Improving Agency Performance Using Information and Information Technology

(Enterprise Architecture Assessment Framework v3.0)

December 2008

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1 Introduction

The Federal Government is increasingly focused on delivering results to the citizen. In the course of managing the President's budget, with approximately $70 billion in annual spending[1], there is an inherent responsibility to manage information technology investments wisely. This investment, and in particular the $21.7 billion in Development, Modernization, and Enhancement (DME) funding, represents a key resource for improving agency performance through closing performance gaps and implementing the Agencies' priorities.

The Office of Management and Budget (OMB) Enterprise Architecture Assessment Framework (EAAF) Version 3.0 measures planned and delivered improvements to agency performance in four ways:

- Closing agency performance gaps identified via agency performance improvement and strategic planning activities.
- Saving money and avoiding cost through:
  - Collaboration and reuse;
  - Process reengineering and productivity enhancements; and
  - Elimination of redundancy.
- Strengthening the quality of investments within agency portfolios as reflected in critical attributes including (but not limited to): security, inter-operability, reliability, availability, end-user performance, flexibility, serviceability, and reduced time and cost to deliver new services and solutions.
- Improving the quality, validity, and timeliness of data and information regarding program performance output and outcome; program and project planning and management; and cost accounting.

Under previous versions of the EAAF, agencies have achieved, to varying degrees, a basic level of process and architectural maturity. Looking forward, the evolution of the EAAF is being driven by what agencies are doing to drive to outcome-focused architecture. In particular, recognizing strategic planning, enterprise architecture (EA), capital planning and investment control (CPIC), and performance assessment and management are linked processes. The only way to ensure they work together towards targeted outcomes is to ensure at each step we understand and measure process outcomes vs. process compliance.

The scope of EAAF Version 3.0 spans planning, investment, and operations activities required to work in concert to improve agency performance through the management and use of information and information technology. EAAF Version 3.0 features extensive use of key performance indicators (KPIs) measuring outcomes across strategic planning, EA, CPIC, and performance data. To support automation and accuracy in producing the KPIs, EAAF Version 3.0 moves agency EA submissions to a template-based model similar to the current agency budget submission process for the Exhibit 53 and Exhibit 300.

[1] $70,716M total, $21,657M in DME. This represents the IT crosscut across the President's FY09 Budget. Please see http://www.whitehouse.gov/omb/egov/vue-it/index.html for more information.

EAAF Version 3.0 also changes the assessment and reporting process. Instead of a single annual assessment, Version 3.0 moves to separate submissions for each of the Completion, Use, and Results capability areas in order to better align EA with the other linked processes. Additionally, the thresholds for certain KPIs are being phased in over two submission cycles to allow agencies the opportunity to properly implement the changes required in the move to Version 3.0.

The EAAF supports the policy implementation assessment and enforcement for achieving the EA and related requirements set forth in OMB Circulars A-130 and A-11. EAAF Version 3.0 is closely aligned with the methodologies, reporting templates, and tools such as the Federal Transition Framework (FTF), the Federal Segment Architecture Methodology (FSAM), and VUE-IT or Visualization to Understand Expenditures in Information Technology.[2]

Five key success factors for agencies with the EAAF v3.0 will be their ability to:

- Align on agency performance improvement to quantitatively plan for and support measurable delivery of agency performance improvement.
- Collaborate with other agencies to deliver shared common architectures for shared cross boundary mission, business, and technical requirements; through this collaboration contribute to the definition and implementation of the target Federal Enterprise Architecture.
- Leverage bureau and program architecture activity to build out the agency EA and insure that agency-proposed IT spending is well architected, implementing the target agency and Federal Enterprise Architecture, and demonstrably driving agency performance improvement.
- Integrate with agency IT Governance to insure effective use of the agency EA to support delivery of agency performance improvement.
- Through the above, establish buy-in with mission and business owners, and complete the evolution to outcomes-focused architecture.

OMB is committed to working with agencies through the annual assessment and quarterly reporting process to successfully implement the EAAF v3.0.

[2] Additional information on these tools and methodologies can be found at www.egov.gov

2 Performance Improvement Lifecycle

Government agencies are continually assessing current performance, identifying opportunities for performance improvement, and translating opportunities into specific actions. Enterprise architecture is an integrated management practice to maximize the contribution of an agency's resources to achieve its performance goals. Architecture describes clear relationships from strategic goals and objectives through investments to measurable performance improvements for the entire enterprise or a portion (segment) of the enterprise.

The focus of this document, and the discussion in this chapter, is information and IT-enabled performance improvement.

Agency EA programs are one of several practice areas that must be executed effectively to achieve improvements in agency mission performance and other measurement areas. EA helps to organize and clarify the relationships between agency strategic goals, investments, business solutions, and measurable performance improvements - *but, it is just one link in a chain of integrated practice areas*. To achieve target performance improvements, other practice areas including: strategic planning; capital planning and investment control (CPIC); and program and project management must be strong and fully integrated with an agency EA practice.

Results-oriented architecture is developed within the context of the **Performance Improvement Lifecycle**. The Performance Improvement Lifecycle comprises three phases: "Architect", "Invest", and "Implement". Each lifecycle phase is comprised of tightly integrated processes that combine to transform the agency's top-down strategic goals and bottom-up system needs into a logical series of work products designed to help the agency achieve strategic results. Through practice area integration, the Performance Improvement Lifecycle provides the foundation for sound information and IT management practices, end-to-end governance of IT investments, and alignment of IT investments with an agency's strategic goals.

The Performance Improvement Lifecycle defines a simple value chain linking enterprise architecture with IT investment management and program and project execution. Figure 2-1 below illustrates the logical integration and sequencing of key architecture, investment and implementation activities, as well as feedback from program assessment and performance measurement.

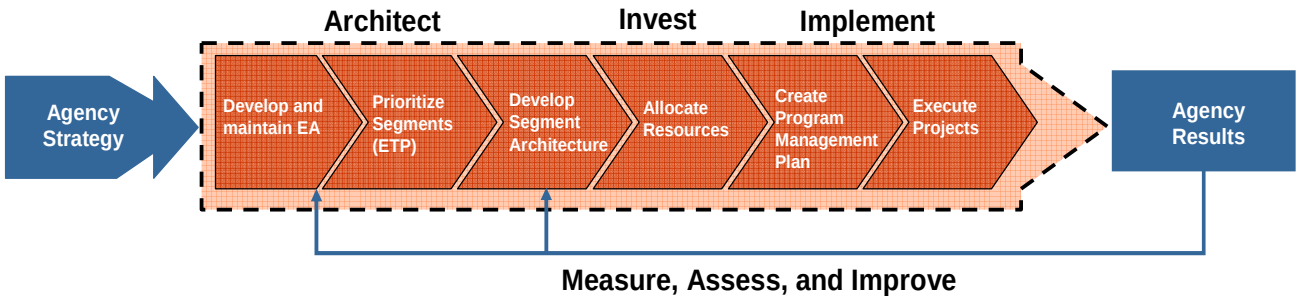

Figure 2-1: Information and IT-Enabled Performance Improvement Lifecycle

Continuous performance improvement is the principal driver connecting EA program staff with key business stakeholders across each phase of the Performance Improvement Lifecycle. Agency Chief Architects and EA program staff play important roles supporting business stakeholders during each phase of the Performance Improvement Lifecycle to:

- identify and prioritize enterprise segments and opportunities to improve mission performance, linked to agency goals and objectives;
- plan a course of action to close performance gaps, using common or shared information assets and information technology assets;
- allocate agency resources supporting program management and project execution;
- measure and assess performance to verify and report results; and
- assess feedback on program performance to enhance architecture, investment and implementation decisions.

Opportunities to improve mission performance are prioritized in terms of their relative value to the agency's strategic goals and objectives in the enterprise transition plan (ETP) and segment architecture. Prioritization underscores the importance of considering cost savings and cost avoidance commitments and delivery in this step, as well as year-over-year cost and schedule performance of IT investments. In particular, agencies should utilize feedback from performance measurement mechanisms to evaluate and adjust their prioritization of enterprise segments.

2.1 ARCHITECT

Enterprise architecture describes the current (baseline) and future (target) states of the agency, and the plan to transition from the current to the future state, with a focus on agency strategy, program performance improvements and information technology investments. Agency EAs are organized by segments – core mission areas (e.g., homeland security, health), business service (e.g., financial management, human resources), and enterprise services (e.g., Information Sharing). Segments are defined using the Federal Enterprise Architecture (FEA) reference models, described in subsequent chapters.

The target enterprise architecture focuses on the ideal environment to help the agency achieve its strategic goals and objectives. The enterprise transition plan (ETP) identifies a desired set of business and IT capabilities needed to reach the target enterprise architecture. It also defines logical dependencies between transition activities (programs[3] and investments[4]) and helps to define the relative priority and sequencing of these activities.

Agencies should prioritize segments within the EA using performance improvement opportunities captured in the enterprise-wide performance architecture. The

[3] A program is an activity or set of activities intended to help achieve an outcome that benefits the public (from http://www.whitehouse.gov/omb/expectmore/faq.html#008)
[4] OMB Circular A-11, section 53.

prioritization process should also consider further opportunities for additional cost savings or avoidance, improvement of IT portfolio quality, or improvement of the quality, validity, and timeliness of mission performance and cost accounting metrics.

To achieve the target performance improvements, the agency EA needs to fully integrate with the capital planning and investment control (CPIC) step as well as the agency system (solution) development life cycle (SDLC). OMB Circular A-130 states, "Agencies must establish and maintain a capital planning and investment control process that links mission needs, information, and information technology in an effective and efficient manner. The process will guide both strategic and operational IRM, IT planning, and the enterprise architecture by integrating the agency's IRM plans, strategic and performance plans, financial management plans and the agency's budget formulation and execution processes…"

The FEA Practice Guidance[5], provides more information on techniques and best practices for EA Practice Integration.

2.2 INVEST

Performance improvement opportunities identified during the "Architect" process are addressed through an agency portfolio of IT investments. This step defines the implementation and funding strategy for individual initiatives identified in the Enterprise Transition Plan (ETP) and described in the segment architectures. Program management plans are created to implement the individual solutions identified in the implementation and funding strategy.

Agency investment proposals captured in the agency's Exhibit 53 and portfolio of Exhibit 300s need to be aligned with the agency EA. To show alignment with the agency EA and transition plan, the Exhibit 300s and Exhibit 53 line items for each investment are mapped to the Federal Enterprise Architecture (FEA) Reference Models and agency-defined segment architectures. This creates a linkage from agency strategy to EA to segment architecture to IT investment; ensuring resources are utilized to support the strategic objectives of the organization.

During this step of the Performance Improvement Lifecycle, agencies should carefully evaluate and adjust their prioritization to ensure investments are aligned, via high-priority segments, to agency strategic goals and objectives. Further, the prioritization should be refined to reflect additional opportunities for cost savings and avoidance, as well as other approaches to agency performance improvement. Agencies should also incorporate high priority national objectives identified as part of the Federal Transition Framework (FTF) within its EA and investment portfolio.

The FEA Practice Guidance[6] provides more information on techniques and best practices to align agency enterprise architecture and investments.

[5] http://www.whitehouse.gov/omb/egov/documents/FEA_Practice_Guidance_Nov_2007.pdf
[6] Ibid.

2.3 IMPLEMENT

Projects are executed and tracked throughout the system development life cycle (SDLC). Achievement of the program / project plan within acceptable variance for schedule and budget is measured and reported through Earned Value Management (EVM) process. Performance is measured to determine how well the implemented solutions achieve the desired (process) outputs and mission outcomes, and provide feedback into the enterprise and segment architecture development processes as well as the cyclical strategic planning process.

2.4 MEASURE, ASSESS AND IMPROVE

Information and information technology, as critical enablers of program performance improvements, must be assessed and evaluated in the context of agency missions and outcome-oriented results defined in the enterprise-wide performance architecture. *By making the link between agency strategic goals and objectives, enterprise architecture, IT investments, and implementation programs explicit, Performance Improvement Lifecycle work products and information sources can be leveraged to determine the maturity and effectiveness of an agency enterprise architecture to support investment and implementation decisions and achieve measurable results.*

Performance improvement plans and priorities, including the Program Assessment Rating Tool (PART) and Performance Assessment Report (PAR), must be reflected in the agency EA, particularly the performance architecture and ETP. PART is used to evaluate the agency program performance and results in agency performance improvement plans identifying a program's strengths and weaknesses and addressing ways to improve the program performance. PAR metrics and measures provide specific measures on agency mission performance, and often monitor and regulate agency strategy in support the PART evaluation process.

The FEA Practice Guidance[7] provides more information on techniques and best practices to align the agency ETP and performance measures and outcomes.

2.5 AGENCY SUBMISSION DATA QUALITY

OMB collects a significant amount of IT investment data and other related data from executive agencies during each phase of Performance Improvement Lifecycle. OMB officials use this information to guide the development of an efficient and effective IT investment portfolio as a part of the President's budget request to Congress.

