



# IT Project Governance Manual

## Version 1.1

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**UNITED STATES AGENCY FOR  
INTERNATIONAL DEVELOPMENT  
(USAID)**

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**IT PROJECT GOVERNANCE MANUAL  
VERSION 1.1**

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**OFFICE OF THE CHIEF INFORMATION  
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# 1. Executive Summary

This manual establishes the processes and procedures that will be used to manage IT projects at USAID. It states the basic IT Project Governance requirements for the Agency, including system engineering, project management, and governance processes codified as the USAID “IT Project Life Cycle Methodology (ITPLCM).” This manual provides for a formal, structured, and integrated approach to managing Agency IT projects.

IT Project Governance emphasizes best practices and decision processes that enhance the effectiveness of system development projects and the delivery of IT systems. It identifies a methodical progression of best practice action items that are to be systematically and uniformly performed throughout the life cycle of an IT project. This progression ensures that key decisions made along the way result in effective systems that fully consider:

- Enterprise direction, priorities, and business processes
- Functional process, data, and information requirements
- External U.S. Government laws, mandates, and audit requirements
- Economic and technical constraints
- Development and on-going operational risks

IT Project Governance incorporates project, configuration, security, and portfolio management processes as well as complementary enterprise disciplines, including, but not limited to, Capital Planning and Investment Control (CPIC), Enterprise Architecture (EA), and USAID’s Automated Directives System’s (ADS) required policies and procedures. IT Project Governance focuses on delivering IT systems that:

- Meet or exceed customer needs and expectations
- Work effectively and efficiently within the current and planned technical infrastructure
- Offer production-quality reliability and performance
- Are inexpensive to maintain and cost-effective to enhance

The strategic objectives for the IT Project Governance framework are as follows:

- Predictably deliver consistent systems when promised and within cost estimates
- Institutionalize policies, procedures, standards, and best practices
- Facilitate cross-functional communication, coordination, and collaboration
- Provide for on-going process improvement and a means to reflect “lessons learned”

USAID’s IT Project Governance framework includes strong control mechanisms at key decision points in the ITPLCM. These control mechanisms allow for the timely identification and

resolution of critical issues affecting the success of a system development project through formal deliverable review and acceptance, and phase gate reviews with go/no-go decisions.

*Please see Appendix A, “IT Project Life Cycle Diagrams”, for diagrams describing the ITPLCM.*

## **1.1 Scope**

The USAID IT Project Governance Manual documents the ITPLCM, system engineering, project management, and governance processes for IT system development and implementation projects. This manual provides a practitioner with instructions and guidance on how to progress successfully through the IT Project Life Cycle in compliance with governance requirements.

IT Project Governance applies to all IT projects, including, but not limited to, software development, commercial, off-the-shelf (COTS), third-party developed and hosted applications, and infrastructure. A complete description of the processes and associated documentation required to meet the Chief Information Security Officer (CISO) privacy and security requirements appears in the document “Third-Party System Process and Procedures” from the CISO Office. Compliance with IT Project Governance is mandatory, and all IT projects, including software development, COTS and third-party systems, are subject to compliance reviews and audits.

## **1.2 Background**

USAID should fully utilize IT to:

- Expedite processes, procedures, and program results
- Provide 24/7 access to select processes and systems
- Share information quickly
- Gather program information to determine trends and improve mission performance

IT is an effective tool to help meet escalating demands in this global world of rapid change and increasing mission scope, and increasingly leaders in both the public and private sector rely on information systems and other pervasive information technologies to achieve results. Federal e-Government legislative mandates also increase Agency IT demands.

Because of the proliferation of IT usage and escalating costs in the Federal Government, the Administration and the Office of Management and Budget (OMB) have called for increased accountability. The Capital Planning and Investment Control (CPIC) Process is OMB’s mandate to Federal agencies to ensure positive returns on IT investments. Just as USAID responds to the externally imposed OMB mandate for CPIC, USAID must establish internal IT standards and accountability by employing techniques such as the IT Project Governance framework. With regards to IT standards, the Clinger-Cohen Act was designed to improve

the way the Federal Government acquires and manages IT, utilizing performance-based management principles for acquiring IT (i.e., planning major IT investments, enforcing accountability for performance, using standards, and increasing incorporation of commercial technology). The Clinger-Cohen Act also mandates the use of formal enterprise disciplines.

The ITPLCM is designed to support a traditional waterfall methodology (top to bottom sequential software development process), but it can be tailored to support other development methodologies and all types of IT projects. It introduces formal, structured, standardized review, evaluation, and certification procedures for acceptance of IT project deliverables, and movement through the phases of the IT Project Life Cycle.

Many IT enterprise disciplines are already established within USAID and M/CIO. The IT Project Governance Manual provides one source for all requirements and guidance, including references and links to existing enterprise and complementary processes.

### **1.3 Key Project Governance Principle**

USAID's IT Project Governance framework is based on the following key principles:

- Consistency with accepted industry best practices and standards
- Development and maintenance of comprehensive project documentation and artifacts to plan, track, measure, and control the progress of each IT project
- Accountability through work product and progress reviews at key decision points in the IT Project Life Cycle
- Clear, accurate, and thorough documentation of activity results and decisions throughout the IT Project Life Cycle
- Formal review, concurrence, certification, and acceptance of all project deliverables by stakeholders across the Agency based on their predefined roles and responsibilities
- ITPLCM tailoring options for alternative development project work patterns to ensure flexibility in responding quickly to meet immediate business needs
- The IT Project Life Cycle, Project Work Breakdown Structure (WBS), and Project, Configuration, Security, and Portfolio Management principles described in the following sections

### **1.4 IT Project Life Cycle**

USAID's Project Life Cycle Methodology breaks down an IT project into manageable phases that begin with investigation into a business or technical need or opportunity, and end with operations and maintenance of the deployed system or products of the project. Phases consist of activities and procedures based on industry best practices and Government standards.

## **1.5 IT Project Work Breakdown Structure (WBS)**

The WBS provides the foundation for defining work as it relates to project objectives. The WBS also establishes the structure for managing the work to its completion. USAID has defined standard WBS definitions which must be addressed during planning stages of all projects to ensure that all necessary work for the entire project life cycle is identified, costed, scheduled, and controlled. The WBS also provides the basis for establishing earned value control accounts.

## **1.6 Project Management**

USAID's IT Project Governance framework incorporates project management guidelines for initiation, planning, execution and control, and closing of an IT project, in accordance with the Project Management Institute's Project Management Book of Knowledge (PMBOK®). Project management processes and artifacts are required to plan, establish, and maintain control over project cost, scope, schedule, and quality.

## **1.7 Configuration Management**

The ITPLCM is dependent on disciplined configuration management and change control. The key elements are artifact management and baseline control, configuration management, and change management governed by the Change Control Boards (CCB).

## **1.8 Security Management**

The ITPLCM integrates security requirements as defined by the CISO. Projects must be executed in compliance with security regulations to ensure applicable privacy, data, and technical security. During the project planning stages, the systems and products to be delivered by the project must be evaluated by the CISO to determine if certification and accreditation (C&A) is required. All systems must have applicable security patches and receive approval from the CISO prior to deployment on any USAID network.

## **1.9 Complementary Processes and Policies**

Additional USAID policies and procedures may apply to IT projects as well. Project teams must review these complementary processes and policies during the early planning stages of a project, and periodically thereafter, to ensure compliance. These may include Capital Planning and Investment Control (CPIC), Enterprise Architecture, FOIA and Records Management, Section 508 of the Rehabilitation Act Amendments, and applicable ADS policies. Projects must also abide by the approved software list and other data and network standards, and any exception or change requests must be presented to the CIO and/or Operations and Management Configuration Control Board (O&M CCB) for approval.



## 2. IT Project Governance

USAID's IT Project Governance framework will govern the management and execution of all USAID projects. The framework promotes compliance with Federal guidance, provides a common project management structure for all types of IT projects, and establishes a framework for project risk and quality control. In particular, the IT Governance framework enforces compliance with the ITPLCM.

The ITPLCM establishes the discipline of developing Agency-wide and smaller IT systems by using a consistent and repeatable process that includes breaking down the system development process into discreet, manageable phases. Phases consist of activities and procedures based on industry best practices and Government standards.

*Please see Appendix A, "IT Project Life Cycle Diagrams", for diagrams depicting the ITPLCM in totality.*

The *IT Project Life Cycle Methodology* diagram shows that the methodology is comprised of four key elements:

- Capital Planning
- Life Cycle Phases
- Reviews
- Milestones

The Life Cycle Phases and Reviews are the foundation of the methodology. The phases and reviews directly relate to the milestones and capital planning phases. Please see sections 2.1 and 2.3 for more information about the phases and reviews.

