defense Integrated Military Human Resources System (DIMHRS), and Defense Travel System (DTS).

## ETP

- Added new BEA acronyms and terms to the AV-2 based on the Other Systems List in the ETP.

# Decision Memoranda (DM)

In the course of developing a BEA release, product content and development issues may arise due to gaps in or differing interpretations of documented BEA guidance, as well as options to be chosen when applying the DoDAF. When this occurs, Decision Memoranda are developed to codify decisions made to ensure that BEA development efforts stay focused and aligned. Upon delivery of each release, the DMs issued in that release are absorbed into the BEA Development Methodology and BEA Architecture Product Guide documents and become an integrated process for the next architecture release.

## Decision Memorandum 15

Decision Memorandum 15 was created during the development of BEA 4.0 specifically because of issues discussed in the Financial Visibility PPB workshops. It was the intent of Financial Management leadership to represent in the BEA only those specific activities relevant at the DoD level and their relationship to Components. This precipitated the need to address the architectural relationship between Components and the Enterprise Architecture, i.e., tiered accountability and federation. Selected BEPs currently represent business activities conducted across the DoD Business Mission Areas at many organizational levels. Until a federation strategy is developed, DM 15 was drafted to allow the Components to "see where they fit in to the Enterprise," as well as showing standardization of process at the Departmental level, without constraining how Components perform their day-to-day activities.

DM 15 was only an interim solution specifically related to the PPB focused body of work accomplished in BEA 4.0. Resolution is anticipated to be outlined in the Federation Strategy being released by the BTA in September 2006 and will be implemented in BEA 4.1.

# Supporting Products

## BEA Look Ahead OV-5 Node Tree

The BEA Look Ahead OV-5 Node Tree is a stand alone representation of the operational activities, at a high level, performed by the Department of Defense (DoD) Business Mission Area. This Look Ahead Node Tree was developed to support planning and spiral development activities for future iterations of the BEA and is not integrated with BEA 4.0. In addition, the Look Ahead Node Tree is a mechanism for BEP representatives to voice desired architecture content and to capture relevant "To-Be" business activities; however, as it is not an official product of the 4.0 release, it will not be used for current or future IRB system certification purposes. New content was added to the BEA Look Ahead OV-05 Node Tree for the AV and PV BEPs.

## BEA Architecture Product Guide

The BEA Architecture Product Guide (APG) document is a new deliverable for BEA 4.0. The BEA APG describes the methods and modeling conventions for the development of All View (AV), Operational View (OV), Systems View (SV), and Technical Standards View (TV) products. The document supplies the guidance, rules, and product descriptions necessary for developing work products that comprise the BEA. The APG is intended for an audience that understands the DoD Architecture Framework (DoDAF) and has Telelogic System Architect (SA) training and/or experience.

## BEA Development Methodology

The BEA Development Methodology document is a new deliverable for BEA 4.0. The BEA Development Methodology describes the overall process and approach for developing the BEA. This document represents a compilation of ideas and best practices that have been tried and tested across the architecture development lifecycle and describes the current methodology to develop the BEA. The BEA Development Methodology is a high-level guide to the architecture development process, while the BEA APG provides specific guidance for actual architecture changes. Guidance regarding development and usage of the BEA in the overall context of DoD business transformation is presented in the Business Transformation Guidance (BTG).

## Eliminated the Enterprise Process Model for BEA 4.0

As part of the interim activities undertaken between the delivery of BEA 3.1 and the start of BEA 4.0 development work, the OV-6c processes were optimized and streamlined. As a result of that work, as well as an opportunity to fund additional warfighter activities by embracing resource constraints on the BEA, the Enterprise Process Model (EPM), which is basically an aggregated process model of all the BEP processes, was not updated for BEA 4.0.

## Round Trip Matrix

The Round Trip Matrix provides an overview of the relationships between the Department's Core Business Missions (CBMs), Business Enterprise Priorities (BEPs), the capabilities required to support those priorities, and the combinations of systems and initiatives that enable these capabilities.

BEA 4.0 included the completion of the last leg of the Round Trip Matrix addition of the Doctrine/Policy, Organization, Training, Materiel, Leadership, Personnel, and Facilities (DOTMLPF). DOTPMLF is a JCIDS-based assessment construct to foster a thorough analysis of resources and key activities needed to field a capability. Table 4: DOTMLPF Definitions provides questions to help determine the requirement for DOTMLPF resources or key activities.