Within OMB, the Office of E-Government and Information Technology considers a variety of different data sources and inputs in the analysis of proposed IT investments. These data sources include but are not limited to:

- Agency EA submissions, plans, and milestones
- Agency-submitted IT investment portfolio (Exhibit 53)

[7] http://www.whitehouse.gov/omb/egov/documents/FEA_Practice_Guidance_Nov_2007.pdf.

- Investment business cases (Exhibit 300)
- Prior year agency IT budget
- Reports from the General Accounting Office and Inspector General
- Management Watch List and High-Risk List and associated data
- Program oversight data including earned-value management and other reports
- Agency management commitments and results

This data helps OMB decision-makers select IT initiatives and investments that promise to deliver the highest value and performance impact for the Federal Government within a constrained budgetary environment.

In order to make good decisions, OMB is dependent upon agencies to provide high-quality data submissions. EAAF Version 3.0 outlines expectations for high quality submissions through transparency on KPIs and associated algorithms and heuristics.

Appendix B describes OMB's strategy for using the KPIs defined within the EAAF Version 3.0 to enforce high standards of data quality for agency EA and IT investment portfolio submissions.

3 Federal Enterprise Architecture Overview

The Federal Enterprise Architecture is a business-based framework used by Federal chief information officers (CIOs) to develop IT investment portfolios aligned to their agency's business functions and processes and cross-agency needs. The Federal Enterprise Architecture provides several discrete artifacts including:

- The FEA Reference Models;
- The Federal Transition Framework (FTF)[8]; and
- An Assessment Instrument (OMB EA Assessment Framework).

OMB Circular A-11[9], sections 53 and 300, requires Federal agencies to align their IT investments to the FEA Reference Models and segment architecture. EAAF Version 3.0 is designed to assess agency responses to this policy and gauge the extent agencies are using their EA and ETP to implement cross-agency initiatives and achieve measurable performance improvements.

3.1 FEA REFERENCE MODELS

The FEA Reference models include the Performance Reference Model (PRM); the Business Reference Model (BRM); the Service Component Reference Model (SRM); the Data Reference Model (DRM); and the Technical Reference Model (TRM). Together, these models comprise the FEA Consolidated Reference Model (CRM) as illustrated in Figure 3-1.

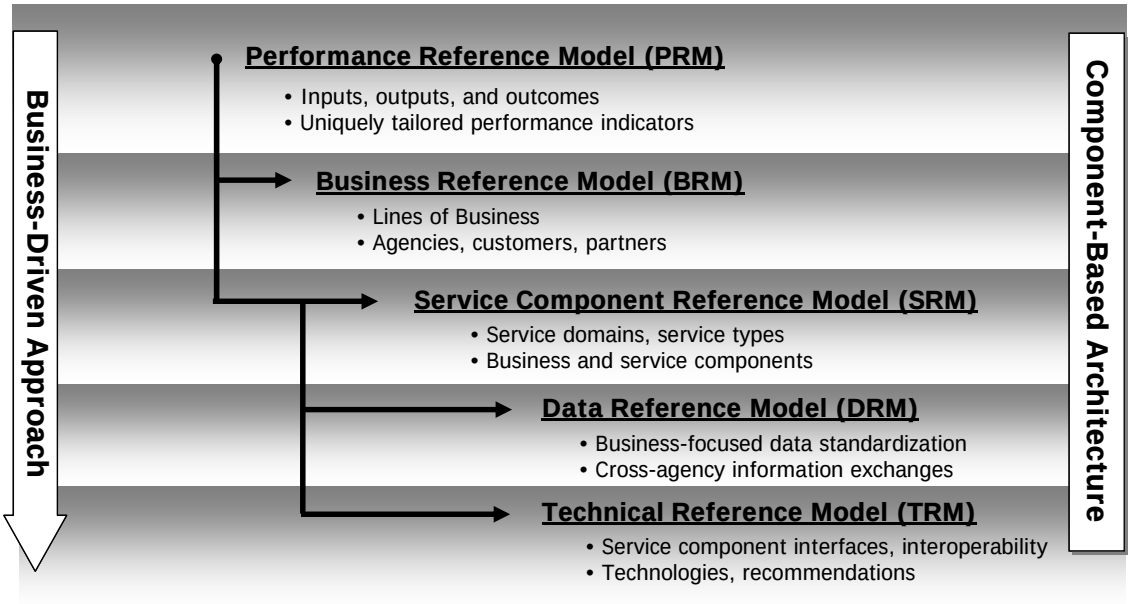

Figure 3-1: FEA Reference Models

[8] http://www.whitehouse.gov/omb/egov/a-2-EAFTF.html
[9] http://www.whitehouse.gov/omb/circulars/a11/current_year/a11_toc.html

The **Performance Reference Model (PRM)** provides a framework to use EA to measure the success of IT investments and their corresponding impact on strategic outcomes. This model links internal business components to the achievement of business and customer-centric outputs.

The **Business Reference Model (BRM)** provides a comprehensive blueprint of the federal government around common business models. By focusing on common business models spanning multiple agencies, it promotes agency collaboration and facilitates the alignment of business functions with common FEA solutions and E-Gov strategies.

The **Service Component Reference Model (SRM)** classifies service components according to their support for business and performance objectives. This model improves efficiency by exposing opportunities for the reuse of business components and services to support business functions across the Federal Government.

The **Data Reference Model (DRM)** enables information sharing and reuse across the Federal Government through the standard description and discovery of common data and the promotion of uniform data management practices. This model provides guidance on the implementation of consistent processes to enable data sharing through Federal Government-wide agreements.

The **Technical Reference Model (TRM)** categorizes standards and technologies to enable the delivery of service components and capabilities. This model provides a foundation to advance reuse and technology standardization from a government-wide perspective. It allows agencies to realize economies of scale by identifying and reusing the best solutions and technologies to support their mission and business functions.

3.2 SEGMENT ARCHITECTURE

Enterprise segments are subsets of the overall agency enterprise architecture, describing core mission areas (e.g., homeland security, health), business services (e.g. financial management), or cross-cutting enterprise services (e.g. Information Sharing). Core mission and business service segments are aligned with the FEA BRM and enterprise service segments are aligned with the SRM.

Agency Enterprise Architects define enterprise segments as a component of their EA planning activities. Segments are classified as one of the three fundamental segment types (core business, business service, enterprise service). In turn, investments supporting a given segment reflect the target segment architecture and are aligned with the agency enterprise architecture.

Agencies should use their strategic goals and objectives, EA and ETP as the basis for identifying and prioritizing enterprise segments. The process to identify and prioritize enterprise segments should reflect the following key characteristics:

- Use performance gaps, identified by the agency's strategic plan, IG or GAO reports, and/or performance improvement assessments, as the driver for segment identification and prioritization;

- Identify new requirements and opportunities within the agency strategic plan and use these new requirements to expand existing segments or develop new segments;
- Integrate cross-agency initiatives using the Federal Transition Framework (FTF) described below; and
- Measure the value of and results from enterprise architecture to stakeholders.

Cross-agency teams, chartered by the Federal CIO Council, are working with OMB to develop step-by-step step guidance documents serving as a road map for architects developing segment architecture.

3.3 FEDERAL TRANSITION FRAMEWORK

The Federal Transition Framework (FTF)[10] provides agencies with information on how to align their enterprise architecture and segment architecture to various policy-driven cross-agency information technology (IT) initiatives using a simple and familiar structure.

The FTF contains a catalog of cross-agency initiatives in a format easily incorporated into an agency EA. The FTF is comprised of sections corresponding to specific cross-agency initiatives. Each initiative is described using a standard structure including layers corresponding to the five FEA reference models.

Agencies use their Enterprise Transition Plan (ETP) and segment architecture to align and integrate appropriate cross-agency initiatives from the FTF with their enterprise architecture. Relevant cross-agency initiatives are reflected in agency IT investment portfolios (Exhibit 53) and business cases (Exhibit 300s). Segment architectures provide the integration point between cross-agency initiatives, performance improvement goals, and agency improvement commitments, as illustrated below in Figure 3-2. The FEA Practice Guidance and Federal Segment Architecture Methodology (FSAM) provide additional information on segment architecture and the ETP.

[10] http://www.whitehouse.gov/omb/egov/a-2-EAFTF.html

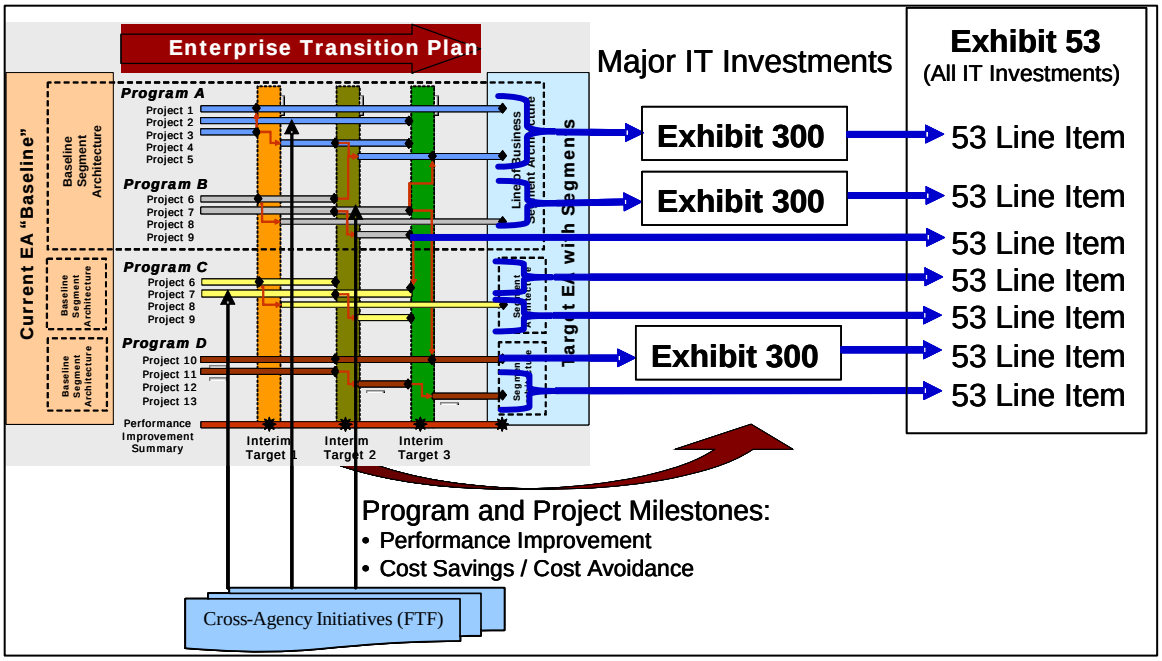

Figure 3-2: Enterprise Alignment and Integration

As part of the architectural planning process, architects in conjunction with segment and investment owners should evaluate opportunities to incorporate FTF initiatives to deliver measurable performance benefits. Benefits should be quantified in terms of component reuse, improved collaboration, information sharing, cost savings, cost avoidance, and mission performance improvements.

In the event an FTF initiative cannot be integrated with the agency enterprise architecture, architects should provide feedback on the aspects of initiatives not satisfying agency requirements. This guidance will allow initiative owners and managing partners to effectively expand the scope of their initiatives to bridge these gaps and thereby expand the potential audience for the initiative.

4 Framework Structure

EAAF Version 3.0 moves to a template-based submission process – one for each agency defined segment architecture, identifying enterprise segments and aspects of the target enterprise architecture.

4.1 CHANGES IN THE 3.0 FRAMEWORK

The template-based submission helps to generate key performance indicators (KPIs) and enhance the assessment of agency EA, IT investments, and performance improvements (results).

The table below highlights the KPI changes from EAAF Version 2.2 to Version 3.0.

	EAAF v2.2			EAAF v3.0	
	KPI	**How**		**KPI**	**How**
Completion	• Performance Architecture • Business Architecture • Data Architecture • Service Component Architecture • Technology Architecture • Transition Strategy	Review of Artifacts	→	• Target Enterprise Architecture and Enterprise Transition Plan • Architectural Prioritization • Scope of Completion • Internet Protocol Version 6 (IPv6)	Template-based agency segment submissions
Use	• Governance and Program Mgmt • Change Mgmt and Deployment • Segment Architectures / Collaboration and Reuse • CPIC Integration	Assignment of policies and procedures	→	• Performance Improvement Integration • CPIC Integration • FEA Reference Model and Exhibit 53 Part Mapping • Collaboration and Reuse • EA Governance & Management	Measured alignment between Performance, EA, and CPIC datasets; EA management artifacts
Results	• Cost Savings / Cost Avoidance • Transition Strategy Performance • Enterprise Architecture Value • Internet Protocol Version 6 (IPv6)	Evaluation of measures and metrics	→	• Mission Performance • Cost Savings and Cost Avoidance • IT Infrastructure Portfolio Quality • Measuring EA Program Value	Measured Delivery against planned improvement commitments

Agency submissions will include the agency's segment architectures (EA segment reports), the target enterprise architecture, enterprise transition plan, and self assessment with references to agency architecture artifacts. Artifacts will be posted on the MAX collaboration environment hosted by the Budget Formulation and Execution LoB. This access-controlled collaboration space will enhance information sharing and transparency between agencies with shared mission areas, business services, or enterprise services. The collaboration space allows agencies to work together to identify, diffuse, and adopt best practices, and improve the quality and timeliness of EA submissions.