The ITPLCM identifies the following key milestones:

- Earned Value Milestones – Engineering and Performance Measurement Baselines.
  1. Engineering Measurement Baselines are high-level, suitable for reporting, and contain planning packages.
  2. Performance Measurement Baselines are detailed, required for Earned Value Management (EVM) reporting, and are the baseline for cost and schedule accountability
- Project life cycle baseline milestones such as System Requirements, Architecture, etc. are associated with key life cycle phases. Baseline changes should be controlled via Configuration Control Board processes.
- Cost estimate milestones provide expectations on the fidelity of cost estimating at key points in the life cycle

In the IT Project Life Cycle Methodology, all elements are linked:

- The performance baseline is set upon satisfactory completion of the Performance Baseline Review (PBR)
- The PBR marks the end of the System & Application Engineering Phase
- OMB considers the setting of the performance baseline the end of the useful planning segment, thus requiring an exhibit 300 baseline update, which is the primary funding budgetary justification source for the Agency

Time is relative and cannot be determined from the chart

- The time between the investigation phase and the beginning of system and application engineering may take months or even years
- The time between the planning and acquisition investment stages will be determined by the project scope and type

The chart is not static. It is assumed that each project will tailor the number and relationships among the phase gate reviews.

The *USAID IT Project Life Cycle Methodology* diagram depicts summary level definition of each life cycle phase. Each life cycle phase contains activities for (1) Initiating & Planning; (2) Execution & Control; and (3) Closure.

The *USAID Select-Control-Evaluate Framework diagram* demonstrates how the IT Project Life Cycle Methodology supports capital planning and investment control processes and requirements. The OMB exhibit 53 is designed to allow the review and evaluation of each Agency's IT spending in total and compares IT spending across the Federal Government. An OMB exhibit 300 business case, the primary funding budgetary justification source for the Agency, is completed for all major investments, whereas the exhibit 53 is merely a listing of all investments.

## **2.1 Phases**

USAID's Project Life Cycle Methodology breaks down the project into manageable phases. Phases consist of activities and procedures based on industry best practices and Government standards. Each phase has defined artifact and review gates.

***Descriptions, artifacts, reviews, and milestones of each IT Project Life Cycle Phase can be found in Appendix A, "IT Project Life Cycle Diagrams", and Appendix B, "Phase Descriptions."***

## **2.2 Artifacts**

Document artifacts in the ITPLCM may be initiated and completed in a single phase or may require regular maintenance throughout several phases of the project life cycle. Artifact Quality Factors have been established as guidelines for the preparation and evaluation of project deliverables/artifacts. At each stage of completion, the artifact must be approved by

applicable stakeholders, base lined, and placed under change control. Designated artifacts are required by each phase gate review, as noted in the phase gate checklists. However, an approved tailoring plan may enable consolidation of designated artifacts, or waiver of non-applicable artifacts.

*Appendix C provides an artifact matrix, showing standard required artifacts, their descriptions, and the phases in which they should be created or updated. Appendix D describes the quality factors for each artifact.*

## 2.3 Phase Gate Reviews

Phase gate reviews are conducted to assess project status, quality, risks, and compliance with requirements, and to ensure stakeholder acceptance and ownership. This process helps determine if the project is ready to proceed to the next stage or phase. Projects cannot continue beyond the current phase gate without full or conditional approval from the applicable review board.

The most common phase gate review body is the Project Review Board (PRB). The PRB consists of management level stakeholders, and should be established during the initial phases of the project (Concept Analysis & Definition, or Engineering Planning at the latest) to conduct phase gate reviews. The Project Review Board (PRB):

- Is comprised of senior stakeholders representing USAID IT functional, governance, and customer areas
- Makes stage gate and management decisions
- Ensures project life cycle compliance

Each stakeholder PRB member should designate one or more technical team members to review project deliverables and artifacts. These technical team members compose the Engineering Review Team (ERT) and may approve artifacts or provide advice to the PRB for stage gate decisions. PRB membership is project specific.

***More information about the PRB can be found in section 2.5.4.***

Projects that have high risk, cost, visibility, or strategic impact will also require a second level of executive review via an Executive Steering Committee (ESC). The need for an ESC will be determined by the CIO Chief Engineer, the CIO Budget & Capital Planning Division, and/or the IT Steering Subcommittee (ITSS) during the Concept Analysis & Definition phase, prior to an Investment Planning Review (IPR).

Reviews focus on both management and technical aspects of the projects. The entry and exit checklists are closely linked with the artifact Quality Factors.

Management Aspects:

- Evaluate the effectiveness of management approaches used by the project
- Verify compliance with applicable standards and procedures

- Determine the status of plans and schedules

#### Technical Aspects:

- Determine whether the product is suitable for intended use and conforms to its specifications
- Verify adherence to regulations, standards, guidelines, plans, and procedures applicable to the project
- Determine if the project/product is technically compatible with other initiatives and feasible for integration into the USAID production environment

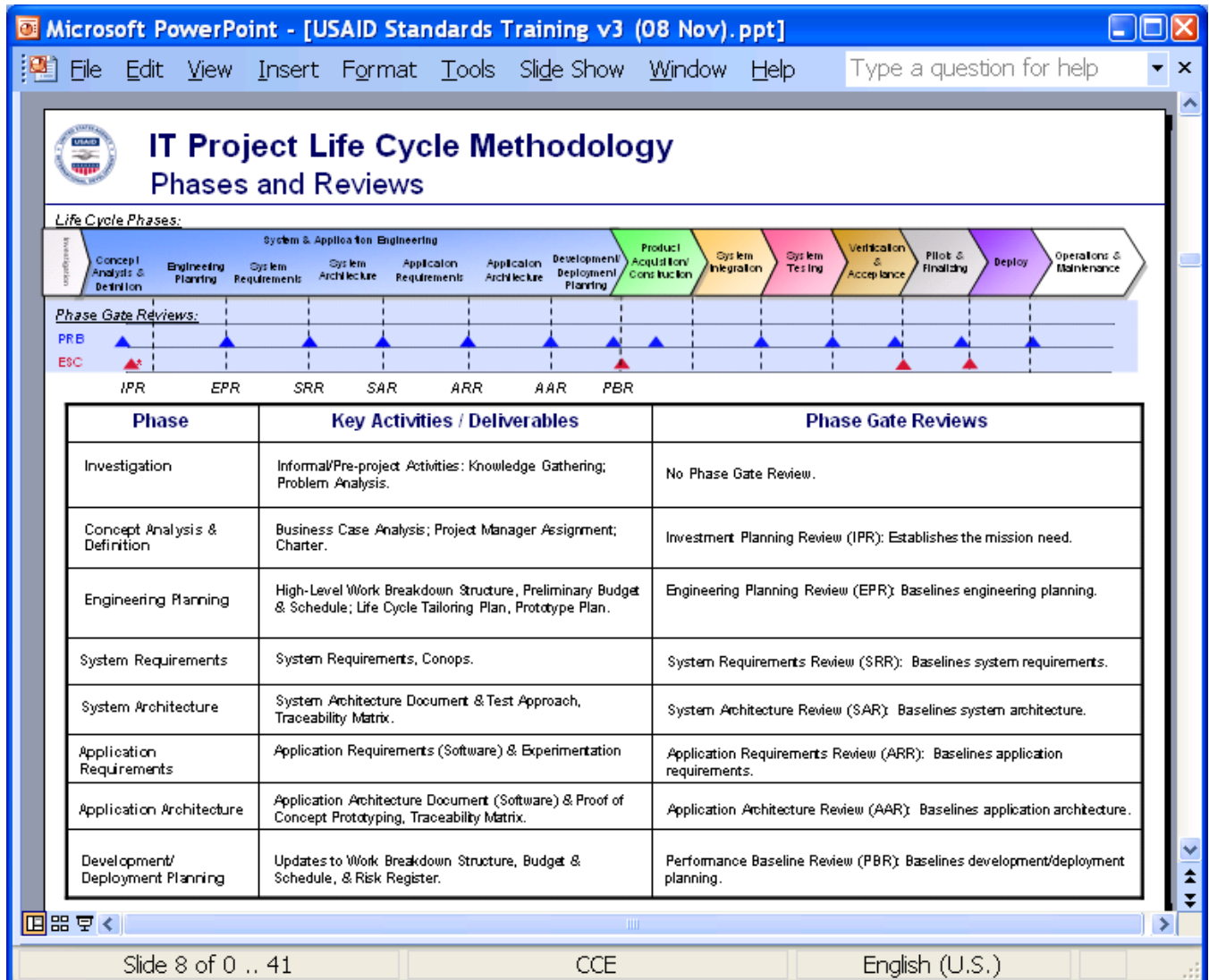
Phase gate reviews are defined at key points in the life cycle, typically at or near the end of each life cycle phase. Each phase gate has a checklist of minimum criteria required to conduct a review. The Project Manager (PM) must complete the entry portion of the checklist and submit it to the PRB or the PRB's designated facilitator in order to schedule the review. Next, the phase gate meeting is held to assess the readiness of the project to proceed to the next phase. PRB members are in attendance, and the PM conducts a presentation describing the current status of the project, particularly in relation to the criteria for the current phase gate and upcoming phase.