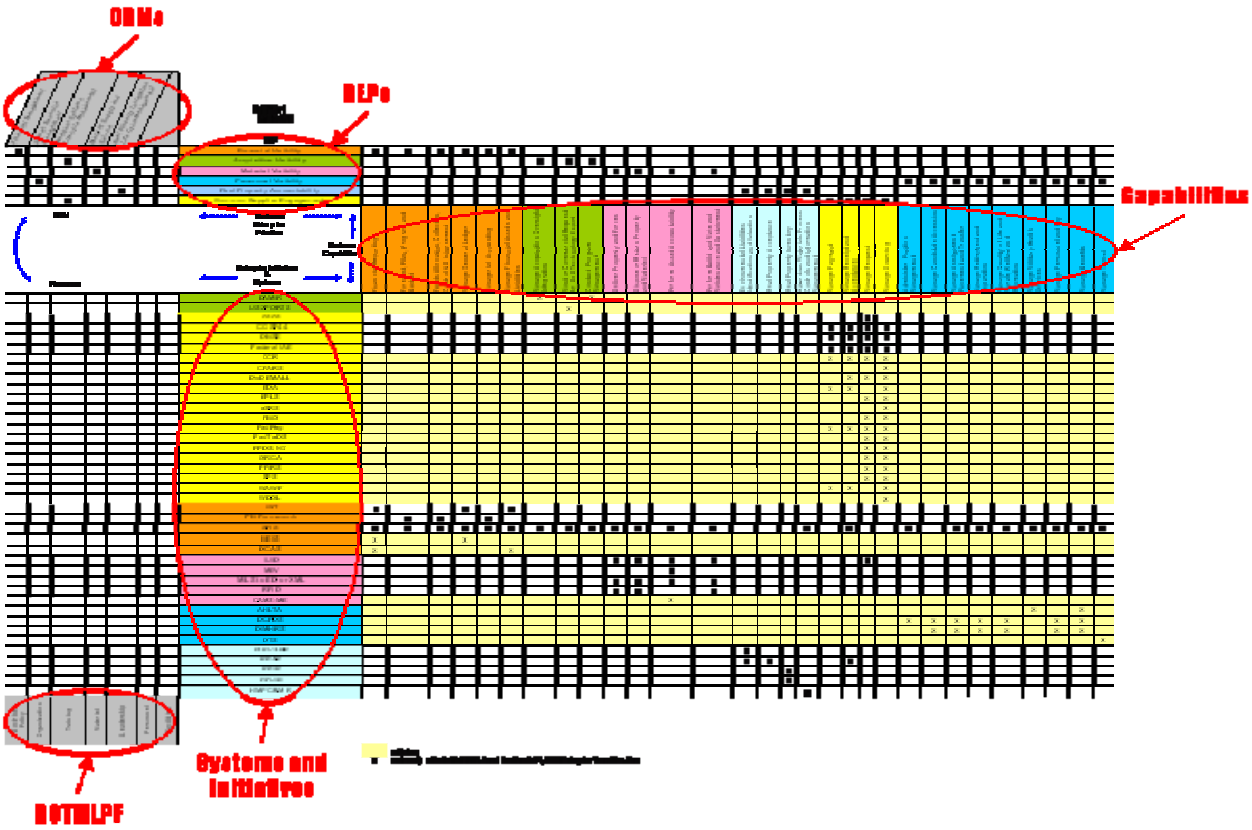
**Table 4: DOTMLPF Definitions**

| DOTMLPF | Definition |
|---|---|
| **Doctrine/Policy** | Is new or an update to existing policy, directives, and/or instructions required? |
| **Organization** | Is there an organizational impact in terms of restructure, alignment, and/or job configurations (e.g., team structure)? |
| **Training** | Is new or updated training required? |
| **Materiel** | Is new or an impact to existing materiel required, to include data bases, applications, communications, networking? |
| **Leadership** | Is there a leadership impact in terms of change management and communication, governance roles, accountability? |
| **Personnel** | Is there a personnel impact in terms of roles, measurements systems, and/or incentives? |
| **Facilities** | Are new or an adjustment to existing facilities required? |

The Round Trip Matrix was previously socialized in various architecture sharing events and is being delivered as a supporting product with BEA 4.0. The matrix development and use is described in the Business Transformation Guidance (BTG), and the BEA 4.0 delivered Round Trip Matrix can be accessed on the BEA 4.0 Homepage under BEA References. An example is presented in Figure 4: Round Trip Matrix Example.