Other elements of the framework remain the same, including the organization of assessment criteria into three capability areas (completion, use and results), and the use of a maturity scoring scale for each assessment criterion. The framework continues to reflect "Architecture Principles for the US Government" located at www.cio.gov[11], and provides support for OMB's focus on cost-effective agency mission performance.

4.2 ASSESSMENT CRITERIA OVERVIEW

The framework uses assessment criteria to evaluate the maturity and effectiveness of agency enterprise architecture programs. Each criterion consists of five maturity levels, scored from 1-5. Related assessment criteria are grouped into three capability areas: *completion, use and results*. A summary outline of each of the three capability areas is provided below.

Completion addresses the following key performance indicators:

- **Target Enterprise Architecture and Enterprise Transition Plan** – Measures how effectively and efficiently the target EA is identifying and addressing gaps, redundancies, and costs in the IT portfolio and environment. Agencies must submit a comprehensive target EA addressing FTF initiatives and directing appropriate solutions toward underperforming programs based upon performance assessments. This target EA should also be aligned with the agency's IT portfolio. The agencies must submit a complete enterprise transition plan.
- **Architectural Prioritization** – Measures development of agency priority segment architectures aligned to high priority needs (defined by statutory requirements, agency strategic plan, IRM strategic plan, etc). Agencies should have a structured process, linked to the agency strategic planning and performance management processes, for determining high priority segments and demonstrating the initiation of segment architecture development for those segments after final approval.
- **Scope of Completion** – Measures the percentage of the agency enterprise IT portfolio funding amount covered by completed segment architectures.
- **Internet Protocol Version 6 (IPv6)** - The agency's EA (including enterprise transition plan and segment architecture) must incorporate Internet protocol version 6 (IPv6) into the agency's IT infrastructure segment architecture and IT investment portfolio. The agency must have concrete plans to deploy IPv6 enabled mission services and applications in its environment.

Use addresses the following key performance indicators:

- **Performance Improvement Integration** – Measures how effectively the agency has aligned its performance improvement plans and its enterprise transition plan, in terms of process and outcomes. Major investments in the agency IT portfolio must be represented in the enterprise transition plan and align with a performance improvement program and approved/submitted segment

[11] The complete URL is http://www.cio.gov/index.cfm?function=showdocs&structure=Information%20Technology&category=Enterprise%20Architecture

architectures. OMB will use the IT investment/program improvement plan/segment architecture alignment information reported in the Exhibit 300s and Exhibit 53 to measure this KPI.

- **CPIC integration** – Investments within the agency's IT portfolio must be aligned with the enterprise transition plan. All major IT investments in the agency Exhibit 53 must be represented on the enterprise transition plan. OMB also requires that a high percentage of milestones defined in the enterprise transition plan align with those reported in Exhibit 300s for related IT investments.
- **FEA Reference Model and Exhibit 53 Part Mapping** – Measures the completeness and accuracy of the primary FEA reference model mapping and Exhibit 53 part specification of the IT investments in the agency IT portfolio.
- **Collaboration and Reuse** – Measures the effectiveness of agency's EA by measuring progress in sharing and reusing information, infrastructure, solutions and service components resulting in improved financial performance, increased flexibility and enhanced capabilities. It also measures agency results with SmartBUY and similar arrangements in consolidating requirements in the procurement process.
- **EA Governance, Program Management, Change Management and Deployment** – The agency must govern and manage the implementation and use of EA policies and processes. This includes the appointment of a chief architect (CA), allocation of resources and the sponsorship of EA at the executive level. Effective change management and deployment procedures need to be instituted to ensure EA work products are current and socialized to their user community.

Results address the following key performance indicators:

- **Mission Performance** – Measures the extent agencies are using EA to drive program performance improvement. Agencies must show periodic improvement in program improvement scores of supported programs.
- **Cost Savings and Cost Avoidance** - Measures the extent agencies are using EA and IT to control costs. OMB will review earned value management data to assess the effectiveness of agencies in controlling costs. In addition, OMB will analyze the steady state spending, which should go down over time as legacy systems are consolidated and retired.
- **IT Infrastructure Portfolio Quality** – Measures agency progress towards implementing and delivering results as planned via the agency IT infrastructure segment architecture and agency commitments with the IT infrastructure LoB.
- **Measuring EA Program Value** – Documents EA value to agency decision-makers and used to identify opportunities to improve EA products and services. EA value measurement tracks architecture development and use, and monitors the impact of EA products and services on IT investment decisions, collaboration and reuse, standards compliance, stakeholder satisfaction, and other measurement areas and indicators.

Examples of representative artifacts are included to assist agencies in demonstrating their maturity for each assessment criterion. It is important to note, the description of

the artifacts is not intended to be exhaustive or prescriptive. Moreover, agencies may decide to develop additional artifacts or elaborate upon them further than described here. Appendix A provides a description of the artifacts in more detail.

Additionally, for each assessment criterion, a rationale and a mandate are provided. The rationale explains why OMB considers it important to collect information about each criterion, while the mandate links the assessment criterion to law and/or policy where appropriate. All documents listed as mandates are available for download from the OMB E-Government website on the following pages:

- Legislation: http://www.whitehouse.gov/omb/egov/e-1-legislation.html
- OMB Memoranda: http://www.whitehouse.gov/omb/egov/e-3-memoranda.html
- Federal Enterprise Architecture: http://www.whitehouse.gov/omb/egov/a-1-fea.html
- Federal Transition Framework: http://ftf.fido.gov
- Visualization to Understand Expenditures in Information Technology (VUE-IT): www.egov.gov/vue-it
- Federal Segment Architecture Methodology (FSAM): http://colab.cim3.net/cgi-bin/wiki.pl?FederalSegmentArchitectureMethodology
- EA Segment Report: http://www.whitehouse.gov/omb/egov/a-2-EASegment.html
- Agency EAAF v3.0 Self-Assessment Template: http://www.whitehouse.gov/omb/egov/a-2-EAAssessment.html

5 Agency EA Assessment Submission and Scoring Process

The EA assessment submission and scoring process for EAAF Version 3.0 has been updated from a single annual submission and assessment to separate submissions throughout the year for each of the capability areas: completion, use and results. This better aligns EA with the other linked processes of: strategic planning, CPIC, and performance management / reporting and coincides with timing of activities related to these linked processes.

In addition, OMB will expect agencies to submit EA segment reports on a quarterly basis for each segment to demonstrate progress. The submission and scoring process are discussed below. The list of agencies to be assessed using this Framework is included in Appendix C.

5.1 EAAF VERSION 3.0 IMPLEMENTATION TIMING

The Enterprise Architecture Assessment Framework Version 3.0 features stronger integration between the EA assessment, capital planning and investment control, and program and project performance management processes. Accordingly, this level of integration is accompanied by changes in the EA reporting standards and annual assessment reporting schedule.

EAAF Version 3.0 will be phased in over the next two EA budget preparation cycles, with full implementation and accountability required for the budget year (BY) 2012 cycle (submissions starting in Q3 FY10). The final KPI levels are provided in the EAAF v3.0 criteria portion (Chapter 6) and interim KPI thresholds for the BY 2011 cycle are identified via footnotes in Chapter 6.

Agencies will continue to conduct a self-assessment of their EA program using an updated OMB self-assessment template. The template will be completed and submitted in three installments corresponding to the three assessment capability areas of the EAAF. The general schedule for these installments will be:

Submission Installment	Submission due to OMB
Completion	Last work day of May
Use	Last work day of August
Results	Last work day of November

Figure 5-1: OMB EA Assessment Schedule

This schedule of incremental EA self-assessment submissions is aligned with the annual agency cycle of strategic planning, budget formulation, capital planning, and program performance evaluation. This alignment ensures agencies have accurate and up-to-date information available to prepare these submissions.

To evaluate agency transition progress throughout the year, OMB requests agencies update and submit their EA segment reports on a quarterly basis. These submissions will be due to OMB by the last work day of February, May, August, and November.

OMB will provide feedback following the review and assessment of each of the agency EA submission installments. After collecting all installments of the agency EA self-assessment and updated quarterly segment architecture submissions, OMB will prepare formal feedback on the agency EA assessments during the second quarter of the fiscal year. The following diagram depicts the timeline for the EA reporting activities over a fiscal year:

	Q2			Q3			Q4			Q1		
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
EA Segment Reporting		✓			✓			✓			✓	
Agency EA Self Assessment and EA Submission					✓ Completion			✓ Use			✓ Results	
OMB Review and Assessment of Agency EA						✓			✓			✓
OMB Feedback to Agency on EA Assessment	✓						✓			✓		

Figure 5-2: Consolidated Segment Reporting and EA Assessment Schedule

5.2 AGENCY EA ASSESSMENT PROCESS

The updated assessment process provides for a comprehensive review of the state of an agency's enterprise architecture program. As such, the assessment process serves both as an internal diagnostic for agencies as well as an oversight mechanism for OMB. Agencies will use the framework to perform a self-assessment and submit their architectures for evaluation throughout the year. OMB will assess the agencies' architectures and provide a final assessment rating and detailed feedback on each criterion.

More detailed information and instructions regarding the specifics of the EA submission process will be provided via a separate document.

Agencies are to submit EA segment reports for all segments, plus their target enterprise architecture and enterprise transition plan. In addition, some key performance indicators require additional artifact submissions. OMB may elect to request additional artifacts from the agency during the assessment process if there is a question regarding maturity levels.

The assessment focuses on three capability areas of EA:

- Completion of an enterprise architecture;
- Use of EA to drive improved decision-making; and
- Results achieved to improve the agency's program effectiveness.

Agencies will receive an average assessment score in each capability area, calculated by summing the score for all criteria within the capability area and dividing by the number of criteria. Scores will be rounded to the nearest tenth. The results of the overall EA assessment will be provided to the agency via a formal feedback process.

The following table describes how Green, Yellow and Red ratings will be determined:

	Completion	Use	Results
Green	• Average score equal to or greater than 4 in the "Completion" capability area	• Average score equal to or greater than 4 in the "Use" capability area	• Average score equal to or greater than 4 in the "Results" capability area
Yellow	• Score equal to or greater than 3 in the "Completion" capability area	• Score equal to or greater than 3 in the "Use" capability area	• Score equal to or greater than 3 in the "Results" capability area
Red	• Score less than 3 in the "Completion" capability area	• Score less than 3 in the "Use" capability area	• Score less than 3 in the "Results" capability area

5.3 QUARTERLY EA PERFORMANCE REVIEW

The quarterly reporting process is designed to augment the annual OMB EA assessment process. OMB uses the quarterly EA reporting process to work with agencies to evaluate the progress of their EA programs. This will be achieved through the submission of completed EA segment reports.

6 Assessment Framework 3.0 Criteria

This section provides a description of the key performance indicators (KPIs) for EAAF Version 3.0. This includes a definition of each KPI, how the KPI is measured, the standards for achieving each level, and the specific artifacts and/or data sources used to measure the KPI. ***Unless otherwise noted, the scoring and the associated activities/artifacts for all KPIs are cumulative*** . For example, to achieve the next higher level for a given KPI, an agency must meet all requirements of previous levels in addition to the requirements of the level in question.

6.1 COMPLETION CAPABILITY AREA

- *Description:* This category measures the completion maturity of an agency's EA artifacts in terms of performance, business, data, services, and technology. The agency's baseline and target architectures are well-defined, showing traceability through all architectural layers. Using its enterprise transition plan, the agency is able to achieve its desired target state.

- *Outcomes:*
    - Identifies specific reporting the agency needs to provide to OMB to support data-driven analysis and decision-making around EA and IT portfolio management.
    - Describes the future capabilities (via enterprise transition plan and target architecture) to enable the agency to achieve its performance goals.
    - Identifies the magnitude of the gap between the baseline and target architectures and possible improvement strategies to realize its target state.
    - Integrates relevant cross-agency initiatives into the agency's target architecture and enterprise transition plan.
    - Produces segment architectures describing agency lines of business to be used to assist agency managers in decision-making tasks.
    - Identifies unnecessary duplication and opportunities for consolidation and reuse of information and technology within and across agencies.
    - Provides a framework and a functional view of an agency's lines of business (LoBs), including its internal operations/processes.

- *Notes:*
    - The Completion capability area assesses agency maturity in developing baseline and target architectures in terms of the five FEA reference models: performance, business, data, service component, and technology. However, this should not be construed as a requirement for agencies to restructure their EA frameworks into five corresponding layers or views. OMB does not require agencies to adopt one specific EA framework, unless specified in OMB budget guidance. In their submissions to OMB, agencies are simply required to demonstrate the availability of the content described in each assessment criterion within their EA.