Each project review will lead to one of three possible results, based on a decision of the PRB:

- Unconditional concurrence. The project can proceed to the next phase or stage unconditionally
- Conditional concurrence. The project can proceed to the next phase or stage, however conditions have been noted, which must be addressed according to the timeline defined
- Non-concurrence. The project cannot proceed to the next phase or stage. Noted issues must be addressed, and then the project review must be repeated.

Once a project review has been successfully approved by the PRB, the applicable phase documents are base lined and transferred to change management control, unless otherwise noted.

The following slides describe each standard review gate.



**Figure 1 - IT Project Life Cycle Methodology (Phases and Reviews)**

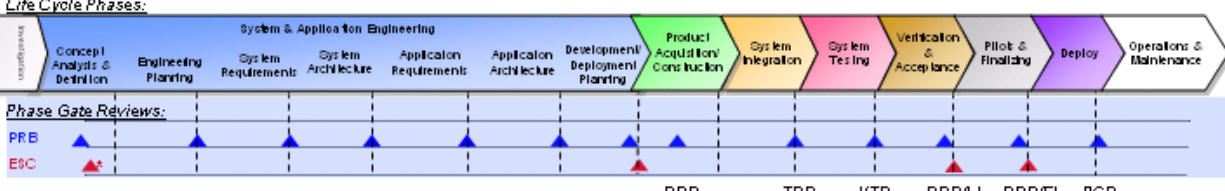
Figure 1 represents the IT Project Life Cycle Methodology Phases and Reviews. This figure is comprised of System and Application Engineering phases listed at the top of the graphic. The table has three columns. Column 1 identifies each phase. Column 2 describes a key activity and deliverable associated with each phase. Column 3 enumerates the associated Phase Gate Review.

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## IT Project Life Cycle Methodology Phases and Reviews (cont'd)

**Life Cycle Phases:**



**Phase Gate Reviews:**

Phase	Activities / Deliverables	Phase Gate Reviews
Product Acquisition/Construction	Acquisition/Development/Construction of the system components.	Detailed Design Review (DDR): Baselines detailed design and ensures readiness to begin product construction.
System Integration	Integration & checkout of hardware & software products/ subsystems; Finalize test plan.	Test Readiness Review (TRR): Baselines system integration and ensures readiness to begin system testing.
System Testing	Formal Testing (& Correcting) of system and support documentation.	Verification Test Review (VTR): Baselines system testing and ensures readiness for formal acceptance testing.
Verification & Acceptance	Government or Proxy Tests/Witnessing.	Deployment Readiness Review (DRR)(L): Baselines verification and acceptance and ensures readiness for limited deployment.
Pilots & Finalizing	User/Beta Functionality Testing & Limited Piloting.	Deployment Readiness Review (DRR)(F): Baselines finalized system and ensures readiness for full deployment.
Deploy	Full deployment of the system. Transition to Operations.	Project Closure Review (PCR): Ensures that: Outcomes match goals; Customer stakeholders are content; knowledge is captured.
Operations & Maintenance	System operation is ongoing and is monitored for continued performance as per requirements.	No Phase Gate Review, but annual operational analysis reviews occur.

Slide 9 of 0 .. 41 CCE English (U.S.)

## 2.4 Tailoring Criteria and Guidelines

To provide flexibility in response to business needs, the ITPLCM may be tailored to create an alternative work pattern that suits the needs of the system development project without compromising the intent or integrity of the ITPLCM Process. A work pattern consists of the entire set of activities, deliverables, and reviews required to develop the system. An alternative work pattern is a subset of the full-sequential work pattern.

PMs should discuss tailoring with stakeholders early in the project (during the Engineering Planning phase), and present a tailoring plan for approval to the OCIO Chief Engineer, the Project Review Board (PRB), as well as the Executive Steering Committee (ESC), if applicable. Tailoring requests to waive any standard artifacts or phase gate reviews will be evaluated in accordance with the risks, costs, complexity, and strategic visibility of the project. Tailoring plans may also define repetitive phases, artifacts, and reviews; for

example, if spiral development is more appropriate to achieve the goals of the project than a traditional waterfall model.

Once the tailoring plan is approved, a customized work pattern (which may be a subset or alternative set of the full-sequential work pattern) is identified as the required minimum for the system development project. Deliverables and/or reviews outside the initial subset may be tailored, and the approved work pattern must be documented in the project management plan (PMP) and subsidiary plans, as applicable. Following approval, the project must adhere to the approved work pattern throughout the ITPLCM Process. Any subsequent deviation from the approved work pattern must again be pre-approved by the project governance authorities (PRB and OCIO Chief Engineer, as well as the ESC, if applicable.)

*Please see Appendix G “Life Cycle Tailoring” for a diagram describing some typical tailoring options, as follows:*

Project 1 is considered a “Simple Project” – Small Web Application. The software used, Dreamweaver, is well known and no hardware is required. In this example, the System Requirements Review (SRR), System Architecture Review (SAR), Application Requirements Review (ARR), and Application Architecture Review (AAR) phases are combined into the Performance Baseline Review (PBR). Additionally, the Detailed Design Review (DDR) and TRR: Test Readiness Review (TRR) are combined into the Verification Test Review (VTR). The simplicity based on project scope and risk lends itself to the reduced number of formal reviews. Each project must still work internally to ensure that meets the requirements of the phases being combined.

In the second example, Project 2 is a “COTS/Infrastructure project” – some reviews may not be applicable, while others can be combined. Since this is a COTS project, the ARR and AAR reviews are not applicable.

The last example, Project 3, is a large, complex project with multiple sub-projects and deployments, and requires all reviews in order to control the heightened risk and complexity.

There are other examples of pilot and deployment sub-projects within a project (for example, a multiple mission on-site deployment), or an incremental or spiral development project may require key phases to be repeated. Both ideas (multiple deployments and alternative work patterns) represent specific customization concepts that should be discussed and documented early in the project.

## **2.5 Roles and Responsibilities**

Throughout this manual, reference is made to specific roles that must be performed by stakeholders at various times throughout the project life cycle. Stakeholders are people and organizations that are in any way affected by the new product or service. Since the project will rely on various stakeholders prior to developing the project plan where roles and responsibilities are typically defined, it is important to understand the roles and responsibilities early in the process.

*Note: The specific roles and responsibilities for stakeholders and team members in your project may vary from those identified below due to project size, scope, complexity, and the organizational structure of the Agency/institution. Project personnel, roles, and responsibilities should be documented in an Organization Chart, and may also need to be defined in the Project Charter.*

### Project Team

The Project Team is the group that is responsible for planning and executing the project. It consists of a Project Manager (PM) and a variable number of Project Team members who execute their tasks according to the Project Schedule.

- The PM is responsible for ensuring that the Project Team completes the project. The PM develops the Project Plan with the team and manages the team's performance of project tasks. The PM is also responsible for securing acceptance and approval of deliverables from the Project Sponsor and Stakeholders.
- The Project Team Members are responsible for executing tasks and producing deliverables as outlined in the Project Plan and directed by the PM, at whatever level of effort or participation has been defined for them. On larger projects, some Project Team members may serve as Project Team Leaders (see below).
- The Project Team Leaders, sometimes called Business or Technical Team Leads, have the same responsibilities as Team Members, but also assist the PM in providing leadership for, and managing the team's performance of, various tasks.

*NOTE: Throughout this manual, when Project Team Members are listed as a resource for a particular task, it should be assumed that Project Team Leaders are included.*

### Project Sponsor

The Project Sponsor has a demonstrable interest in the outcome of the project and is responsible for securing spending authority and resources for it. Ideally, the Project Sponsor should have full authority to make all decisions necessary to assure the project's completion, including whether to increase the project scope and budget.

The Project Sponsor provides support for the PM, approves major deliverables, and signs off on approvals to proceed to each succeeding project phase. The Project Sponsor may delegate any of the above responsibilities to other personnel either on or outside the Project Team.

The Project Sponsor is commonly an active participant with project steering committees or other types of larger management teams providing guidance and support to the PM. On larger projects, there may be various levels and types of committees.