In addition, the BTA used the Round Trip Matrix to further align BEA 4.0 and the September 2006 Enterprise Transition Plan (ETP) by reviewing milestones recorded in the ETP and assessing the DOTMLPF implications of those milestones. The analysis helped in determining whether additional milestones were needed in the ETP to track progress toward accomplishing key activities. The Round Trip Matrix is an effective tool that enhances BEA and ETP alignment and enriches the analysis of business transformation planning needs.

**Figure 4: Round Trip Matrix Example**




# HTML Features

BEA 4.0 was constructed using Telelogic System Architect version 10.3. The following are the technical specifications that were tested for viewing the BEA 4.0 HTML site, which are also listed in the Help file.

***Web Browsers Supported***

- Internet Explorer Version 6.0+ for Windows
- Firefox 1.0.4+ for Windows

***System Requirements***

Add-ins are used to enhance the user experience. Not all services will function properly if these are not current, installed, and/or enabled.

- Java Run Time Environment Version 5.0+
  - JavaScript must be enabled in the browser
- Scaleable Vector Graphics (SVG) Viewer

BEA 4.0 continues to offer the HTML version of the BEA with seven additional features; six entirely new features are provided and one past feature is expanded. The features are highlighted in the next section.

## Feature 1: New HTML Homepage

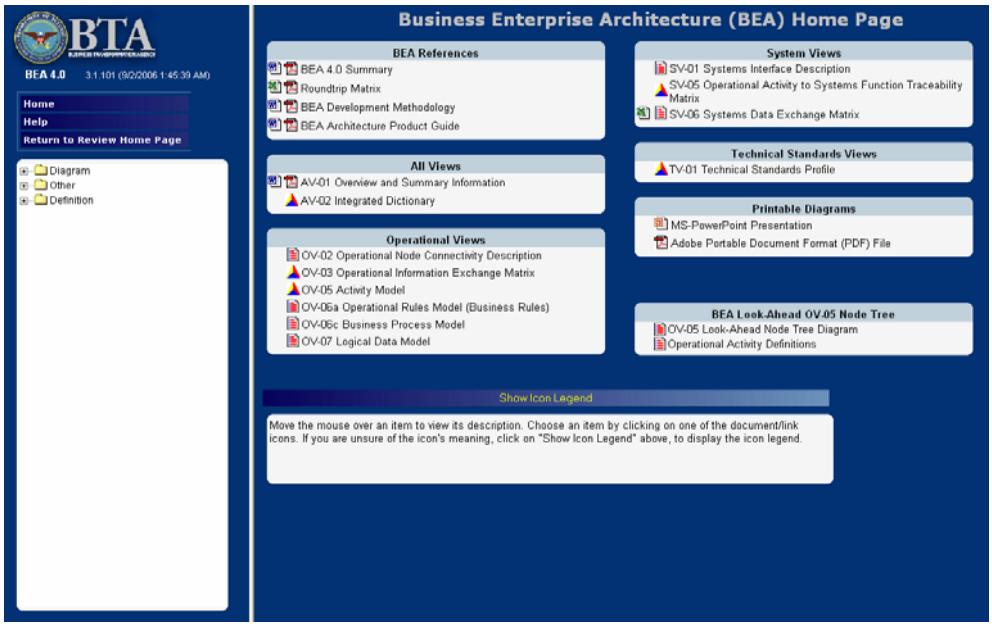
The look and feel of the BEA web site has been improved for the BEA 4.0 release. Changes are focused in three areas dealing with style and usability, navigation, and user help. Emphasis is placed on improving user experience.

The style of the site is enhanced to better match that of the BTA web site. The new blue and white color scheme provides an easier background to distinguish between products and deliverables. Mouse-over report descriptions are now displayed at the bottom of the screen reducing screen clutter and improving readability. The Icon Legend pop-up is incorporated into each page to ensure closure when exiting a page.

Site navigation has been enhanced by adding a return link to the BTA web site accessed by clicking the BTA logo. Adding a BTA contact link provides users with a direct means of communicating issues and concerns. Removing the Color Legend from the left hand menu and adding it to the OV-07 diagrams improves validity of menu items by ensuring menu items are appropriate for displayed pages.

New Help features are included to assist users in navigating through the architecture. Browser requirements are now listed providing users and administrators with baseline requirements for accessing the BEA web site. JAVA help has been added to allow the user to verify currency of their JAVA Run-time Environment (JRE), procedures for enabling JAVA, and instructions for downloading the current JRE. Additional SVG support has been added for testing the SVG viewer, including additional instructions for downloading the current SVG viewer from Adobe.