6.1.1 Target Enterprise Architecture and Enterprise Transition Plan

- *Description:* The target enterprise architecture (EA) is the agency's blueprint describing its desired future state from a performance, business, service, data and technology standpoint. The target EA defines a notional set of shared services needed to support the goals and objectives articulated in the agency strategic plan, with an "n year" planning horizon (usually five years based on agency strategic planning cycles). By contrast, segment architecture blueprints are designed to address the upcoming budget planning cycle and therefore have a two to five year planning horizon. In a Federal executive agency, the FEA reference models (PRM, BRM, SRM, DRM, and TRM) are typically used as a "common language" to articulate target capabilities - although many agencies can and do customize these models to meet their evolving needs. Cross-agency initiatives documented in the FTF catalog provide a model for defining shared services. The target enterprise architecture will be comprised of the completed agency segment architectures and identified enterprise/cross-cutting services identified in the enterprise transition plan. The agency enterprise transition plan describes the agency's activities for migrating from its baseline architecture to its target architecture. Agencies should submit a "complete" enterprise transition plan, encompassing at a minimum all major IT investments (organized by segment, where applicable) and non-major investments requesting DME funding for the BY, complete with milestones, cost and performance data.
- *Rationale:* Agencies are required by law (E-Gov Act) and policy (OMB Circular A-130) to develop a target enterprise architecture. The target EA is an essential work product in enabling the comparison of the desired future state with the current IT portfolio and environment, identifying gaps, redundancies, and costs. This allows the agency to conduct efficient and effective transition planning and develop segment architectures and an IT investment portfolio aligned to the agency's statutory mission and strategic goals and objectives. The enterprise transition plan defines projects, programs, and timelines/milestones and is the foundation for modernization and transformation activities from the baseline to target architecture.
- *Mandate:* OMB A-11, section 300; GPRA; Clinger-Cohen Act, E-Government Act, OMB Circular A-130

Level 1 Practices	*Activities:* The agency must submit a target enterprise architecture that is a consolidated representation of all completed and in-progress segments and their inter-relationships (e.g. re-use/sharing) from a service standpoint. The agency must submit an enterprise transition plan, but there is no indication of reuse. *Artifact:* Target EA, Enterprise Transition Plan, EA Segment Report
Level 2 Practices	*Activities:* The agency must submit the complete target enterprise architecture. At a minimum, the target EA must address all FTF cross-agency initiative areas within scope for the agency (i.e. comply with all statutory and policy requirements promulgated by the initiatives). The

	target EA will incorporate the segment architectures by reference. At least 70%[12] of projects on the agency enterprise transition plan must be reflected on the agency target enterprise architecture. At least 70%[13] of agency Exhibit 53 DME spending must be represented on the agency target enterprise architecture. A plan exists to address reuse within the bureaus of the agency. *Artifact:* Target EA, Enterprise Transition Plan, EA Segment Report, Exhibit 53
Level 3 Practices	*Activities:* At least 80%[14] of projects on the agency enterprise transition plan must be reflected on the agency target enterprise architecture. At least 80%[15] of agency Exhibit 53 DME spending must be represented on the agency target enterprise architecture. A plan exists to address reuse within the segments of the agency. *Artifact:* Target EA, Enterprise Transition Plan, EA Segment Report, Exhibit 53
Level 4 Practices	*Activities:* At least 90%[16] of projects on the agency enterprise transition plan must be reflected on the agency target enterprise architecture. At least 90%[17] of agency Exhibit 53 DME spending must be represented on the agency target enterprise architecture. A plan exists to address reuse within the agency and across segments of the agency. *Artifacts:* Target EA, Enterprise Transition Plan, EA Segment Report, Exhibit 53
Level 5 Practices	*Activities:* 100%[18] of projects on the agency enterprise transition plan must be reflected on the agency target enterprise architecture. 100%[19] of agency Exhibit 53 DME spending must be represented on the agency target enterprise architecture. Agency target enterprise application portfolio must be clearly identified, with migration and/or consolidation plans with legacy retirements clearly identified in the enterprise transition plan. In addition, the agency shared services, shared information exchanges, and consolidated technology targets must be clearly identified, with use and results commitments clearly laid out in the enterprise transition plan. A plan exists to address reuse across agencies and external organizations. *Artifacts:* Target EA, Enterprise Transition Plan, EA Segment Report, Exhibit 53

[12] For the FY11 submission cycle (due Q3 FY09), the level 2 KPI is 50%.
[13] For the FY11 submission cycle (due Q3 FY09), the level 2 KPI is 50%.
[14] For the FY11 submission cycle (due Q3 FY09), the level 3 KPI is 60%.
[15] For the FY11 submission cycle (due Q3 FY09), the level 3 KPI is 60%.
[16] For the FY11 submission cycle (due Q3 FY09), the level 4 KPI is 70%.
[17] For the FY11 submission cycle (due Q3 FY09), the level 4 KPI is 70%.
[18] For the FY11 submission cycle (due Q3 FY09), the level 5 KPI is 80%.
[19] For the FY11 submission cycle (due Q3 FY09), the level 5 KPI is 80%.

6.1.2 Architectural Prioritization

- *Description:* The agency should prioritize the use of its architecture resources towards high priority needs (defined by statutory requirements, agency strategic plan, IRM strategic plan, etc). Agencies should have a structured process for determining high priority segments and demonstrate initiation of segment architecture development after final approval. The agency's prioritization process should consider input from OMB (via passback, assessment review, and periodic feedback) to minimize redundant segment architecture development of cross-agency initiatives and to maximize alignment with agency priorities. All segments will be submitted using the standard EA segment report template. Submission of a formal documented/approved segment prioritization process is recommended but not mandatory.
- *Mandate:* FTF Catalog

Level 1 Practices	*Activities:* The agency must have a process in place to prioritize and initiate the development of segment architectures. The prioritization process contains prioritization criteria including mission performance and cost efficiency opportunities. The agency's prioritization process must yield proposed high priority segments approved by the agency CIO. The agency registers its segment(s) with OMB. *Artifact*: Segment architecture prioritization process, identified high priority segment approved by CIO, EA Segment Report
Level 2 Practices	*Activities:* The agency's prioritization process has matured and contains quantitative prioritization criteria including each segment's financial spending data, existing performance plans, and performance assessments such as the Performance and Accountability Report. The agency registers with OMB at least one priority segment architecture core to the agency's statutory mission or aligned to an approved cross-agency initiative documented in the FTF catalog. Agency receives signoff from OMB. *Artifact:* Segment architecture prioritization process, identified high priority segment approved by CIO, EA Segment Report OMB approval of high priority segment
Level 3 Practices	*Activities:* The agency's prioritization process must include the identification of mission performance gaps tied to specific segments. The agency prioritization process should be factored into segment prioritization along with the performance and financial spending data available for segments. Additionally, the prioritization process should include consideration of IT security opportunities. The agency should engage OMB in dialogue about priorities and the prioritized segments should reflect OMB feedback and approval. The agency must show evidence of segment business owner(s) signoff. *Artifact:* Segment architecture prioritization process, identified high priority segment approved by CIO, EA Segment Report, OMB approval of

	high priority segment
Level 4 Practices	*Activities:* The agency's prioritization process must yield proposed high priority segments aligned with upstream mission performance improvement planning and approved by the agency's CIO. These high priority segments should also incorporate OMB input and signoff and be approved by the agency's Investment Review Board and respective business owner. The agency must demonstrate initiation of segment architecture activities within 3 months after approval. The prioritization process must include the identification and review of mission performance gaps, the prioritization of segments, and the understanding of how these priorities will impact the IT portfolio. The agency must show evidence of segment business owner(s) signoff. *Artifacts:* Segment architecture prioritization process, identified high priority segments approved by CIO and business owner(s), EA Segment Report, OMB approval of high priority segments, segment architecture initiation
Level 5 Practices	*Activities:* The agency's prioritization process must yield proposed high priority segments aligned with upstream cross-mission performance improvement planning and approved by the head of the agency (or designated chief management officer) and OMB. The agency must show evidence of segment business owner(s) signoff for all submitted segments. *Artifacts:* Segment architecture prioritization process, identified high priority segments approved by head of the agency, CIO and business owner(s), EA Segment Report, OMB approval of high priority segments, segment architecture initiation

6.1.3 Scope of Completion

- *Description:* This KPI is measured by the percentage of the agency enterprise IT portfolio funding amount covered by a completed segment architecture. Agency EA programs should leverage bureau-level EA efforts in the development and completion of segments in accordance with agency-level standards and governance, as well as integration of shared cross-agency segments. This KPI also measures the degree of usage of Federal Transition Framework initiatives in the development of segment architectures. Finally, this KPI addresses the accuracy and consistency of segment architecture codes reported on the agency Exhibit 53.
- *Mandate:* FTF Catalog; OMB Circular A-11 section 53

Level 1 Practices	*Activities:* All agency IT investments must have one and only one associated segment architecture identified on the agency Exhibit 53. These segment architectures should come from the list of agency segment architectures provided by the agency to OMB. These segments do not have to be fully built out. The agency addresses the usage status for all Federal Transition Framework initiatives across all segments. At least 80% of designated segment codes are consistent with segment

	architecture definitions and scope agreed upon with OMB and with primary FEA Reference Model mapping, where applicable. *Artifact:* Exhibit 53, EA Segment Report, and agency provided segment architecture codes
Level 2 Practices	*Activities:* At least 10%[20] of the DME funding amount of the entire agency Exhibit 53 must be aligned to completed segment architecture(s). The agency provides a full accounting of the usage status and rationale for non-use of Federal Transition Framework initiatives for all segments. At least 85% of designated segment codes are consistent with segment architecture definitions and scope agreed upon with OMB and with primary FEA Reference Model mapping, where applicable. *Artifact:* EA Segment Report and Exhibit 53
Level 3 Practices	*Activities:* At least 40%[21] of the DME funding amount of the entire agency Exhibit 53 must be aligned to completed segment architecture(s). The agency can demonstrate the planned usage of at least one Federal Transition Framework initiative within a segment reported to OMB. At least 90% of designated segment codes are consistent with segment architecture definitions and scope agreed upon with OMB and with primary FEA Reference Model mapping, where applicable. *Artifact:* EA Segment Report and Exhibit 53
Level 4 Practices	*Activities:* At least 70%[22] of the DME funding amount of the entire agency Exhibit 53 must be aligned to completed segment architecture(s). The agency can demonstrate the complete usage of at least one Federal Transition Framework initiative within a segment reported to OMB. At least 95% of designated segment codes are consistent with segment architecture definitions and scope agreed upon with OMB and with primary FEA Reference Model mapping, where applicable. *Artifacts:* EA Segment Report and Exhibit 53
Level 5 Practices	*Activities:* At least 90%[23] of the DME funding amount of the entire agency Exhibit 53 must be aligned to completed segment architecture(s). The agency can demonstrate the complete usage of at least one Federal Transition Framework initiative within more than one segment reported to OMB. All designated segment codes are consistent with segment architecture definitions and scope agreed upon with OMB and with primary FEA Reference Model mapping, where applicable. *Artifacts:* EA Segment Report and Exhibit 53

[20] For the FY11 submission cycle (due Q3 FY09), the level 2 KPI is 5%.
[21] For the FY11 submission cycle (due Q3 FY09), the level 3 KPI is 20%.
[22] For the FY11 submission cycle (due Q3 FY09), the level 4 KPI is 50%.
[23] For the FY11 submission cycle (due Q3 FY09), the level 5 KPI is 70%.

6.1.4 Internet Protocol Version 6 (IPv6)

- *Description*: The agency's EA (including enterprise transition plan) must incorporate Internet protocol version 6 (IPv6) into the agency's IT infrastructure segment architecture and IT investment portfolio
- *Mandate:* OMB Memorandum M-05-22

Level 1 Practices	*Activities*: The agency has performed a cost and risk impact analysis for migrating to IPv6. Agency has also completed a second inventory of IP-aware devices. *Artifacts*: IPv6 impact analysis document using guidance in Attachment B of OMB M-05-22; second IP-aware device inventory (Attachment A)
Level 2 Practices	*Activities*: The agency has met all of its IPv6 transition milestones, and is on schedule to complete transition per OMB M-05-22. *Artifacts:* IPv6 transition milestones (included in the enterprise transition plan) through completion date showing projected and actual completion dates, evidence of milestone completion (agency should determine the artifact(s) constituting evidence of completion for each milestone), documentation of successful execution of deployment test criteria (once transition is complete)
Level 3 Practices	*Activities*: The agency has incorporated IPv6 modernization activities into its IT infrastructure segment architecture. *Artifacts*: IT infrastructure segment architecture
Level 4 Practices	*Activities*: The agency has made concrete plans (e.g., stood up an IT investment with an Exhibit 300 business case, etc.) to deploy IPv6 enabled network services in its environment. *Artifacts*: IT infrastructure segment architecture, Exhibit 53, Exhibit 300s
Level 5 Practices	*Activities*: The agency has made concrete plans (e.g., stood up an IT investment with an Exhibit 300 business case, etc.) to deploy IPv6 enabled mission services and applications in its environment. *Artifacts*: IT infrastructure segment architecture, Exhibit 53, Exhibit 300s

6.2 USE CAPABILITY AREA

- *Description:* The agency has established the necessary management practices, processes, and policies needed for developing, maintaining and overseeing EA, and demonstrating the importance of EA awareness and the value of employing EA practices within the agency. The agency uses its EA to inform strategic planning, information resources management, IT management, and capital planning and investment control processes.