## Customers

Customers comprise the business units that identified the need for the product or service the project will develop. Customers can be at all levels of an organization. Since it is frequently not feasible for all Customers to be directly involved in the project, the following roles are identified:

- Customer Representatives are members of the Customer community that are identified and made available to the project for their subject matter expertise (sometimes called subject matter experts or SMEs). Their responsibility is to accurately represent their business units' needs to the Project Team, and to validate the deliverables that describe the product or service that the project will produce. Customer Representatives are also expected to bring back to the Customer community information about the project. Towards the end of the project, Customer Representatives will test the product or service the project is developing, using and evaluating it while providing feedback to the Project Team.
- Customer Decision-Makers are those members of the Customer community who have been designated to make project decisions on behalf of major business units that will use, or will be affected by, the product or service the project will deliver. Customer Decision-Makers are responsible for achieving a consensus of their business unit on project issues and results and communicating it to the Project Team. They attend project meetings as requested by the PM, review and approve process deliverables, and provide subject matter expertise to the Project Team. On some projects, they may also serve as Customer Representatives.

## Vendors

Vendors are contracted to provide additional products or services the project will require and may be members of the Project Team.

## Users

Users include all the people that will use and benefit from the product or service that the project is developing.

## **2.6 Joint Management Council (JMC)**

The JMC prioritizes the joint management opportunities referenced in the Department of State/USAID Strategic Plan, as well as any other proposed joint initiatives. The JMC guides implementation, oversees execution of the resulting policies and programs, and works closely with the Department of State/USAID Joint Policy Council to ensure that joint management and policy issues are coordinated between agencies. Several working groups support the JMC in its areas of focus – Human Resources, e-Government, Facilities, Security, and Planning and Resources. Under e-Government, the JMC works to streamline the Department's and USAID's existing infrastructure, coordinate IT planning, strengthen core information management systems, and consolidate technical and operational support. ([http://inside.usaid.gov/BTEC/archives/jmc\\_intro.html](http://inside.usaid.gov/BTEC/archives/jmc_intro.html). **Note: This Web site is only available to USAID intranet users.**)

## 2.7 Business Transformation Executive Committee (BTEC)

The BTEC provides Agency-wide leadership for initiatives and investments to transform USAID business systems and organizational performance. The BTEC focuses on issues and investment decisions related most closely to achieving the Agency's mission. Additionally, the BTEC designates, establishes, and monitors the portfolio of USAID IT investments throughout their life cycle to ensure that they are acquired or developed within planned cost and schedule objectives and that they produce expected benefits.

(<http://inside.usaid.gov/BTEC/>. **Note: This Web site is only available to USAID intranet users.**)

## 2.8 IT Steering Subcommittee (ITSS)

The IT Steering Subcommittee will provide oversight to the Agency's information technology (IT) program, including maintaining and implementing the Agency's approved Capital Planning and Investment Control process as outlined in [ADS Chapter 577](#), making recommendations on Agency IT governance, and serving as the oversight authority to guide information technology initiatives. (<http://inside.usaid.gov/BTEC/>. **Note: This Web site is only available to USAID intranet users.**)

## 2.9 Project Review Board (PRB)

The Project Review Board is a management body that provides governance decisions during the life cycle of projects at defined review decision points according to the USAID IT Project Life Cycle Methodology or at other key decision points. The PRB should include all key stakeholders in the project; therefore, some projects may have unique PRB membership. The PRB membership should be established early in the project (no later than the Engineering Planning Phase).

The PRB makes decisions on the suitability of a project to proceed beyond each review decision point to the next stage or phase of the project. The PRB process is intended to complement the Change Control Board process by ensuring early project alignment with USAID standards and compatible integration into the USAID production environment.

## 2.10 Engineering Review Team (ERT)

The ERT consists of representatives from the Project Review Board (PRB), which may include each key IT functional and governance area within USAID. These Engineering Review Team representatives provide recommendations and technical advice to the Project Review Board management body regarding project deliverables to help them make each review decision.

## **2.11 CIO Advisory Board**

The CIO Advisory Board manages new item requests, which are submitted to the OCIO via the Item Tracker process. New requests are validated by the Business Consulting and Client Services (BCCS) division and submitted for further analysis to the CIO Advisory Board. The Advisory Board may request an additional Rough Order of Magnitude (ROM) (Part A), a detailed Project Proposal (Part B), or completed Business Case (Part C) to fully evaluate the new item request. If the new item requires funding, the request is submitted to the IT Steering Subcommittee (ITSS) to be ranked and prioritized for funding.

## 3. Project Management

This section describes the project management processes that are used throughout the project life cycle.

### 3.1 Integration Management

The Project Management Institute's Project Management Book of Knowledge (PMBOK®) lists ***Project Integration Management*** as one of nine project management fields of knowledge that ensures that all processes necessary for the successful completion of a project's objectives are properly integrated and coordinated. As a dynamic activity, project integration management involves constant monitoring of these processes in order to balance competing objectives to meet stakeholder needs and expectations.

Project Integration Management includes the following six process groups:

- 1. Develop Project Charter** – A Project Charter formally authorizes and initiates the project. It defines the objectives, identifies the Project Manager, and is a required document prior to the start of any project.
- 2. Develop the Project Management Plan** – The Project Management Plan includes all subsidiary plans.
- 3. Direct and Manage Project Execution** - Directing and Managing Project execution coordinates all allocated resources to enable project completion.
- 4. Monitor and Control Project Work** – Monitoring and Controlling Project work measures the project's progress and makes apparent any corrective or preventative actions needed to ensure all project objectives are met. It provides the project team with timely information needed to determine whether the project continues on track.
- 5. Perform Integrated Change Control** – Integrated Change Control is the process by which all change requests (scope, time, and cost) are properly evaluated, and changes are authorized and continuously managed. An important result of this process is that only approved changes are implemented while simultaneously providing a mechanism to identify and revise the project's baseline, as necessary.
- 6. Close Project or Phase** – Closing the project means completing all project activities, delivering the final project, turning over continual support to operations, and obtaining client approval to formally close the project.

The following five process groups carry out the aforementioned process groups that constitute the project's life cycle:

- **Initiating** - The Initiating Process Group completes those processes necessary for formally authorizing the beginning of a new project. The processes for developing the Project Charter and the preliminary Project Scope Statement occur in the Initiating Process Group.
- **Planning Process Group** - The Planning Process Group establishes the project scope, creates the Project Management Plan, and identifies and schedules the project's activities.
- **Executing Process Group** – The Executing Process Group complete the work outlined in the Project Management Plan to achieve the project's objectives. The process for directing and managing project execution, which ensures that the Project Management Plan is implemented properly, occurs in the Executing Process Group.
- **Monitoring and Controlling Process Group** - The Monitoring and Controlling Process Group gathers, assesses, and distributes performance information and analyzing measurements and trends to make continual process improvements. The processes for monitoring and controlling project work and implementing integrated change control occur in the Monitoring and Controlling Process Group.
- **Closing Process Group** – The Closing Process group carries out those processes necessary for officially ending project activities and handing off the completed product to others. This also includes closing a project that has been canceled.

The following table describes how the Project Integration Processes relate to the five Life Cycle Process Groups:

Process	Process Group	Deliverables
Develop Project Charter	Initiating	Project Charter
Develop Project Management Plan	Planning	Project Management Plan
Direct and Manage Project Execution	Execution	Deliverables
Manage and Control Project Work	Control	Requested Changes
Perform Integrated Change Control	Control	Approved Change Requests
Close Project or Phase	Closure	Final product or service

**Figure 2 - Project Integration Processes**

Figure 2 represents the Project Integration Process table. The table is comprised of three columns. Column 1 identifies each Project Integration Process. Column 2 lists the Life Cycle Process Group associated with the listed processes. Column 3 describes the deliverables that will accompany each process.

### 3.2 Scope Management

The Project Management Institute's Project Management Book of Knowledge (PMBOK®) lists **Project Scope Management** as one of nine project management fields of knowledge that ensures that the project executes only the work required to successfully achieve its goals and objectives. Its primary mission is to provide control mechanisms to prevent the project's scope from unnecessarily expanding beyond the boundaries established by the Project Charter.

Project Scope Management includes the following five process groups:

1. **Collect Requirements** – The process of defining and documenting stakeholders' needs to meet project objectives.
2. **Define Scope** – The process for defining a formal statement to gain consensus and commitment from all stakeholders regarding the products or services expected from the project. It expands on the Project Charter by providing details on assumptions and limitations regarding expected deliverables. The scope definition document prepares the groundwork for the preparation of a Work Breakdown Structure (WBS).
3. **Create a WBS** – A WBS represents a hierarchical representation of the project's activities and products/services that serves to organize the work to be completed. It breaks down large tasks into smaller tasks, thus making them easier to execute and control.
4. **Verify Scope** – This is a formal acceptance of the scope and associated deliverables. This process ensures that the project's products or services coincide with the requirements previously established.
5. **Control Scope** – A formal system is created through which all change requests and corrective actions are processed and controlled. This system limits the impact of unauthorized scope changes that may adversely affect the project baseline.