### Figure 5: New HTML Homepage Screenshot




## Feature 2: Printable Diagrams

BEA 4.0 provides printable diagrams in single and multiple page configurations. Both solutions are provided in Adobe Portable Document Format (PDF) which scales better than many other formats, improving consistency and readability. The single page per diagram format provides the capability to print an entire diagram on one sheet of paper. New for BEA 4.0 is the capability to print multiple pages per diagram. This provides the capability to print a diagram at full scale in multiple pages. As an alternative to scaling and printing a single page diagram to a plotter, these diagrams print across multiple pages that can be pasted together. These two configurations make large diagrams more convenient and readable.

## Feature 3: BEA 3.1 – BEA 4.0 Compare Tool

In response to an overwhelming need from the BEA user community, the BEA now delivers "compare" reports to provide a detailed comparison of relevant architecture artifacts and their significant characteristic changes between BEA 3.1 and BEA 4.0.

The reports contain differences only; artifacts and characteristics that have not changed between BEA versions are not included. For example, if the description of an artifact has not changed since BEA 3.1 but a new BEP has been associated with the artifact, then only the new BEP will be indicated and the description will not be displayed. The reports do not indicate if an artifact was replaced by a different artifact.

The delta between artifacts is indicated by the following color codes:

- **Blue** indicates artifacts or artifact characteristics that are obsolete (they were in BEA 3.1 and are not in BEA 4.0).
- **Green** indicates artifacts or artifact characteristics that are new (they are in BEA 4.0 but were not in BEA 3.1)
- **Red** indicates artifact characteristics that have changed (they have been updated in BEA 4.0 - i.e., an artifact description)

The artifacts are organized by DoDAF architecture view type (All, Operational, System, Technical) in addition to a section with the following BEA-unique artifacts:

- Business Capability
- Business Enterprise Priority
- Core Business Mission
- Federal Enterprise Architecture (FEA) Business Reference Model (BRM)
- Initiative

The reports are available in MS-Excel format.

## Feature 4: Business Capability Gaps - BEA/ETP Solution Mappings

Since March 2006, the BTA has implemented a rapid data collection effort to document how BEA architecture elements (including Capabilities) facilitate the resolution of significant DoD issues (e.g. mission needs, problems, material weaknesses, and unanswered DBSMC decision-maker questions). For each gap, functional subject-matter experts (SMEs) and architects diagnosed root causes of the gap (such as inaccurate data or differing processes) and mapped the gaps to the BEA and the ETP.

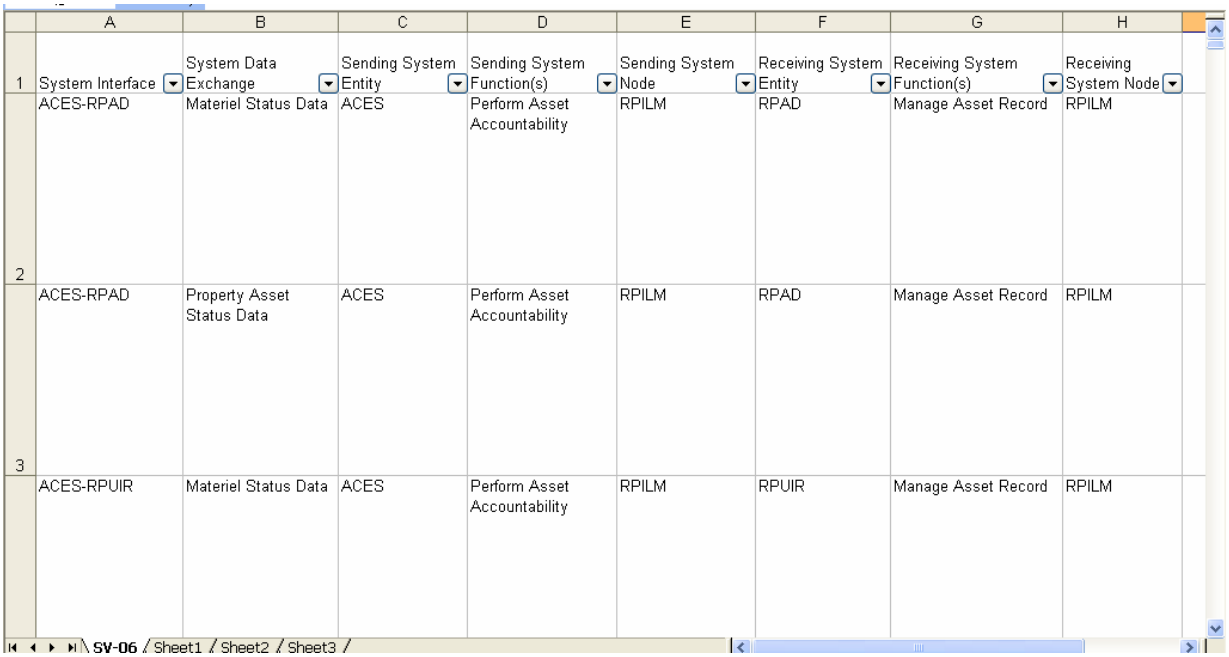
BEA 4.0 provides the full set of Business Capability Gap analysis mappings data to support decisions about priorities for business transformation, capability improvements, and future BEA and ETP development. Forms of analysis supported by this data include the ability to link top "As Is" findings/issues to the most influential solution elements in the BEA and ETP or comparing solution approaches for distinct Business Capability gaps.