- *Outcomes:*
  - Establishes strategic objectives and programs the agency needs to meet citizens' needs.
  - Demonstrates the relationship between EA, strategic planning, and capital planning processes.
  - Provides the ability to make better management decisions, and as necessary, the ability to assess and re-assess the path forward.

6.2.1 Performance Improvement Integration

- *Description:* This KPI measures how effectively the agency has aligned its performance improvement plans and its enterprise transition plan, in terms of process and outcomes. This KPI also measures the consistency of agency reported PART data in Exhibit 300s with OMB's PARTWeb database.
- *Mandate:* OMB A-11, Exhibit 53, and Exhibit 300; OMB Circular A-130

Level 1 Practices	*Activities:* At least one major IT investment in the agency portfolio should be aligned to a program that undergoes periodic performance improvement evaluations. This specific IT investment must have an Exhibit 300 business case and must be on the agency's enterprise transition plan. Alignment is measured using IT investment/program alignment information reported in the Exhibit 300, Part I, Section A, question 14b. At least 60% of PART program name and program rating data reported in agency Exhibit 300s is consistent with corresponding data in OMB's PARTWeb database. *Artifact:* Enterprise Transition Plan, Exhibit 300s, program improvement assessment data[24]
Level 2 Practices	*Activities:* The agency must demonstrate alignment between approved/submitted segment architectures and at least one program that undergoes periodic performance improvement evaluations per segment. Alignment is measured through IT investment/program alignment information reported in the Exhibit 300, Part I, Section A, question 14b, compared to segment alignment reported in the agency Exhibit 53 or via equivalent agency processes for business services such as IT Infrastructure or Financial Management. At least 65% of PART program

[24] This report is collected as part of the PART process. OMB will correlate the PART program data with the EA data and the IT portfolio data

	name and program rating data reported in agency Exhibit 300s is consistent with corresponding data in OMB's PARTWeb database. *Artifact:* Enterprise Transition Plan, EA Segment Report, Exhibit 300s, program improvement assessment data
Level 3 Practices	*Activities*: At least 70%[25] of agency DME spending must be aligned to IT investments to remediate program performance gaps. At least 50% of major investments in the agency IT portfolio must be aligned to a program that undergoes periodic performance improvement evaluations. Alignment is measured through IT investment/program alignment information reported in the Exhibit 300, Part I, Section A, question 14b, compared to segment alignment reported in the agency Exhibit 53 or via equivalent agency processes for business services such as IT Infrastructure or Financial Management. At least 70% of PART program name and program rating data reported in agency Exhibit 300s is consistent with corresponding data in OMB's PARTWeb database. *Artifacts:* Enterprise Transition Plan, EA Segment Report, Exhibit 300s, program improvement assessment data
Level 4 Practices	*Activities:* At least 80%[26] of agency DME spending must be aligned to IT investments to remediate program performance gaps. At least 60% of major investments in the agency IT portfolio must be aligned to a program that undergoes periodic performance improvement evaluations. Alignment is measured through IT investment/program alignment information reported in the Exhibit 300, Part I, Section A, question 14b, compared to segment alignment reported in the agency Exhibit 53 or via equivalent agency processes for business services such as IT Infrastructure or Financial Management. At least 80% of PART program name and program rating data reported in agency Exhibit 300s is consistent with corresponding data in OMB's PARTWeb database. *Artifacts:* Enterprise Transition Plan, EA Segment Report, Exhibit 300s, program improvement assessment data
Level 5 Practices	*Activities:* At least 90%[27] of agency DME spending must be aligned to IT investments to remediate program performance gaps. At least 70% of major investments in the agency IT portfolio must be aligned to a program that undergoes periodic performance improvement evaluations. Alignment is measured through IT investment/program alignment information reported in the Exhibit 300, Part I, Section A, question 14b, compared to segment alignment reported in the agency Exhibit 53 or via equivalent agency processes for business services such as IT Infrastructure or Financial Management. At least 90% of PART program name and program rating data reported in agency Exhibit 300s is consistent with corresponding data in OMB's PARTWeb database.

[25] For the FY11 submission cycle (due Q4 FY09), the level 3 KPI is 50%.
[26] For the FY11 submission cycle (due Q4 FY09), the level 4 KPI is 60%.
[27] For the FY11 submission cycle (due Q4 FY09), the level 5 KPI is 70%.

	Artifacts: Enterprise Transition Plan, Exhibit 300s, EA Segment Report program improvement assessment data

6.2.2 CPIC Integration

- *Description:* This measures the alignment between the enterprise transition plan and the agency Exhibit 53 and portfolio of Exhibit 300s. It also measures the accuracy of agency classification of IT investments by investment type on the agency Exhibit 53.
- *Rationale:* Investment decisions should be made to achieve a more efficient and effective target state.
- *Mandate:* OMB A-11, Exhibit 53, and Exhibit 300

Level 1 Practices	*Activities:* All major IT investments in the agency Exhibit 53 must be represented on the agency enterprise transition plan. At least 40% of the IT investments in the agency Exhibit 53 have been mapped to the most appropriate investment type of the Exhibit 53 using definitions found in OMB Circular A-11, section 53. *Artifact:* Enterprise Transition Plan, Exhibit 53, and Exhibit 300s[28]
Level 2 Practices	*Activities:* All major IT investments and at least 50%[29] (in dollars) of non-major investments in the agency Exhibit 53 must be represented on the agency enterprise transition plan. At least 50% of the IT investments in the agency Exhibit 53 have been mapped to the most appropriate investment type of the Exhibit 53 using definitions found in OMB Circular A-11, section 53. *Artifact:* Enterprise Transition Plan, Exhibit 53, and Exhibit 300s
Level 3 Practices	*Activities:* All major IT investments and at least 50%[30] (in dollars) of non-major investments with DME spending in the agency Exhibit 53 must be represented on the agency enterprise transition plan. There must be at least 50%[31] agreement between milestones in the enterprise transition plan and milestones reported in Part II, Section C of the Exhibit 300 business cases for major IT investments. At least 70% of the IT investments in the agency Exhibit 53 have been mapped to the most appropriate investment type of the Exhibit 53 using definitions found in OMB Circular A-11, section 53. *Artifacts:* Enterprise Transition Plan, Exhibit 53, and Exhibit 300s
Level 4 Practices	*Activities:* All major IT investments, all non-major investments with DME spending, and at least 50%[32] (in dollars) of the remaining non-major

[28] This data is collected as part of the OMB Circular A-11 process. OMB will correlate the EA data with the IT portfolio data
[29] For the FY11 submission cycle (due Q4 FY09), the level 2 KPI is 30%.
[30] For the FY11 submission cycle (due Q4 FY09), the level 3 KPI is 30%.
[31] For the FY11 submission cycle (due Q4 FY09), the level 3 KPI is 30%.
[32] For the FY11 submission cycle (due Q4 FY09), the level 4 KPI is 30%.

	investments in the agency Exhibit 53 must be represented on the agency transition plan. There must be at least 90%[33] agreement between milestones in the enterprise transition plan and milestones reported in Part II, Section C of the Exhibit 300 business cases for major IT investments. At least 75% of the IT investments in the agency Exhibit 53 have been mapped to the most appropriate investment type of the Exhibit 53 using definitions found in OMB Circular A-11, section 53. *Artifacts:* Enterprise Transition Plan, Exhibit 53, and Exhibit 300s
Level 5 Practices	*Activities:* All major and non-major IT investments in the agency Exhibit 53 must be represented on the agency enterprise transition plan. There must be at least 90%[34] agreement between mission performance gaps and remediation reported in the enterprise transition plan and performance information reported in Part I, Section D of the Exhibit 300 business cases for major IT investments. At least 80% of the IT investments in the agency Exhibit 53 have been mapped to the most appropriate investment type of the Exhibit 53 using definitions found in OMB Circular A-11, section 53. *Artifacts:* Enterprise Transition Plan, Exhibit 53, and Exhibit 300s

6.2.3 FEA Reference Model and Exhibit 53 Data Quality

- *Description:* This KPI measures the completeness and accuracy of the primary FEA reference model mapping of the IT investments in the agency IT portfolio. This KPI also measures the completeness and accuracy of the "part" specification of the IT investments in the agency IT portfolio.
- *Rationale:* The agency is required to designate a primary FEA reference model mapping for each IT investment in the agency Exhibit 53. This mapping allows OMB to identify opportunities for cross-agency collaboration and reuse. Inaccurate mappings inhibit the ability of OMB to perform quality analysis. The agency is also required to designate which of the six "parts" of the Exhibit 53 an IT investment belongs to. IT investments should be placed in the most appropriate part using definitions found in OMB Circular A-11, section 53.
- *Mandate:* OMB Circular A-11, section 53

Level 1 Practices	*Activities:* The agency must map 100% of the IT investments in its IT portfolio to a BRM sub-function or SRM service component. At least 75% of the IT investments in the agency Exhibit 53 have been mapped to the most appropriate "part" of the Exhibit 53 using definitions found in OMB Circular A-11, section 53. *Artifact*: Exhibit 53
Level 2 Practices	*Activities:* The agency must map 100% of the IT investment in its IT portfolio to a BRM sub-function or SRM service component. At least 60%

[33] For the FY11 submission cycle (due Q4 FY09), the level 4 KPI is 70%.
[34] For the FY11 submission cycle (due Q4 FY09), the level 5 KPI is 70%.

	of the IT investments must be accurately mapped given the title and description of the IT investment and the description of the mapped BRM sub-function or SRM service component. At least 80% of the IT investments in the agency Exhibit 53 have been mapped to the most appropriate "part" of the Exhibit 53 using definitions found in OMB Circular A-11, section 53. *Artifact:* Exhibit 53
Level 3 Practices	*Activities:* The agency must map 100% of the IT investment in its IT portfolio to a BRM sub-function or SRM service component. At least 70% of the IT investments must be accurately mapped given the title and description of the IT investment and the description of the mapped BRM sub-function or SRM service component. At least 85% of the IT investments in the agency Exhibit 53 have been mapped to the most appropriate "part" of the Exhibit 53 using definitions found in OMB Circular A-11, section 53. *Artifact:* Exhibit 53
Level 4 Practices	*Activities:* The agency must map 100% of the IT investment in its IT portfolio to a BRM sub-function or SRM service component. At least 80% of the IT investments must be accurately mapped given the title and description of the IT investment and the description of the mapped BRM sub-function or SRM service component. At least 90% of the IT investments in the agency Exhibit 53 have been mapped to the most appropriate "part" of the Exhibit 53 using definitions found in OMB Circular A-11, section 53. *Artifacts:* Exhibit 53
Level 5 Practices	*Activities:* The agency must map 100% of the IT investment in its IT portfolio to a BRM sub-function or SRM service component. At least 90% of the IT investments must be accurately mapped given the title and description of the IT investment and the description of the mapped BRM sub-function or SRM service component. At least 95% of the IT investments in the agency Exhibit 53 have been mapped to the most appropriate "part" of the Exhibit 53 using definitions found in OMB Circular A-11, section 53. *Artifacts:* Exhibit 53

6.2.4 Collaboration and Reuse

- *Description:* This measures agency progress in migrating to their target applications and shared services portfolio, and creating a services environment within the agency. Measures agency progress in sharing information, with a focus on (re)use. Measures agency results with SmartBUY and similar arrangements in consolidating requirements in the procurement process. Measures agency progress in creating a services environment in order to either produce or consume common data, infrastructure and component services. This KPI also measures the accuracy of investment category mappings reported in the agency Exhibit 53, as well as the

accuracy and consistency of SRM service component and TRM service mappings in the agency Exhibit 300s.