The following table describes how the Project Scope Management Processes relate the appropriate Life Cycle Process Groups:

Process	Process Group	Deliverables
Collect Requirements	Planning	Requirements Documentation, Requirements Management Plan
Define Scope	Planning	Project Scope Statement
Create a WBS	Planning	WBS, WBS Dictionary
Verify Scope	Control	Acceptance of Deliverables
Control Scope	Control	Change Requests

**Figure 3 - Project Scope Management Processes**

Figure 3 represents a Life Cycle Process Groups table. The table is comprised of three Columns. Column 1 identifies each Project Scope Management process. Column 2 lists the Life Cycle Process Group. Column 3 is a description of the deliverable that will accompany each process.

### 3.2.1 WBS Overview

The PMI PMBOK defines a Work Breakdown Structure (WBS) as “A deliverable-oriented grouping of project elements that organizes and defines the total work scope of the project. Each descending level represents an increasingly detailed definition of the project work.”

Projects must utilize the standard USAID IT Project WBS definitions as defined in section 3.2.

The WBS provides the foundation for defining project work as it relates to project objectives. The WBS also establishes the structure for managing the work to its completion. Benefits of a well defined WBS on a project include:

- Facilitates thorough planning to ensure project objectives are decomposed into products (deliverables)
- Provides a foundation for defining work related to project objectives
- Establishes structure for managing work to completion
- Serves as an effective communication tool for the PM and the stakeholders
- Facilitates the association of cost and schedule to specific products (deliverables)
- Ensures that no elements of the work are left unplanned or unbudgeted

The WBS should be developed by comparing the “As Is” and “To Be” states, and then identifying all work elements necessary to achieve the “To Be” state as defined by the project scope and goals.

Key notes about the WBS:

- The purpose of the WBS is to identify all project deliverables, product components and subcomponents, and life cycle phase processes and artifacts
- The WBS is NOT a schedule. A schedule is a logical sequencing of activities, which is prepared using the WBS as one of several inputs
- The lower WBS elements provide appropriate focus for scope, schedule development, cost estimating, and resource allocation
- The WBS is a logical hierarchical representation of all the work products (work packages) necessary to accomplish the project scope, documented in graphical and/or outline format
- Work Package – Project work below the WBS elements. Contributes either in whole or part to the completion of a Control Account (deliverable of some sort)
- Control Account - A management control point within the WBS where the integration of scope, cost, and schedule takes place, and where the measurement of performance occurs
- Planning Package – A logical aggregation of work, normally a long-term effort, that can be identified and budgeted in early baseline planning, but is not yet defined into work packages
- WBS Dictionary - Defines each element of the WBS and the activities, resources, time, and costs associated with each WBS work package

### **3.2.2 WBS Definition**

Standard USAID WBS definitions have been established to help ensure that no critical elements are omitted from the WBS, and consistency between projects at the higher levels of the WBS is maintained for optimal management performance metrics.

*Please see Appendix H, “IT Project WBS”, for more information about the standard WBS definitions.*

### **3.2.3 WBS Guidelines and Examples**

*To complement the standard WBS definitions, guidelines and examples of typical IT project work breakdown structures are also available in Appendix H, “IT Project WBS.”*



### 3.3 Time Management

**Project Time Management** is another project management field of knowledge that includes the processes required to ensure the timely completion of a project.

Project Time Management includes the following six process groups. Most of the activities associated with Project Time Management are completed in the Planning Process Group:

1. **Define Activities** – Activity definition is a part of the planning process group. It identifies the specific schedule activities that need to be performed to produce the project deliverables and elements of the WBS.
2. **Sequence Activities** – Activity sequencing, also a part of the planning process group, details the chronological relationships among the defined activities.
3. **Estimate Activity Resources** – Activity resource estimating calculates the type and amount of resources required for each scheduled activity.
4. **Estimate Activity Durations** – Activity duration estimating calculates the time needed to complete a scheduled activity.
5. **Develop Schedule** – Schedule development involves reviewing the activity sequences, duration, and resource requirements to create the Project Schedule. It is a key component of the planning process group.
6. **Control Schedule** – Schedule control manages changes to the project schedule and is a part of the monitoring and controlling process groups.

A detailed schedule should be maintained, as well as a one page summary GANTT chart summarizing the high level milestones.

The following table describes how the Project Time Management Processes relate the appropriate Life Cycle Process Groups:

Process	Process Group	Deliverables
Define Activities	Planning	Activity List, Milestone list
Sequence Activities	Planning	Project Schedule network diagrams
Estimate Activity Resources	Planning	Activity resource requirements, Resource breakdown structure
Estimate Activity Durations	Planning	Activity duration estimates, Activity attributes (updates)
Develop Schedule	Planning	Project Schedule, one page GANTT Chart

Control Schedule	Control	Performance measurements, Requested changes
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**Figure 4 - Project Time Management Processes**

Figure 4 represents a Project Time Management Processes table. The table is comprised of three columns. Column 1 identifies each Project Scope Management process. Column 2 lists the Life Cycle Process Group. Column three is a description of the deliverable that will accompany each process.

### 3.4 Cost Management

The project management knowledge area of **Project Cost Management** might be defined as the management of all processes necessary in planning, estimating, and controlling costs so that the project can be finalized within the approved budget limits. Every project has the ideal goal of completing its objectives on time and within budget, so it is imperative that the project budget be realistic in its estimation of the project costs.

The basic principles pertaining to Project Cost Management are:

1. **Tangible costs** or **benefits** are those costs or benefits that an organization can measure in any currency or monetary terms.
2. **Intangible costs** or **benefits** are costs or benefits that are difficult to measure in monetary terms.
3. **Direct costs** are costs that can be directly related to producing the products and services of the project.
4. **Indirect costs** are costs that are not directly related to the products or services of the project, but are indirectly related to performing the project.
5. **Sunk cost** is money that has been spent in the past. When deciding what projects to invest in or continue, you should *not* include sunk costs.

Project Cost Management includes three process groups:

1. **Estimate Costs:** The development of an approximation or estimate of the costs of the resources needed to complete a project. The cost estimate should be based on the completed WBS, and refined in the early stages of the project life cycle. Please see the “Cost Estimating Guidance” in Appendix H, “IT Project WBS”, for more information.

2. **Determine Budget:** The allocation of the overall cost estimate to individual work items to establish a baseline for measuring performance.
3. **Control Costs:** The change control process for the project budget.

The following table describes how the Project Cost Management Processes relate to the specific Life Cycle Process Groups:

Process	Process Group	Deliverables
Estimate Costs	Planning	Activity Cost Estimates, Cost Management Plan
Determine Budget	Planning	Cost Baseline
Control Costs	Control	Cost Estimates Cost baseline

**Figure 5 - Project Cost Management Processes**

Figure 5 represents a Project Cost Management Processes table. The table is comprised of three columns. Column 1 identifies each Project Cost Management process. Column 2 lists the Life Cycle Process Group. Column 3 is a description of the deliverable that will accompany each process.

### 3.5 Quality Management

The *Project Quality Management* knowledge area ensures that the project complies with established quality standards so that the project is given the support it needs for successful completion. Quality Management may include adequate training for the project team, checklists to ensure work consistency, audits, inspections, etc.

The basic processes associated with Project Quality Management are:

1. **Plan Quality** – Involves evaluating project deliverables to determine if they comply with the stated quality standards and identifying ways to eliminate causes of unsatisfactory results. The responsibility of identifying and providing quality standards rests with the PMs and team.
2. **Perform Quality Assurance** – A planned and systematic set of activities to ensure that variances in processes are clearly identified and assessed.
3. **Perform Quality Control** – Involves evaluating project deliverables to determine if they comply with the stated quality standards and identifying ways to eliminate causes of unsatisfactory results that occur throughout the project.

The following table describes how the Project Quality Management Processes relate to specific Life Cycle Process Groups:

Process	Process Group	Deliverables
Plan Quality	Planning	Quality Management Plan Quality Metrics Quality Baseline
Perform Quality Assurance	Execution	Requested Changes
Perform Quality Control	Control	Quality Control Measurements

**Figure 6 - Project Quality Management Processes**

Figure 6 represents a Project Quality Management Processes table. The table is comprised of three columns. Column 1 identifies each Project Quality Management Process. Column 2 lists the Life Cycle Process Group. Column 3 is a description of the deliverable that will accompany each process.