## Feature 5: Excel Version of the System Data Exchange Matrix (SV-6)

The SV-6 has been delivered as a BEA DoDAF product in HTML format since BEA 3.0. To improve the usability of the matrix, BEA 4.0 is also delivering the SV-6 in an Excel format. As a result, the SV-6 now provides two capabilities: the HTML version shows relationships and definitions relevant to other architecture products, while the Excel version allows the user to sort on specific systems and interfaces.

Below is a screenshot of the new Excel version of the SV-6. This format allows the user to sort on any column heading available. See Figure 6: SV-6 Excel Screenshot.

### Figure 6: SV-6 Excel Screenshot



| | A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|---|
| 1 | System Interface | System Data Exchange | Sending System Entity | Sending System Function(s) | Sending System Node | Receiving System Entity | Receiving System Function(s) | Receiving System Node |
| 2 | ACES-RPAD | Materiel Status Data | ACES | Perform Asset Accountability | RPILM | RPAD | Manage Asset Record | RPILM |
| 3 | ACES-RPAD | Property Asset Status Data | ACES | Perform Asset Accountability | RPILM | RPAD | Manage Asset Record | RPILM |
| | ACES-RPUIR | Materiel Status Data | ACES | Perform Asset Accountability | RPILM | RPUIR | Manage Asset Record | RPILM |

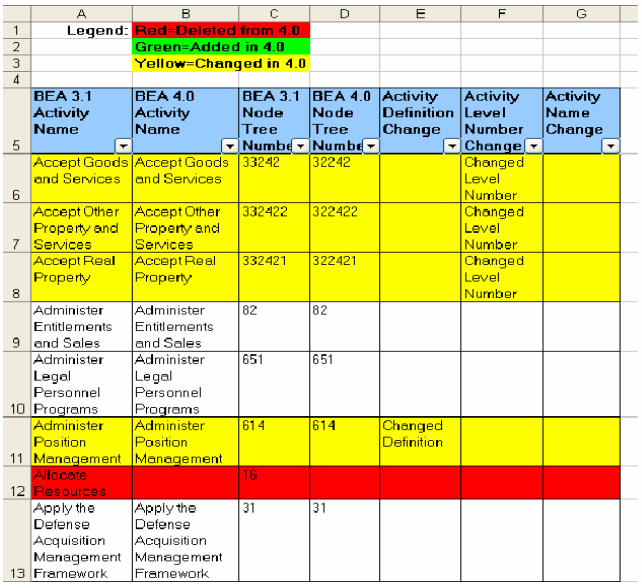
SV-06 / Sheet1 / Sheet2 / Sheet3 /

## Feature 6: BEA 3.1 to 4.0 Operational Activity Comparison

BEA 4.0 includes a new report that provides a side by side comparison of Operational Activities from BEA 3.1 to BEA 4.0; it is unique compared to the BEA 3.1 – BEA 4.0 Compare Tool in that it provides a more comprehensive set of information specific to Operational Activities. This report identifies activities that existed in BEA 3.1 that are not included in BEA 4.0 and activities in BEA 4.0 that did not exist in BEA 3.1. In addition, the report identifies modifications to activities that exist in both releases, including activity name changes, activity node tree level changes, and activity definition changes.

The report is located on the OV-05 Activity Model HTML page; it is delivered both in HTML format and in an Excel spreadsheet. The Excel spreadsheet allows the user to easily identify and sort the color coded Operational Activities by additions (green), deletions (red), and modifications (yellow) from BEA 3.1 to BEA 4.0.