- *Rationale:* Effective enterprise architectures should identify opportunities for sharing, reuse, consolidation and standardization resulting in improved financial and mission performance for the agency. Higher levels of IT spending are justified when an agency is achieving superior levels of mission performance through these practices.
- *Mandate:* OMB Circular A-130

Level 1 Practices	*Activities:* The agency must show evidence of implementation of required interoperability standards documented in the FTF catalog for cross agency initiatives. This evidence comes in the form of specifications in the TRM table in Part I, Section F of the Exhibit 300s for IT investments within scope of the various cross-agency initiatives. At least 80% of the IT investments in the agency Exhibit 53 have been mapped to the most appropriate investment category of the Exhibit 53 using definitions found in OMB Circular A-11, section 53. At least 80% of investments reported in agency Exhibit 300s include valid UPI codes for reused SRM service components and report accurate SRM service component funding percentages. At least 80% of SRM service components identified in Table 4 of the agency Exhibit 300s are mapped to an appropriate TRM service standard and include detailed and accurate service specifications. *Artifact:* EA Segment Report, Exhibit 53, and Exhibit 300s
Level 2 Practices	*Activities:* The agency must show evidence of compliance with E-Gov initiatives and associated OMB budget pass back through avoidance of DME funding for legacy systems except to migrate to shared solutions. At least 85% of the IT investments in the agency Exhibit 53 have been mapped to the most appropriate investment category of the Exhibit 53 using definitions found in OMB Circular A-11, section 53. At least 85% of investments reported in agency Exhibit 300s include valid UPI codes for reused SRM service components and report accurate SRM service component funding percentages. At least 85% of SRM service components identified in Table 4 of the agency Exhibit 300s are mapped to an appropriate TRM service standard and include detailed and accurate service specifications. *Artifact:* EA Segment Report, Exhibit 53, and Exhibit 300s
Level 3 Practices	*Activities:* The agency must show, for at least one of the approved/submitted segment architectures, the reuse of SRM service components, infrastructure, information, or other services within scope of the segment architecture or an increase in overall service sharing at least within the segment. At least 90% of the IT investments in the agency Exhibit 53 have been mapped to the most appropriate investment category of the Exhibit 53 using definitions found in OMB Circular A-11, section 53. At least 90% of investments reported in agency Exhibit 300s

	include valid UPI codes for reused SRM service components and report accurate SRM service component funding percentages. At least 90% of SRM service components identified in Table 4 of the agency Exhibit 300s are mapped to an appropriate TRM service standard and include detailed and accurate service specifications. *Artifact:* EA Segment Report, Exhibit 53, and Exhibit 300s
Level 4 Practices	*Activities*: The agency must show the reuse of SRM service components, infrastructure, information, or other services across the agency architecture or an increase in overall service sharing at least within the agency. At least 95% of the IT investments in the agency Exhibit 53 have been mapped to the most appropriate investment category of the Exhibit 53 using definitions found in OMB Circular A-11, section 53. *Artifact:* EA Segment Report, Exhibit 53, and Exhibit 300s
Level 5 Practices	*Activities:* The agency must show the reuse of SRM service components, infrastructure, information, or other services or an increase in overall service sharing with other agencies. In addition, the agency exhibit 300s must show use of consolidated buying power through reuse of procurement/contract vehicles for acquiring required services. This data is obtained from Part I, Section C of the exhibit 300s. All IT investments in the agency Exhibit 53 have been mapped to the most appropriate investment category of the Exhibit 53 using definitions found in OMB Circular A-11, section 53. All investments reported in agency Exhibit 300s include valid UPI codes for reused SRM service components and report accurate SRM service component funding percentages. All SRM service components identified in Table 4 of the agency Exhibit 300s are mapped to an appropriate TRM service standard and include detailed and accurate service specifications. *Artifact:* EA Segment Report, Exhibit 53, and Exhibit 300s

6.2.5 EA Governance, Program Management, Change Management, and Deployment

- *Description:* The agency must govern and manage the implementation and use of EA policies and processes. This includes the appointment of a chief architect (CA), allocation of resources and the sponsorship of EA at the executive level. The agency's EA program management office governs the development, implementation and maintenance of the EA. The agency should have the ability to effectively manage changes to EA artifacts, including documents and any EA repositories. The agency should have the ability to deploy EA content out to their user community, including the deployment of a repository, communications, and training. The agencies should provide the required artifacts listed in each of the levels or justification for not providing the artifacts.
- *Rationale:* Effective governance and program management assures agency compliance with EA processes and procedures and facilitates executive support. Change and configuration management is essential to ensure EA work products and

processes remain current since EA serves as a tool for strategic planning and IT investing. EA products and processes must be clearly understood by, and available to, business stakeholders and IT stakeholders.

- *Mandate:* OMB A-11, section 300, OMB Circular A-130

Level 1 Practices	*Activities:* Agency has developed a vision and strategy for EA. The agency has begun to identify EA tasks, and resource requirements. Agency has appointed a chief architect, has senior-level sponsorship of its EA program, and has funded an EA program. The agency has developed an EA policy to ensure agency-wide commitment to EA. Policy clearly assigns responsibility to develop, implement and maintain the EA. *Artifact:* EA Program Plan, EA Policy
Level 2 Practices	*Activities:* Agency has established an EA governance committee or other group for directing, overseeing, or approving EA activities. Internal and external stakeholders are identified based on their involvement in EA related activities and needed information. The agency has selected an EA framework. The agency has deployed an EA tool/repository to manage EA artifacts and models. The tool/repository supports the agency's EA framework. Useable EA content from the tool/repository is communicated through various means and available to EA users. EA changes and updates from components/bureaus are reflected in the department EA repository. *Artifact:* EA Governance Committee Charter, EA Change management Plan
Level 3 Practices	*Activities:* The EA governance committee or another group meets regularly and makes decisions related to directing, overseeing, and approving EA activities within the agency. The committee follows a formal process for holding, conducting and recording meetings. The agency has established an EA baseline serving as the basis for further development. The EA baseline and other EA artifacts are updated, versioned and archived using change control procedures. Useable EA content from the tool/repository is communicated through various means and available to EA users and the agency's CIO community and users are informed of changes, as necessary. EA changes and updates from components/bureaus are reflected in the department EA repository. *Artifacts:* EA Governance Plan, EA governance committee meeting minutes, EA change management reports
Level 4 Practices	*Activities:* The EA governance committee manages and monitors the agency's EA using the enterprise transition plan and IT investment project plans. The EA governance committee identifies issues with achieving the target architecture and develops plans to address them. The agency's CIO has approved the EA governance plan in writing. The agency's architecture is communicated to users throughout the agency (outside of CIO/IT community). The agency can demonstrate

	comprehensive awareness and understanding of EA concepts and processes throughout the agency (e.g., through training / communications / outreach programs, etc.). Useable EA content from the tool/repository is communicated through various means and available to EA users throughout the agency (including business users) and users are informed of changes, as necessary. EA changes and updates from components/bureaus are reflected in the department EA repository. *Artifacts:* EA Governance Plan, EA Governance committee meeting minutes, governance plan approval, EA communications plan and training plan and materials
Level 5 Practices	*Activities:* The EA governance committee ensures EA compliance throughout the agency. If non-compliance is identified, the committee is responsible for developing a plan to resolve the issue. Alignment to the EA standards is a common practice throughout the agency. The compliance process is reviewed and updated when deficiencies or enhancements to the process are identified. The agency's head, or a designated operations executive has approved the EA governance plan in writing. The EA repository and its interfaces are used by participants or support staff for the CPIC, SDLC, and strategic planning processes. Current EA information is readily available to participants in these processes, as well as the broader agency user community. Users are informed of changes, as necessary. *Artifacts:* EA Governance Pan, EA governance committee meeting minutes, governance plan approval, EA communications plan and training plan and materials

6.3 RESULTS CAPABILITY AREA

- *Description:* The agency is measuring the effectiveness and value of its EA activities by assigning performance measurements to its EA and related processes, and reporting on actual results from the enterprise to demonstrate EA success.

- *Outcomes:*
  - Demonstrates the relationship of IT investments to the agency's ability to achieve mission and program performance objectives.
  - Captures how well the agency or specific processes within an agency are serving citizens.
  - Identifies the relationships between agency inputs and outcomes.
  - Demonstrates agency progress towards goals, closing performance gaps, and achieving critical results.

6.3.1 Mission Performance

- *Description*: This KPI measures the extent agencies are using EA and IT to drive program performance improvements.
- *Mandate:* OMB Circular A-130

Level 1 Practices	*Activities*: The agency is not able to demonstrate EA activities have resulted in program performance improvements. Specifically, the average major IT investment in the agency's portfolio is either a) not aligned to a mission program, or b) is supporting mission programs not demonstrating results. *Artifact*: Mission program performance data, Exhibit 300s
Level 2 Practices	*Activities*: The agency IT investment portfolio shows strong alignment to mission programs, but the supported mission programs are, on average, are not demonstrating results or are ineffective. *Artifact:* Mission program performance data, Exhibit 300s
Level 3 Practices	*Activities*: The agency IT investment portfolio shows strong alignment to mission programs and the supported mission programs are, on average, providing adequate results. *Artifacts*: Mission program performance data, Exhibit 300s
Level 4 Practices	*Activities*: The agency IT investment portfolio shows strong alignment to mission programs and the supported mission programs are, on average, providing moderately effective results. *Artifacts*: Mission program performance data, Exhibit 300s
Level 5 Practices	*Activities*: The agency IT investment portfolio shows strong alignment to mission programs and the supported mission programs are, on average, providing effective results.

	Artifacts: Mission program performance data, Exhibit 300s

6.3.2 Cost Savings and Cost Avoidance

- *Description*: This KPI measures the extent agencies are using EA and IT to control costs. Cost savings and cost avoidance are best reflected in the steady state spend, which should go down over time as legacy systems are consolidated and retired. Evidence of cost savings and cost avoidance may also be identified in earned value financial analyses. Agencies should submit evidence of cost savings using the reporting format indicated in OMB M-06-22. This KPI also measures the accuracy of mappings of previous year UPI codes to investments in the agency Exhibit 53.
- *Mandate:* Clinger-Cohen Act, OMB M-06-22

Level 1 Practices	*Activities*: The agency is not able to demonstrate the EA program has resulted in cost savings or cost avoidance. Every investment in the agency Exhibit 53 includes a prior year UPI code. At least 80% of the IT investments in the agency Exhibit 53 have been mapped to an accurate UPI code for the previous year using definitions found in OMB Circular A-11, section 53. *Artifact*: EA Segment Report, program improvement assessment data, Exhibit 53 and Exhibit 300s
Level 2 Practices	*Activities*: The agency must have a process and report on cost savings and avoidance. Every investment in the agency Exhibit 53 includes a prior year UPI code. At least 85% of the IT investments in the agency Exhibit 53 have been mapped to an accurate UPI code for the previous year using definitions found in OMB Circular A-11, section 53. *Artifact:* EA Segment Report, program improvement assessment data, Exhibit 53 and Exhibit 300s
Level 3 Practices	*Activities*: The agency must show year-over-year decrease in IT steady state spending of at least 1% or the IT steady state spending should be at least 1% below the federal government average adjusted for the size of the overall agency budget. The year-over-year calculation can be adjusted for inflation and normalized for new capabilities or solutions entering into their first year of steady state operation. The savings do not need to be harvested, they can be redeployed by the agency per normal planning, EA, CPIC, budget formulation and execution processes. Every investment in the agency Exhibit 53 includes a prior year UPI code. At least 90% of the IT investments in the agency Exhibit 53 have been mapped to an accurate UPI code for the previous year using definitions found in OMB Circular A-11, section 53. *Artifacts*: EA Segment Report, program improvement assessment data, Exhibit 53 and Exhibit 300s
Level 4 Practices	*Activities*: The agency must show year-over-year decrease in IT steady state spending of at least 2.5% or the IT steady state spending should be at least 2.5% below the federal government average adjusted for the size

	of the overall agency budget. The year-over-year calculation can be adjusted for inflation and normalized for new capabilities or solutions entering into their first year of steady state operation. The savings do not need to be harvested, they can be redeployed by the agency per normal planning, EA, CPIC, budget formulation and execution processes. Every investment in the agency Exhibit 53 includes a prior year UPI code. At least 95% of the IT investments in the agency Exhibit 53 have been mapped to an accurate UPI code for the previous year using definitions found in OMB Circular A-11, section 53. *Artifacts*: EA Segment Report, program improvement assessment data, Exhibit 53 and Exhibit 300s
Level 5 Practices	*Activities*: The agency must show year-over-year decrease in IT steady state spending of at least 5% or the IT steady state spending should be at least 5% below the federal government average adjusted for the size of the overall agency budget. The year-over-year calculation can be adjusted for inflation and normalized for new capabilities or solutions entering into their first year of steady state operation. The savings do not need to be harvested, they can be redeployed by the agency per normal planning, EA, CPIC, budget formulation and execution processes. Every investment in the agency Exhibit 53 includes a prior year UPI code. All IT investments in the agency Exhibit 53 have been mapped to an accurate UPI code for the previous year using definitions found in OMB Circular A-11, section 53. *Artifacts:* EA Segment Report, program improvement assessment data, Exhibit 53 and Exhibit 300s

6.3.3 IT Infrastructure Portfolio Quality

- *Description*: This KPI assesses agency progress toward developing a high-quality portfolio of infrastructure investments in terms of end user performance, security, reliability, availability, extensibility, and efficiency of operations and maintenance.
- *Mandate: TBD*

Level 1 Practices	*Activities*: The agency's IT infrastructure portfolio is outside the committed service performance levels or exceeds cost levels by a factor of 10% or more. *Artifacts*: IT infrastructure EA Segment Report, Exhibit 53[35], IT Infrastructure Line of Business (ITI LOB) guidance and agency 5 year plans
Level 2 Practices	*Activities*: The agency's IT infrastructure portfolio is outside the committed service performance levels or exceeds cost levels by a factor of less than 10%.