### 3.6 Human Resource Management

The *Project Human Resource Management* knowledge area includes the processes that organize, manage, and lead the project team (PMBOK v4). The basic processes associated with Project Human Resource Management are:

1. **Develop Human Resource Plan** – This process normally starts with a review of preliminary resource requirements for the project activities.
2. **Acquire Project Team** – In this process, human resource availability is confirmed and the team necessary for completing the project assignments is assembled.
3. **Develop Project Team** – This involves continuously evaluating the team’s performance, and making improvements as needed. This includes adding or subtracting the appropriate personnel, identifying personal conflicts, etc.
4. **Manage Project Team** – The process of tracking team member performance, providing appropriate feedback, resolving problems, and ensuring proper team cohesion.

The following table describes how the Project Resource Management Processes relate to the specific Life Cycle Process Groups and their respective deliverables:

Process	Process Group	Deliverables
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Develop Human Resource Plan	Planning	Organization Chart, Roles and Responsibilities, Staffing Management Plan
Acquire Project Team	Execution	Project Staff assignments
Develop Project Team	Execution	Team performance assessment
Manage Project Team	Control	Requested changes

**Figure 7 - Project Resource Management Process**

Figure 7 represents a Project Resource Management Process table. The table is comprised of three columns. Column 1 identifies each Project Resource Management Process. Column 2 lists the Life Cycle Process Group. Column 3 is a description of the Deliverable that will accompany each process.

### 3.7 Communications Management

The ***Project Communications Management*** knowledge area includes the processes required to ensure timely and appropriate generation, collection, dissemination, storage, and ultimately, disposition of project information. Depending upon the size and complexity of the project, communications management may be informal or highly sophisticated. Regardless of formality, a Communications Plan should be incorporated into the overall project plan and reviewed regularly. A communications plan would typically address the following:

- The type (description) of communication – status meetings, status reports, presentations, memos, newsletters, meeting notes, etc.
- To whom the communication will be given – senior management, team members, the project sponsor, other stakeholders, etc.
- The facilitator of the communication – the PM is the facilitator for most communications
- The frequency of the communication – daily, weekly, monthly, etc.
- How the communication will be stored and what records retention requirements apply

#### **Project Status Reporting**

It is the responsibility of the IT Project Manager to ensure timely and accurate reporting. Managers of projects of interest (any project that the CIO would like to track) must report to the CIO on a monthly basis. Reports should clearly and concisely indicate how the project is progressing according to the approved plan. A standardized project reporting

template should be used. A designated eRoom should be created to store historical information.

### **3.7.1 Integrated Project Teams (IPT)**

Integrated Project Teams (IPTs) are tasked with the day-to-day oversight of systems under development. IPTs may be formed for a single project, for a group of projects, or for an entire program. The primary members of an IPT are the Project Sponsor and the PM. They select the remainder of the IPT. IPTs are structured to oversee the development activities of systems across the entire life cycle. Their main responsibilities include:

- Review ongoing system development activities to ensure that their status, progress, and outlook are satisfactory and consistent with project plans
- Identify deficiencies in project development, develop corrective actions, and monitor their execution
- Provide recommendations to support their decision to continue, reduce, or terminate system development activities
- Conduct periodic reviews of project status, control, performance, risk, and outlook
- Establish and execute the necessary project controls to manage requirements, risk, cost, schedule, and technical baselines, and performance outcomes

The IPT is to be chartered and staffed as early in the project initiation phase as possible. IPTs will function in a spirit of teamwork with participants empowered and authorized, to the maximum extent possible, to make commitments for the organization or the functional area they represent.

An IPT Charter should:

- Contain a clear mission statement, including the specific purpose and objectives of the IPT
- Provide recognition of the purpose of the IPT in a larger context
- Identify the product, process, or service to be provided
- Identify the customer or recipient of the product, process, or service
- Identify the timeframe by which the product is to be produced, the process completed, or the service provided

- Identify IPT membership, including all the cross-functional disciplines necessary to achieve the objectives of the IPT and to produce the product, complete the process, or provide the service
- Consider any need for training of IPT members, particularly those new to the IPT process
- Address membership performance objectives that characterize high-performance IPTs
- Address product ownership and membership accountability and responsibility
- Address the use of metrics as a means of creating and maintaining team focus
- Provide for membership coordination and communication
- Be approved by appropriate authority
- Provide for its own periodic review for adequacy, currency, or rescission

A charter may:

- Provide for performance feedback to cross-functional members' supervisors
- Provide recognition that team composition may change over time, while maintaining a necessary core composition
- Provide for a member recognition program that characterizes high-performance IPTs

### **3.8 Risk Management**

***Risk Management***, as it relates to IT Risk Management at USAID, is the responsibility of the Office of the Chief Engineer. The OCIO has developed a standardized set of risk procedures to facilitate this process. The Risk Management Plan includes:

- Standard procedures to support the identification and assessment of risks
- Standard procedures to support the development of mitigation/contingency plans
- Standard procedures to monitor and report risk status
- Measures for determining when actions are required for risk management
- Standard tools for the tracking and management of risks

The Risk Management Manual (RMM) addresses the Agency need to institutionalize the risk management process at the project, program, and enterprise levels. The RMM serves as a directional document for program and Project Managers, as well as for task leads involved in managing projects. It is a guiding document for how OCIO manages project and organizational risks.

Risk management does not guarantee elimination of all risks. However, effective management increases the likelihood of project success. The Manual was developed using the methodologies of the Institute of Electronics and Electrical Engineers (IEEE) Std 1058-1998 for Software Project Management Plans, ANSI/PMI 99-001-2000 A Guide to the Project Management Body of Knowledge (PMBOK Guide), and the Capability Maturity Model Integration (CMMI) for Systems/Software Engineering.

### **3.9 Procurement Management**

The CIO is responsible for guiding the Agency's use of information technology (IT) and for managing the Agency's IT resources. It is the policy of the OCIO when acquiring IT solutions to integrate project management, financial management, acquisition management, and quality oversight processes into cohesive programmatic goals. Contract Management Services (CMS) and Budget & Capital Investment Planning (BCIP) oversee the business and information management (IM) activities for the OCIO. Some of those activities include:

- Managing the acquisition process of the Agency's IT in accordance with the Federal Acquisition Regulations
- Administering the formulation and execution of the OCIO annual appropriation
- Providing financial management for the OCIO's business lines and enterprise IT contracts
- Receiving and managing funds from Headquarters' program and field offices to pay for goods and services provided by the OCIO.

To facilitate this policy with respect to acquisition management, CMS and BCIP staff will provide advice on budget and contracting issues within the OCIO and other Agency program offices.

USAID policies on acquisition of IT resources are codified in [\*\*ADS Chapter 546, Acquisition of Federal Information Technology Resources\*\*](#).

### **3.10 Earned Value Management**

As specified by the Clinger-Cohen Act (CCA) of 1996 and the Office of Management and Budget (OMB) Circular A-11 (Part 7 – Planning, Budgeting, Acquisition, and Management of Capital Assets), and OMB Memorandum M-05-23, all major IT investments must use



management processes that employ project controls and utilize objective performance-based measurements.

Earned Value Management (EVM) is a project control methodology that integrates a project's cost, schedule, and scope in order to provide objective and reliable performance measurements. The metrics provided by implementing EVM help to delineate the planned value versus the actual progress of the project as demonstrated by the work completed. In addition, the management processes that are enforced when applying EVM require rigorous planning and disciplined review against the project's baseline performance goals. Finally, EVM continuously measures the fundamental trends of past performance and thus enables forecasting of estimates for future performance.

The Office of the Chief Information Officer, Chief Engineer Division has the responsibility to monitor cost, schedule, and performance goals on its portfolio of IT investments for the Development/Modernization/Enhancement (DME) phases of the IT project life-cycle. The requirements for USAID's EVM System implementation are based upon the American National Standards Institute / Electronic Industries Association (ANSI/EIA) Standard 748 and are consistent with the USAID EVM Framework.

### **3.10.1 Integrated Baseline Review (IBR)**

In accordance with the USAID IT Project Life Cycle Model, Project Managers must conduct Integrated Baseline Reviews (IBRs) on contracts with EVM requirements. IBRs are intended to provide a mutual understanding of risks inherent in contractors' performance plans and underlying management control systems. Properly executed, IBRs are an essential element of a PM's risk management approach. The OCIO has developed an IBR Guide (found in Appendix J "Earned Value Management") that clearly defines the purpose, goals, and objectives of an IBR. The Guide details attributes of an effective IBR and describes a baseline review process that will lead to a better understanding of project or program risks. It provides a common definition and framework for the IBR Process. At best, this process unifies management objectives for all PMs. The IBR Process enables managers to effectively utilize the project Performance Measurement Baseline (PMB) to assess performance and to better understand inherent risks. The IBR Process should continue throughout the life of a project.