### Figure 7: BEA 3.1 to 4.0 Operational Activity Comparison Screenshot



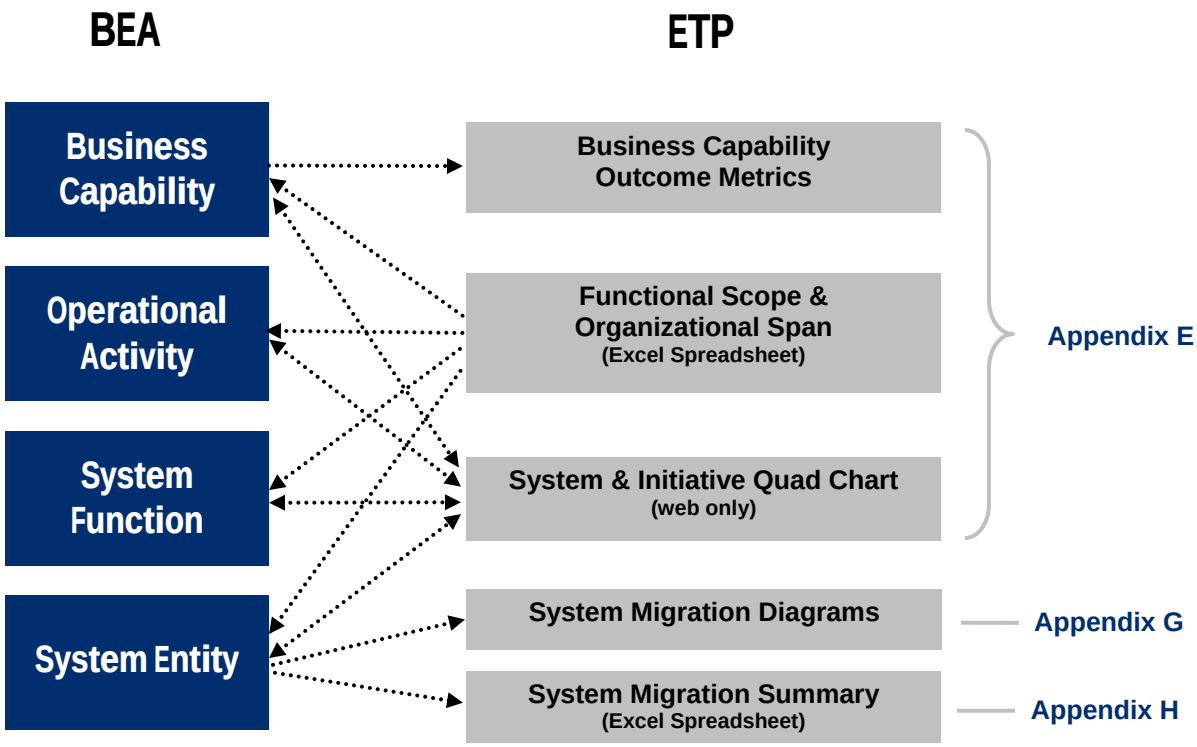
| | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| 1 | Legend: | Red=Deleted from 4.0 | | | | | |
| 2 | | Green=Added in 4.0 | | | | | |
| 3 | | Yellow=Changed in 4.0 | | | | | |
| 4 | | | | | | | |
| 5 | BEA 3.1 Activity Name | BEA 4.0 Activity Name | BEA 3.1 Node Tree Numbe | BEA 4.0 Node Tree Numbe | Activity Definition Change | Activity Level Number Change | Activity Name Change |
| 6 | Accept Goods and Services | Accept Goods and Services | 33242 | 32242 | | Changed Level Number | |
| 7 | Accept Other Property and Services | Accept Other Property and Services | 332422 | 322422 | | Changed Level Number | |
| 8 | Accept Real Property | Accept Real Property | 332421 | 322421 | | Changed Level Number | |
| 9 | Administer Entitlements and Sales | Administer Entitlements and Sales | 82 | 82 | | | |
| 10 | Administer Legal Personnel Programs | Administer Legal Personnel Programs | 651 | 651 | | | |
| 11 | Administer Position Management | Administer Position Management | 614 | 614 | Changed Definition | | |
| 12 | Allocate Resources | | 16 | | | | |
| 13 | Apply the Defense Acquisition Management Framework | Apply the Defense Acquisition Management Framework | 31 | 31 | | | |

## Feature 7: BEA Linked to the ETP

As the guiding vision for business transformation, the BEA in concert with the ETP codifies DoD's transformation direction. These two transformation tools, delivered at the same time, are physically linked in the HTML view of BEA 4.0. Linking the BEA to the ETP is an essential means of associating specific objects within the BEA with the transformation efforts of the Department as outlined in the ETP. Those architecture objects linked to the ETP are: Business Capabilities, Operational Activities, and System Entities.