[35] This data is collected as part of the OMB Circular A-11 process. OMB will correlate the EA data with the IT investment portfolio data.

	Artifacts: IT infrastructure EA Segment Report, Exhibit 53[36], IT Infrastructure Line of Business guidance and agency 5 year plans
Level 3 Practices	*Activities*: The agency's IT infrastructure portfolio is outside the committed service performance levels or exceeds cost levels by a factor of less than 5%. *Artifacts*: IT infrastructure EA Segment Report, Exhibit 53[37], IT Infrastructure Line of Business guidance and agency 5 year plans
Level 4 Practices	*Activities*: The agency's IT infrastructure portfolio exceeds the committed service performance levels and is inside cost levels. Agency has defined specific IT infrastructure portfolio quality gaps, has specific commitments in its target enterprise architecture and enterprise transition plan to improve, and these commitments are reflected in its Exhibit 53 and the performance information and comparison of plan vs. actual performance tables of the 300s. *Artifacts*: IT infrastructure EA Segment Report, Exhibit 53[38], IT Infrastructure Line of Business guidance and agency 5 year plans, Target Enterprise Architecture, Enterprise Transition Plan
Level 5 Practices	*Activities*: Agency can demonstrate increasing year-over-year results in closing the IT quality gaps identified above. *Artifacts:* IT infrastructure EA Segment Report, Exhibit 53[39], IT Infrastructure Line of Business (IOI-LOB) guidance and agency 5 year plans, Target Enterprise Architecture, Enterprise Transition Plan

6.3.4 Measuring EA Program Value

- *Description:* EA value measurement is a continuous, customer-focused process integrated with each phase of the performance improvement lifecycle. The principal goals of EA value measurement are to document EA value to agency decision-makers and to identify opportunities to improve EA products and services. EA value measurement tracks architecture development and use, and monitors the impact of EA products and services on IT investment decisions, collaboration and reuse, standards compliance, stakeholder satisfaction, and other measurement areas and indicators. For detailed guidance concerning the establishment of an agency EA program value measurement initiative, please refer to the FEA Practice Guidance at http://www.whitehouse.gov/omb/egov/documents/FEA_Practice_Guidance_Nov_2007.pdf.
- *Rationale:* Agency EA programs should deliver results-oriented products and services to inform business decisions and increase the efficiency and effectiveness of IT investments, program management and agency operations.
- *Mandate:* OMB A-130

[36] This data is collected as part of the OMB Circular A-11 process. OMB will correlate the EA data with the IT portfolio data.
[37] Ibid.
[38] Ibid.
[39] Ibid.

Level 1 Practices	*Activities:* The agency has identified stakeholders and goals for EA value measurement. *Artifact:* Agency EA Value Measurement Plan
Level 2 Practices	*Activities:* The agency must meet the criteria for the previous level. In addition, the agency has identified EA value indicators and data sources, and has created a survey/feedback form to be used for the value measurement initiative. *Artifacts:* Agency EA Value Measurement Plan
Level 3 Practices	*Activities:* The agency must meet the criteria for all previous levels. In addition, the agency has conducted an EA value measurement initiative. *Artifacts:* Agency EA Value Measurement Plan
Level 4 Practices	*Activities:* The agency must meet the criteria for all previous levels. In addition, the agency has conducted an EA value measurement initiative and has generated a report summarizing the findings of the initiative. *Artifacts:* Agency EA Value Measurement Plan, Agency EA Value Measurement Summary Report
Level 5 Practices	*Activities:* The agency must meet the criteria for all previous levels. In addition, the agency is able to demonstrate it has updated the EA program plan based on feedback documented in the EA value measurement summary report. *Artifacts:* Agency EA Value Measurement Plan, Agency EA Value Measurement Summary Report, EA Program Plan

Appendix A: Artifact Descriptions

This table provides a list of the descriptions of the type of artifacts typically a part of an agency's EA planning efforts. These artifacts can be used to demonstrate specific maturity levels within the EA assessment framework. OMB does not require agencies to submit all of these artifacts. Agencies should prepare these documents in conjunction with their EA planning and implementation efforts and should be prepared to submit these documents in the event they are requested by OMB.

Note: The description of the artifacts is not intended to be exhaustive or prescriptive. OMB is interested in the content of the artifacts and does not prescribe the format, as long as the artifact can be reviewed by OMB without requiring the use of proprietary software products (such as EA modeling tools). Moreover, agencies may well decide to develop additional artifacts or elaborate upon them further than described here.

Artifact Name	Artifact Description
Annual Performance Plan	The agency annual performance plan as required by the Government Performance and Results Act (GPRA) (1993), section (4)(B).
Architecture Review Board Meeting Minutes	Minutes from the body responsible for reviewing IT investments as evidence to demonstrate the EA is ensuring conformance of proposed IT investments with agency EA standards and guidelines. *Note:* The body does not have to be called the "Architecture Review Board".
Business Architecture	The Business Architecture is a functional perspective of the overall agency EA providing the information about the agency's baseline and target architectures. Examples of elements include: • Agency business processes, aligned to business sub-functions within the FEA BRM; • Internal and external participants (roles) within these business processes; • Linkage between agency business processes and agency-specific performance measurement indicators; • Linkage between business processes to agency service components; • Agency programs, linked to business processes; and • Offices and facilities.
Data Architecture	The Data Architecture is a perspective of the overall agency EA providing the information about the agency's baseline and target data architectures. Examples of elements include: • Agency data model describing the key data elements of the agency's business domain, and the relationships between them. The data model may include data dictionaries, thesauri, taxonomies, and topic maps; • An inventory of agency data stores, including the specific

Artifact Name	Artifact Description
	data elements it manages; • A description of any data and data exchange standards existing within the agency, including data exchange packages and messaging formats; • Linkage between the agency data model and the service components accessing the data elements; • Documented data management policies and procedures for data/information quality; and • OMB M-05-04 compliant agency websites and search engines; and/or metadata registries, repositories, and/or clearinghouse.
EA Change Management Plan	An EA Change Management Plan describes the process of how changes to the agency's EA artifacts and repository will be managed. An EA CM plan may include rules for how changes are to be approved, how artifacts are to be versioned, and any relevant technical standards for implementing change management. *Note:* if the agency already possesses an overall CM plan the EA initiative conforms to, there is no need to create a specialized version for the EA initiative.
EA Change Management Reports	To demonstrate effective EA change management processes, agencies may submit one or more examples of EA change management reports from the agency. These might include change logs for EA artifacts, minutes from an agency committee responsible for overseeing EA change management, or reports from any change management tool used to manage changes to EA content.
EA Communications and Training Plans and Materials	To demonstrate effective EA communications and training processes, agencies may submit one or more examples of materials. Examples might include training plans, course books, presentations, newsletters, workshop materials or other training content.
EA Framework Document	An EA Framework Document (sometimes called a meta-model) fundamentally describes three aspects of an enterprise architecture: • The types (or classes) of information the EA will concern itself with; • The acceptable relationships between these types; and • Views of the architecture showing selected elements of the EA in a meaningful context Agencies may elect to wholly adopt an existing EA framework (such as Zachmann or DoDAF, for example), extend an existing framework, or create an entirely new framework as the needs of the agency dictate.
EA Governance Committee Meeting	To demonstrate effective EA governance processes, agencies may submit one or more examples of meeting minutes from the

Artifact Name	Artifact Description
Minutes	agency's EA governance body.
EA Governance Plan	A document describing how the development and evolution of an agency's EA is to be governed. Typical elements may include: • Description of EA governing bodies or individual roles within the agency; • Responsibilities for each governing body or individual role; • A description of the governance lifecycle, i.e. the process by which governance decisions are made; and • Relationship between the EA governance process and those for related IT governance bodies, e.g. Capital Planning, IT Strategy, or others.
EA Governance Plan Approval	A document signed by the appropriate official (CIO or Department Head, depending on maturity level) indicating formal approval of the agency EA Governance Plan.
EA Policy	A document expressing agency commitment to develop and utilize an enterprise architecture and assigning responsibility for EA development and management to specific roles and groups within the agency.
EA Program Plan	A document describing the goals and objectives of the EA program and defining the scope of the initiative at least at a high level. It may identify key stakeholders of the EA program, the relationship of the EA to other agency initiatives and performance objectives for the EA. It is intended to be a non-technical document validated by the agency business managers, not just IT personnel.
EA Program Results Analysis	A document clearly demonstrating the improvements to agency IT investment performance attributable to the EA program. It explains how the EA program activities resulted in cost savings or cost avoidance for the agency. This artifact should be created in conformance to OMB Memorandum 06-22.
EA Repository	An EA Repository is a mechanism for storing all of the relevant content within the agency's EA in a readily retrievable form. The implementation of a repository may be as simple as a common shared directory with agency EA artifacts, or it may include databases, web portals or EA-specific modeling tools and repositories.
EA Segment Report	Report submitted to OMB by which agencies document specific reporting requirements associated with the maturity level of the segment. A report is submitted quarterly per agency segment.
EA Value Measurement Plan	A step-by-step process to define EA value measurement areas, identify measurement sources, and monitor and track value measures during each phase of the Performance Improvement Lifecycle
EA Value Measurement Summary Report	A document showing the outcomes of an agency's EA Value Measurement process.

Artifact Name	Artifact Description
IP Device Inventory	A document listing and describing all of the IP-aware hardware and software in an agency's network core (aka "backbone"). Agencies were required to complete this inventory (and submit it to OMB) by November 15, 2005, per OMB Memorandum M-05-22. The Memorandum provides a template for documenting the inventory.
IPv6 Impact Analysis	A document describing the cost and risk impact (on the agency) for the adoption of IPv6 into its network core. This impact analysis includes a list of all risks, with the following information for each identified risk: • Date identified • Area of Risk • Description • Probability of Occurrence • Strategy for Mitigation • Current Status Agencies were encouraged to use OMB Circular A-11, Exhibit 300 – Section I.F (Risk Inventory and Assessment) from 2005 as a guide for the completion of the risk analysis. Additionally, agencies were required to provide a cost estimate for the IPv6 implementation. Agencies were required to complete this cost and risk impact analysis (and submit it to OMB) by June 30, 2006, per OMB Memorandum M-05-22.
IPv6 Transition Milestones	The specific activities (e.g. planning, acquisition, implementation, testing) involved with IPv6 implementation. Each milestone has a planned completion (target) date. These milestones are included in the agency IPv6 Transition Plan and the Enterprise transition plan.
IPv6 Transition Plan	A document describing an agency's plan for the adoption of IPv6 into its network core. This plan includes, but is not limited to, a detailed project plan (with milestones and target dates) for the IPv6 effort. Agencies were required to complete a first version of this plan (and submit it to OMB) by February 28, 2006, per OMB Memorandum M-05-22.
IT Investment Review Board Minutes	Minutes from the body responsible for selecting and prioritizing IT investments used as evidence to demonstrate a mature CPIC integration process with EA. *Note:* the body does not have to be called the "IT Investment Review Board".
IT Strategic Plan	The agency Information Resource Management Strategic Plan, as required by 44 U.S.C 3506 (b) (2).
Performance Architecture	The Performance Architecture is a perspective of the overall agency EA providing the information about the agency's baseline and target architectures. Examples of elements include:

Artifact Name	Artifact Description
	• Agency strategic goals and objectives (as per the agency's Strategic Plan and IRM Plan) and linkage between performance indicators and business processes; • Agency-specific performance measurement indicators, aligned to the generic measurement indicators described in the FEA PRM; and • Linkage between the agency's strategic goals and investments.
SDLC Guide	A System Development Life Cycle (SDLC) guide describes the agency's approved policies and methodology for software development projects. Subjects covered by an SDLC guide may include relevant industry or government standards, approved software development tools and languages, policies on reuse of existing components, and a methodology or framework for software development.
Segment Architecture	Provides detailed results-oriented architecture and a transition plan for a portion or segment of the enterprise. Segments are individual building blocks in the enterprise transition plan describing core mission areas, and common or shared business services and application services. Segment architecture comprises a series of work products describing baseline architecture, target architecture and a transition plan. Work products document segment-level change drivers, describe baseline and target performance, business, data, services and technology architecture, and provide a roadmap to enhance business operations and achieve measurable performance improvements. The FEA Practice Guidance provides further information regarding the development of segment architecture and is available at: www.egov.gov.
Segment Architecture Authorization	A document signed by the relevant business owner indicating formal authorization and use of the segment architecture to drive the future direction of the business. This document should remain current and reviewed annually (signature by business owner should be within 3 months of EA submission).
Service Component Architecture	The Service Component Architecture is a perspective of the overall agency EA providing the information about the agency's baseline and target architectures. Examples of elements include: • Agency service components, aligned to the FEA SRM; • Component interfaces; • Linkage between service components and technology infrastructure, products and standards; • Linkage between applications and the agency business processes they automate; • Linkage between service components and the data

Artifact Name	Artifact Description
	objects accessed by these components; and • Linkage between service components and facilities where they are hosted
Target EA	• It is the high level master plan for the agency's optimal state as defined by the business, data, service, technology and associated performance measures. Although it is high level, the target architecture translate the business strategic plan into architecture planning which is vital to the overall enterprise IT direction—but is not the complete solution architecture design blueprint.
Technology Architecture	The Technology Architecture is a capabilities perspective of the overall agency EA providing the information about the agency's baseline and target architectures. Examples of elements include: • Agency technical reference model documenting technology products in use, aligned to the FEA TRM; • Agency standards profile documenting applicable agency technology standards, aligned to the FEA TRM; and • Linkage between technology products and standards to service components. • High level solution architecture diagram showing the target technology architecture including all technologies and technical service components that fulfill the target agency business and performance architecture objectives
Enterprise Transition Plan	The enterprise transition plan is a critical component of an effective EA practice. It describes the overall plan for an organization to achieve its target EA within a specified timeframe. It clearly links proposed agency investments to the target architecture. Also, the enterprise transition plan includes a sequencing plan to help define the logical dependencies between transition activities (programs and projects) and helps to define the relative priority of these activities (for investment purposes). Section 4 of the FEA Practice Guidance (available at: www.egov.gov) provides further guidance regarding the development and components of a transition plan.
Enterprise Transition Plan Approval	A document signed by the appropriate official (CIO or Department Head, depending on maturity level) indicating formal approval of the enterprise transition plan.