## 4. Configuration Management

### 4.1 Configuration Control Boards (CCB)

All project deliverables must be managed according to best practices for document creation, versioning, change control, access control, sharing and distribution, and records management. The importance of following best practices in this regard is apparent when considering the number of pitfalls that can occur within a system development project without good document control, such as:

- Difficulty in readily determining the difference between documents and versions
- Superseded documents remaining in circulation
- Key stakeholders referring to, or working from, an out-of-date document
- Not knowing who has been issued copies of the documents
- No audit trail for changes to key system development project documents

The key components of good document control include:

- Use of version numbers on documents (version control)
- Maintenance of a history of the document's development (build status)
- Maintenance of a list of recipients for distributed copies (distribution list)

In addition, best practices recommend a single starting point for project documentation, and a consistent, repeatable environment for document storage. IT project documents and artifacts should be placed under version and access control by a designated project configuration and change control officer. Artifacts should be stored in an eRoom, with access restricted according to the sensitivity, privacy, or confidentiality of the data.

Below is a summary of project documentation requirements:

- A shared eRoom database is used as the starting point to all USAID IT Project documentation
- Each IT project has a dedicated folder in the repository, controlled by the OCIO CM team or a designated Configuration Management (CM) representative
- A master document index for each system development project is stored in the project's root folder

- The master document index provides all of the information required to enable the document's user to identify and access deliverables for the project
- Every IT project uses an identical folder structure for storing SDLC deliverables

## **4.2 Configuration Control Boards (CCB)**

### **CIO CCB**

The CIO CCB is the senior configuration control board responsible for establishing and maintaining the USAID IT enterprise baselines. It also serves to review IT changes forwarded from subordinate level CCBs and is called upon to rule on technical issues associated with changes that have significant potential risk or wide-ranging impact. The CIO CCB operates under the direct guidance of the USAID Configuration Management (CM) Manager.

USAID Washington (USAID/W) CCB Documentation is stored at the following location: [\(CIO CCB Charter – draft: My eRooms > CIO CCB > CCB Documentation\)](#)

### **BSE (previously ISMM) CCB**

The BSE CCB (formerly called the ISMM CCB) is the change control authority for BSE projects which controls, tracks, reviews and approves, and monitors change requests. The BSE CCB meets to review, approve, defer, prioritize, and schedule implementation of requested changes that affect project requirements, schedule, and cost.

### **O&M (previously TSI) CCB**

The O&M CCB (formerly called the TSI CCB) is the change control authority for O&M projects which controls, tracks, reviews and approves, and monitors change requests. The O&M CCB meets to review, approve, defer, prioritize, and schedule implementation of requested changes that affect project requirements, schedule, and cost.

### **Project CCB**

The PCCB is the project-level change control authority which controls, tracks, reviews and approves, and monitors change requests. The PCCB meets to review, approve, defer, prioritize, and schedule implementation of requested changes that affect project requirements, schedule, and cost. The PCCB membership should be defined early in the project. Please contact the OCIO Chief Engineer's Configuration Management Team for Project CCB guidance and templates.

## 5. Security Management

### 5.1. Privacy

The Privacy Office within OCIO is responsible for safeguarding the personally identifiable information holdings within USAID, which are protected by the Privacy Act of 1974, the E-Government Act of 2002, and other laws, Executive Orders, and OMB guidance. The Privacy Office operates under the direction of the Chief Privacy Officer. Its mission is to ensure that the confidentiality and integrity of an individual's personally identifiable information is maintained, while achieving USAID's overall mission and the missions of its individual programs.

Project Managers must consider the information “life cycle” (i.e., collection, use, retention, processing, disclosure and destruction) in evaluating how information handling practices at each stage may affect individuals' privacy. For this purpose, the Privacy Office conducts a Privacy Impact Assessment. To be comprehensive and meaningful, assessments require collaboration by program experts as well as experts in the areas of information technology, IT security, records management, and privacy. A PIA must be addressed at the early stages of the system development. (<http://inside.usaid.gov/M/OCIO/CISO/privacy-overview.html>. **Note: This Web site is only available to USAID intranet users.**)

### 5.2. Certification & Accreditation

In compliance with Federal laws and policies, USAID has implemented and maintains a security program for all Agency information that is collected, processed, transmitted, stored, or disseminated in general support systems (GSS) and major applications.

All IT projects must comply with Certification and Accreditation (C&A) requirements. During the Engineering Planning phase, PMs must contact the OCIO/CISO and use the C&A templates to plan for C&A compliance.

C&A templates and information can be found at the following intranet link:

**<http://inside.usaid.gov/M/CIO/CISO/ISSO/certification.cfm>**

### 5.3. Other Security Requirements

All IT projects must comply with information security policies as defined in [ADS 545, Information Systems Security](#). More information can be found at the following intranet link:

**<http://inside.usaid.gov/M/CIO/CISO>**

## 6. Complementary Processes and Policies

### 6.1. Capital Planning and Investment Control

All projects must comply with the policies defined in [ADS 577, Information Technology Capital Planning and Investment Control](#)

### 6.2. FOIA and Records Management

All projects must comply with USAID Information and Records policies as defined in [ADS 502 – 511](#). This includes Freedom of Information Act (FOIA) and Records Management policies.

### 6.3. Section 508

All IT projects must comply with Federal Regulations – Section 508, to ensure they are accessible to users with physical disabilities. [ADS 501mad](#) details these mandatory policies and procedures.

### 6.4. ADS

All projects must comply with [USAID Automated Directives System \(ADS\)](#) mandatory policies and procedures. Additional policies may be applicable to certain projects, beyond those specifically referenced in this manual. In particular, the Series 500 – Management Services ADS policies should be reviewed carefully.

## 7. Resources and References

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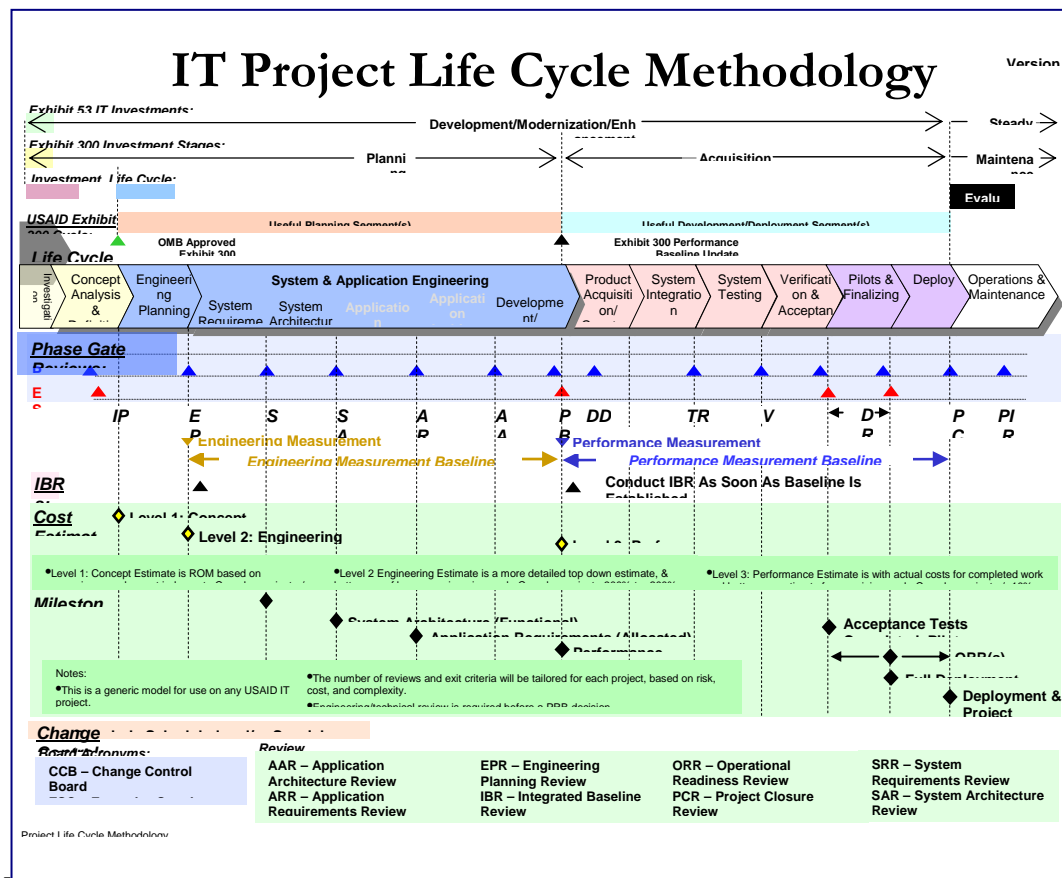
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# APPENDIX A: IT PROJECT LIFE CYCLE DIAGRAMS

## IT Project Life Cycle Methodology

The IT Project Life Cycle includes fifteen Life Cycle Phases (shown in the figure below) that support a developmental project from inception (Investigation phase) to closure (Operations & Maintenance). These phases are integrated with other activities such as the Capital Planning & Investment Control cycle and are governed by a series of Phase Gate Reviews. The following graph outlines the Capital Planning & Investment Control (CPIC) activities, Life Cycle Phases, Phase Gates, Cost Estimation Levels, and Major Milestones across the Project Life Cycle. These standard procedures are intended to drive consistent project performance and economies of scale in information technology management.