The link from the BEA to the ETP was introduced in BEA 3.1. However, it was a "one-way" link only. Users could leave the BEA and view ETP information, but could not return to the BEA. New to BEA 4.0 is the inclusion of some "round-trip" links from the BEA, to the ETP and then back again to the BEA. Both one way and two way links are depicted below in Figure 8: Linking BEA to the ETP.

**Figure 8: Linking BEA to the ETP**




# BEA Laws, Regulations and Policies (LRP) Repository[2]

The BEA LRP Repository contains those laws, regulations, and policies that constrain activities and processes in the BEA. The Repository is maintained in the Dynamic Object Oriented Requirements System (DOORS). This tool allows the specific laws, regulations, and policies to be linked directly to the BEA OV-5 Activity Model, OV-6a Business Rules, and OV-6c Process Models as appropriate. The products and reports relevant to BEA 4.0 are outlined in the BEA LRP Repository narrative on the BEA 4.0 home page on the Defense Business Transformation website. In previous versions of the LRP, the requirements were at a very detailed level.

[2] The BEA Laws, Regulations, and Policies Repository was formerly known as Compliance Requirements in prior BEA releases.

During the 4.0 development period, and embracing the concept of tiered accountability, the BEPs also undertook an effort to re-establish the requirements within the LRP Repository by mapping to the BEA at the high-level chapter and/or section level of each requirement, versus the detailed (text) mappings previously captured and maintained. This initiative also included leveling the mapping of requirements to the enterprise OV-6c processes across all of the BEP's. This resulted in reducing the number of detailed requirements in the repository from over 122,000 to fewer than 10,000 without forfeiting the quality of the information available in the LRP Repository. The LRP now provides more user-friendly data for assistance in determining BEA compliance.

# Architecture Configuration Management Statistics

BEA development follows a rigorous configuration management discipline to ensure that all changes to the architecture are documented and integrated. During the BEA 3.1 development period, this process was enhanced to better correlate architecture changes to the capabilities required for business transformation. The architecture configuration management process is based on the use of the following configuration mechanisms that are recorded and managed in a configuration management tool:

- Parent Change Requests (CRs) identify a planned capability improvement (referred to as focused body of work in BEA 3.1) such as adding new capabilities, addressing identified architecture gaps, addressing enterprise changes across BEPs, or addressing updates to the compliance requirements. Parent CRs may also address technical cleanup issues, as well as suggested content refinement.
- Child Change Requests are created for each architecture product that is impacted by the work effort scoped by the Parent CR.
- Test Tickets are can be either Child Tickets or HTML Tickets.
    - Child Tickets track content and technical defects found during Integration Review and BEP Acceptance Review.
    - HTML Tickets are used to track defects found in the HTML code during HTML Review and BEP Acceptance Review.
- Suggestion tickets were created during BEA 4.0. This modification to the change management tool allows the BEA team to have an authoritative source to house all recommended changes to the architecture. Specifically, suggestion tickets are used to document architecture improvement suggestions outside the scope of the current release or those that are generated during a formal review period that cannot be immediately addressed.

The number of CRs and Test Tickets indicate the magnitude of the release, in the following way:

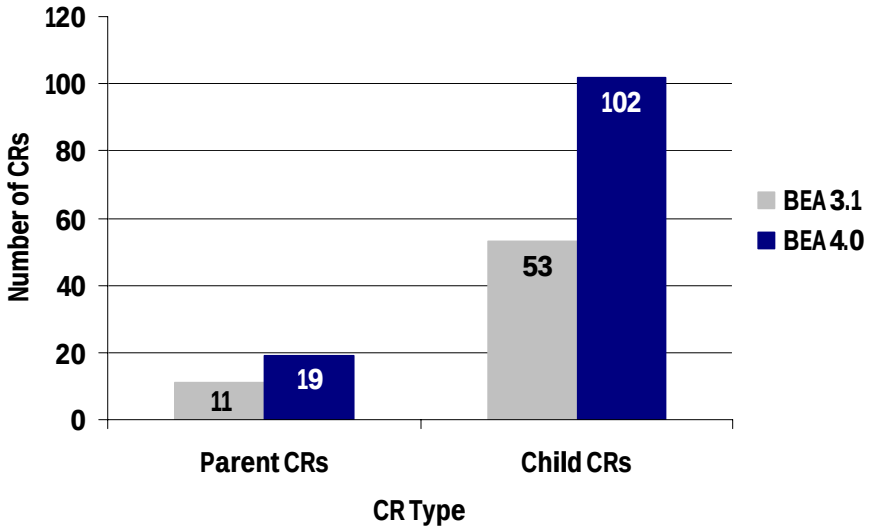
- The number of Parent Change Requests indicates the scope of work addressed for a release.
- The number of Child Change Requests indicates the impact across the architecture products.
- The number of test tickets indicates the number of required fixes and potential future developmental activities.