Appendix B: Strategy for Measuring Data Quality

Each year, OMB collects a significant amount of IT portfolio data from executive agencies. OMB officials use this information to guide the development of an efficient and effective IT investment portfolio as a part of the President's budget request to Congress. Other desired outcomes include:

- Improved mission performance, including increased earned value, more consistent strategic plan achievement, higher PART scores and increased ROI.
- Increased adoption of E-Government initiatives (and other cross-agency initiatives). This includes deployment of more citizen-centric services, greater leverage of shared solutions / services, improved interoperability and performance, and increased compliance with policy and law.
- Transparent evolving and sharing of best practices to improve the security, agility, resiliency, scalability, usability, and manageability of Federal Government IT.

In a data-driven environment, the quality of the data determines whether the right decisions are made; poor quality data leads to inadequate decisions. To make the right decisions, OMB is dependent upon agencies to provide high-quality data submissions. Quality encompasses both the utility of the information (i.e., the usefulness of the information to its intended users), the objectivity of that data (i.e., whether the data are presented in an accurate, clear, complete, and unbiased manner and the accuracy, reliability, and bias in the underlying data source).

This data quality effort can be viewed within the larger context of OMB's focus on information quality for both information disseminated to the public and for information used internally to make important investment decisions. Furthermore, this effort embraces the principles upon which the OMB's Government-wide Information Quality Guidelines[40] are based. Specifically, it recognizes high quality comes at a cost and agencies should weigh the costs and benefits of higher information quality. The principle of balancing the investment in quality commensurate with the use is generally applicable to all data the federal government generates.

Within OMB, the Office of E-Government and Information Technology considers a variety of different data sources and inputs to help OMB decision makers determine the most high-value and high-impact IT projects to invest in a constrained budgetary environment. These data sources/inputs include:

- GAO and IG reports describing policy or management issues with a particular IT program.
- Strategic planning documents providing a high level roadmap of goals, objectives, performance measures, policies, and initiatives designed to guide agencies in accomplishing their statutory missions and delivering high quality services to citizens.

[40] 67 FR 8452-8460.

- Enterprise Architecture (EA) submissions and quarterly EA milestone reports.
- IT investment portfolio data reported by agencies to OMB under the provisions of OMB Circular A-11, sections 53 and 300.
- Performance indicators such as citizen satisfaction scores, PART scores, PAR results, and cost / schedule performance (e.g., EVM).
- E-Gov implementation plans/reporting.
- Agency FISMA reporting.

One of the roles of the OMB Enterprise Architecture Assessment Framework (EAAF) Version 3.0 is to ensure high quality agency information technology portfolio data submissions, especially pertaining to data collected via the OMB Circular A-11 processes (e.g., Exhibits 53 and 300). This appendix describes OMB's strategy for using the KPIs defined within the EAAF Version 3.0 to enforce high standards of data quality for agency EA and IT investment portfolio submissions, thereby improving the quality of downstream analytics performed on these data sets.

Data Quality Focus Areas

The EAAF Version 3.0 KPIs are focused on improving data quality in several particular areas. These areas have been habitual problem areas from a data quality standpoint for several years now. These areas include:

- Exhibit 53 Primary FEA Reference Model mappings
- Exhibit 53 segment architecture mappings
- Exhibit 53 Part organization
- Exhibit 53 type of investment
- Exhibit 53 UPI year-over-year mappings
- Exhibit 53 Investment category
- Exhibit 300 PART program data (Part I, Section A, Item 14)
- Exhibit 300 SRM table (Part I, Section F, Item 4)
- Exhibit 300 TRM table (Part I, Section F, Item 5)

Each section below discusses the strategy implemented by this version of the EAAF to use the EAAF as a tool to help OMB improve data quality for each respective area.

Exhibit 53 Primary FEA Reference Model Mappings

Agencies are required to designate a primary FEA reference model mapping for each IT investment in the agency Exhibit 53. This reference model mapping can come in the form of a BRM sub-function or SRM service component. OMB uses these mappings to create a horizontal (functional) view of the Federal IT investment portfolio. This allows OMB to identify opportunities for cross-agency collaboration and reuse. In the past, OMB has used this analytic technique to identify candidates for E-Government initiatives such as the E-Gov Lines of Business.

When agencies provide inaccurate mappings, this inhibits the ability of OMB to perform quality analysis. Accordingly, the "FEA Reference Model Mapping" KPI has been crafted to perform the following quality checks and adjust the agency score accordingly:

- Every IT investment in the portfolio must have a valid primary mapping. For example, a Mode of Delivery sub-function cannot be a primary mapping for an IT investment;
- Primary mappings must be consistent with sub-function/service component definitions found in the Consolidated Reference Model document.[41] OMB uses various analytic techniques for checking this.
- Mappings must be consistent with other reported data. For example, IT investments reported as financial management systems on an Exhibit 300 business case (Part I, Section A, Item 19) should be aligned to a sub-function in the Financial Management FEA BRM LOB.

Exhibit 53 Segment Architecture Mappings

Agencies are required to designate a segment architecture mapping for each IT investment in the agency Exhibit 53. This allows OMB to track, among other things, the extent to which agency enterprise architecture planning efforts are informing the capital planning process, per OMB Circular A-130. Much like the FEA reference model mappings described above, it allows OMB to rapidly construct an architectural view of an agency IT investment portfolio.

When agencies provide inaccurate mappings, this inhibits the ability of OMB to perform quality analysis. Accordingly, the "Scope of Completion" KPI has been crafted to perform the following quality checks and adjust the agency score accordingly:

- Every investment must have a valid segment architecture mapping. In other words, each investment must have a mapping and this mapping must link to a segment architecture code provided by the agency to OMB prior to budget submission.
- Mappings must be consistent with segment architecture definitions and scope agreed upon with OMB. In other words, the segment to which the investment belongs should be a good "fit" given the title and description of the investment (e.g., it makes sense for an accounting system to belong to the financial management segment).
- Segment architecture mappings should be consistent with primary FEA Reference Model mapping, where applicable. For example, an investment mapped to the "accounting" FEA BRM sub-function would be a good fit in a "financial management" segment

Exhibit 53 Part Organization

Agencies are required to designate the "part" of the Exhibit 53 an investment belongs to. There are six parts to the Exhibit 53:

- Part 1. IT investments for Mission Area Support.

[41] http://www.whitehouse.gov/omb/egov/documents/FEA_CRM_v23_Final_Oct_2007.pdf

- Part 2. IT investments for Infrastructure, Office Automation, and Telecommunications.
- Part 3. IT investments for Enterprise Architecture and Planning.
- Part 4. IT investments for Grants Management Systems.
- Part 5. Grants to State and Local IT Investments.
- Part 6. National Security Systems IT Investments.

IT investments should be placed in the most appropriate part using definitions found in OMB Circular A-11, section 53. Investments placed in an inappropriate part have a detrimental impact on portfolio analysis performed by OMB. For example, an IT infrastructure investment placed in Part 3 would be an incorrect categorization. Accordingly, the "Exhibit 53 Part Mapping" KPI has been crafted to perform the following quality checks and adjust the agency score accordingly

Exhibit 53 Type of Investment

Agencies are required to designate a type of investment for an Exhibit 53 line item. There are four investment types:

- 01 = Major IT investments
- 02 = Non-major IT investments
- 03 = IT migration investment portion of a larger asset and for which there is an existing business case for the overall asset
- 04 = Partner agency funding contribution

When IT investments are designated an inappropriate type, this has a detrimental impact on the ability of OMB to provide oversight of the IT investment portfolio. For example, one occasionally finds instances where large, complex, high-risk IT investments are categorized as non-major. Not having an Exhibit 300 business case for these investments detracts from the ability of OMB to efficiently manage these investments. Accordingly, the "CPIC Integration" KPI has been crafted to perform the following quality checks on this area and adjust the agency score accordingly.

Exhibit 53 UPI Year-Over-Year Mappings

Agencies must disclose the previous year's UPI code for all IT investments in the Exhibit 53 IT investment portfolio. This provides the ability to perform year-over-year analysis of IT investment performance. Occasionally, this is not performed accurately, and OMB must attempt to manually match investments from the budget submission with investments on the previous year's portfolio.

Accordingly, the "Cost Savings and Cost Avoidance" KPI has been crafted to perform the following quality checks and adjust the agency score accordingly. OMB will use various analytic techniques to check data quality in this area. If OMB finds an inordinate number of IT investments not accurately disclosing the previous year's UPI code, this will negatively impact the agency score on some KPIs.

Exhibit 53 Investment Category

Agencies are required to designate an investment category for an Exhibit 53 line item. There are five investment categories:

- 00 = Total investment title line
- 04 = Funding source or appropriation
- 07 = High-Risk Project
- 09 = Any subtotal
- 24 = Approved E-Gov initiative

The biggest issue in this area concerns the correct use of the "-24" investment category. This should be used for approved E-Gov initiatives only. Any misuse of this code will negatively impact the agency score on the "Collaboration and Reuse" KPI.

Exhibit 300 PART Program Data (Part I, Section A, Item 14)

Agencies are asked to disclose information about Program Assessment Rating Tool (PART) programs supported by the IT investment on the Exhibit 300 (Part I, Section A, Item 14). For effective analysis, this information must exactly match what is in the PARTWeb database. Specifically, the PARTed program name must match a valid mission program from PARTWeb, and the program rating must match program rating data in PARTWeb. This will be measured by the "Performance Improvement Integration" KPI.

Exhibit 300 SRM Table (Part I, Section F, Item 4)

Agencies are required to provide a listing of SRM service components funded by a given investment in Exhibit 300 business cases (Part I, Section F, Item 4). This disclosure allows OMB to determine service component funding levels and reuse within and across agencies. To help OMB perform effective analysis, agencies should ensure the following:

- SRM service component funding percentages must not exceed 100
- A valid UPI code must be provided for a reused service component (to ensure proper identification of the investment provisioning the service)

The score of the "Collaboration and Reuse" KPI will reflect this quality check.

Exhibit 300 TRM Table (Part I, Section F, Item 5)

Agencies are required to provide a listing of TRM service supporting a given investment in Exhibit 300 business cases (Part I, Section F, Item 5). This disclosure allows OMB to determine interoperability standards supporting service component implementation, as well as specific product/standard specifications/profiles within a given agency with a mind toward reuse (e.g., identifying SmartBUY opportunities). To help OMB perform effective analysis, agencies should ensure the following:

- Each SRM service component in Table 4 should have an appropriate TRM service standard associated with it
- To the maximum extent possible, detailed and accurate service specifications should be provided.

The score of the “Collaboration and Reuse” KPI will reflect this quality check.

Appendix C: Agencies Included in the EA Assessment Process

All agencies evaluated by OMB will be assessed, namely:

U.S. Army Corps of Engineers (USACE)
Department of Commerce (DOC)
Department of Defense (DoD)
Department of Education (ED)
Department of Energy (DOE)
Department of Health and Human Services (HHS)
Department of Homeland Security (DHS)
Department of Housing and Urban Development (HUD)
Department of Interior (DOI)
Department of Justice (DOJ)
Department of Labor (DOL)
Department of State (State) and US Agency for International Development (USAID) Joint Enterprise Architecture
Department of Transportation (DOT)
Department of Treasury (Treasury)
Department of Veterans Affairs (VA)
Environmental Protection Agency (EPA)
General Services Administration (GSA)
National Aeronautics and Space Administration (NASA)
National Science Foundation (NSF)
Office of Management and Budget (OMB)
Office of Personnel Management (OPM)
Social Security Administration (SSA)
Small Business Administration (SBA)
Smithsonian Institution (Smithsonian)
U.S. Department of Agriculture (USDA)