The scope of BEA 4.0 was greater in magnitude than BEA 3.1, as evidenced by Table 5: BEA 4.0 Total Number of Changes Made by Request Type and BEA Release and Figure 9: Number of Change Request Type by BEA Release.

### Table 5: BEA 4.0 Total Number of Changes Made by Request Type and BEA Release

| Change Type | BEA 3.1 Count | BEA 4.0 Count |
|---|---|---|
| Parent Change Requests | 11 | 19 |
| Child Change Requests | 53 | 102 |
| Completed Test Tickets | 165 | 117 |
| Deferred Test Tickets | 33 | 14 |

**Figure 9: Number of Change Request Type by BEA Release**




# Final Note

To better support business transformation, the BTA will release BEA 4.1 in March 2007. It will focus on three areas:

- Stabilizing the BEA
- Improving BEA usability
- Enhancing BEA visualization capabilities

BEA 4.1 will increase the value that architecture brings to DoD's transformation efforts. This improvement is guided by responses to an on-line questionnaire and a series of focus groups, both of which served to provide requirements for stabilizing the BEA, increasing its usability, and enhancing its visualization. Focus groups included representatives from investment review boards, Component enterprise architects, and program managers and staff of major DoD business systems. Planned improvements will enable the BEA to better support informed decision making and investment review, ensure the BEA is useful, usable, and properly configured to guide implementation and allow federation of the BEA, Component, and Program architectures in support of common business capability improvements. The requirements gathered will serve as the foundation for senior leadership to then determine the prioritized scope and content for BEA 4.1 and beyond.

### *Stabilizing the BEA*

Stabilizing the BEA will minimize changes in those areas where the architecture is adequate, and focus enhancements on areas where it is not. This will expedite program implementation by eliminating unnecessary changes, while making changes to provide additional guidance where necessary. As part of stabilization, the Department will determine critical needs (current gaps as well as new desired outcomes) whose solution will benefit from inclusion in the BEA (e.g., those gaps that can be addressed by more clearly depicting enterprise-wide processes, information, rules, or providing a common reference for target systems and initiatives to achieve interoperability and integration). As each need is validated and prioritized, it will be assigned to a future BEA release. With the focus of transformation efforts remaining on implementation, only limited architecture content expansion is being considered for inclusion in the next version(s) of the BEA. These potential areas are:

- SFIS Phase 3
- Intra-Governmental Transactions

To further enhance the stabilization of the BEA, and with the emphasis on implementation, the BTA will determine a method by which the sufficiency of business capability improvements is able to be expressed architecturally. This will allow programs to fully assess their compliance to the architecture within a dynamic environment. In addition, the BEA will also improve the description and delineation of prescriptive and descriptive business processes.

### *Improving BEA Usability*

The BEA is a tool used by processes throughout DoD's business transformation approach (e.g., setting priorities, determining the scope and span of solutions, planning transformation, funding programs, managing investments, implementing programs, and evaluating progress). The use of the BEA in these various processes is maturing concurrently with the architecture itself. To stay aligned with the needs of these processes, the BEA will adapt to increase its utility. Under review by the BTA for increasing BEA's usability is:

- Simplifying architecture diagrams
- Holding more frequent sessions to introduce the BEA to new users and obtain feedback from focus groups
- More clearly identifying changes within the architecture between each release

### *Enhancing BEA Visualization Capabilities*

Enterprise architecture is a robust tool used to document transformation and alleviate risk. However, the BEA, in its native format (Telelogic System Architect), is accessible only to those who both own a license and understand the underlying structure of the architecture tool. This poses challenges for program managers to glean meaningful requirements and for planners to understand the envisioned To-Be state. To mitigate this, the BTA has also delivered a fully integrated and linked internet (HTML) version of the architecture. Beyond the HTML version of the architecture though, opportunities remain to further enhance the visualization of BEA. These may include:

- Tailoring architecture views to display information for a specific system or program
- Bundling architecture information by business capability
- Provide clear linkage and visibility from the BEA to Component and Program architecture products federated across the Business Mission Area.

Along with the ETP, the BEA will retain the goal of enabling support to the warfighter and providing accountability to the American taxpayer by systematically improving DoD's business processes, systems and investment governance.