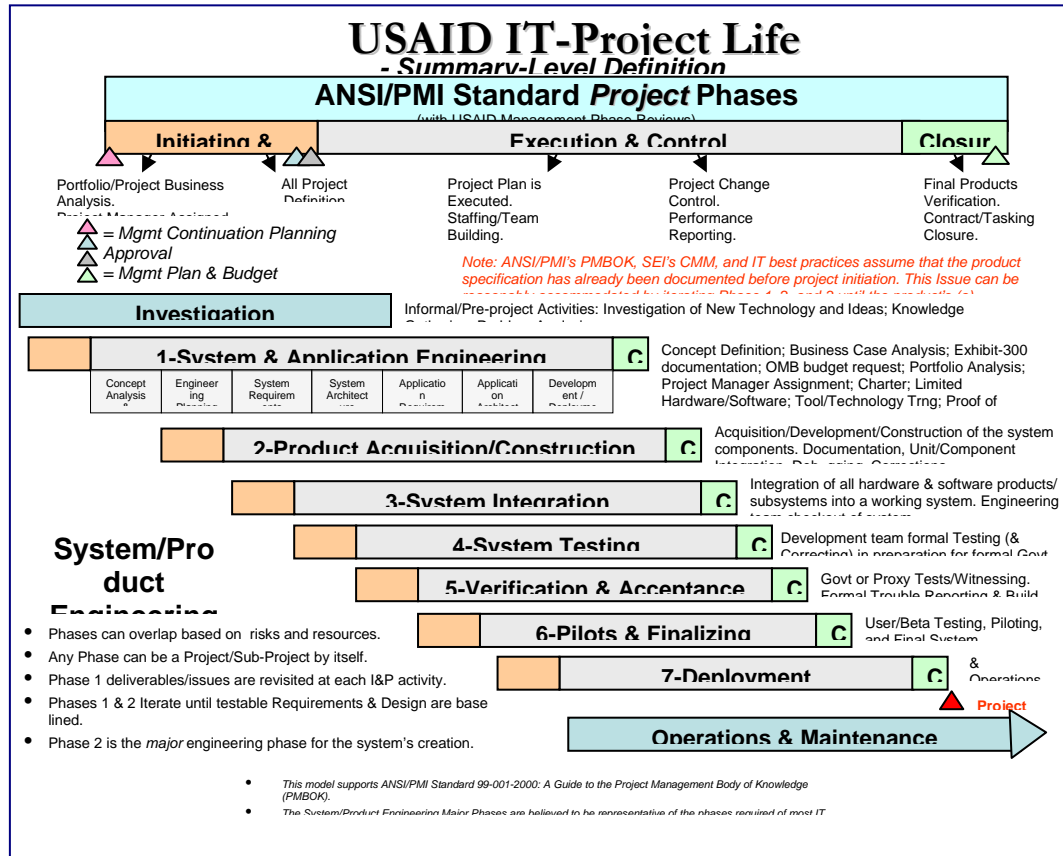
**Figure 8 - IT Project Life Cycle Methodology**

Figure 8 represents a diagram of the IT Project Life Cycle Methodology. Toward the top of the diagram is a list of the Life Cycle Phases. The phases consist of Concept Analysis & Definition, Engineering Planning, System & Application Engineering, Product Acquisition/Construction, System Integration, System Testing, Verification & Acceptance, Pilots & Finalizing, Deploy and Operations & Maintenance. Following the Life Cycle Phases is a listing of Phase Gate Reviews. Among the reviews are the Investment Planning Review, Engineering Planning Review, System Requirements Review, System Architecture Review, Application Architecture Review, Application Requirement Review, Application Architecture Review, Performance Baseline Review, Deployment Readiness Review, Test Readiness Review, Verification Test Review, Deployment Readiness Review, Project Closure Review, Post Implementation Review and the Integrated Baseline Review. The next area described is Cost Estimates. This is followed by Milestones and a list of Board and Review Acronyms.



## IT Project Life Cycle Model with Summary-Level Definition of Phases

In the following diagram, the fifteen phases of the USAID IT Project Life Cycle are summarized into nine high-level phases, in which project deliverables and work products are developed and utilized. These documents, critical to the overall management of IT engagements, support the overall ANSI/PMI Standard Project Phases and are required to support progression from one phase of the life cycle to the next.

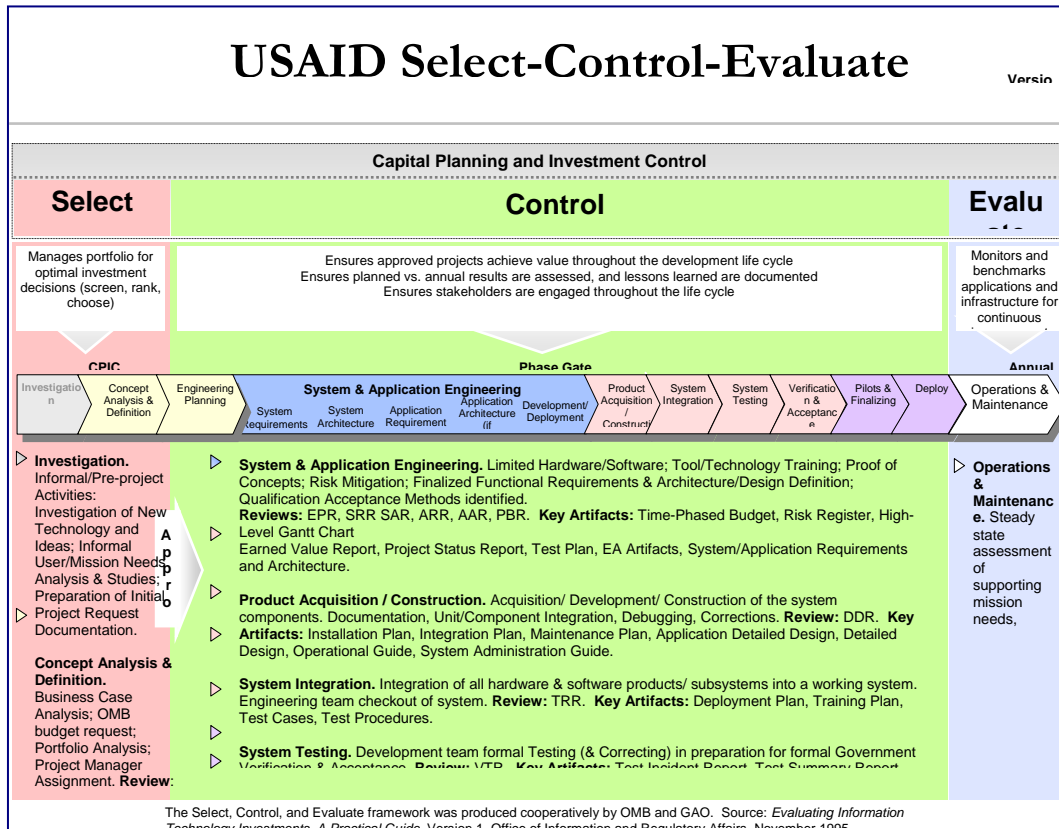


**Figure 9 - USAID Project Life**

Figure 9 represents the USAID IT Project Life Cycle. Among the categories ANSI/PMI Standard Project Phases, Investigation of New Technology, System & Application Engineering, Product Acquisition/Construction, System Integration, System Testing, Verification & Acceptance, Pilots & Finalizing, Deployment and Operations & Maintenance. There is also a bulleted list of System/Product Engineering Major Phases located at the bottom left of the diagram.

## USAID Select-Control-Evaluate Framework

The USAID Capital Planning & Investment Control (CPIC) process is designed to aid agencies with overall investment management and executive oversight. The three phases that are core to the CPIC process (Select, Control, Evaluate) are supported through the use of the USAID Software Development Life Cycle and supported artifacts. The following describes each framework's objective and reflects the correlation between the two.



**Figure 10 - USAID Select - Control - Evaluate**

Figure 10 represents a diagram of the USAID Select-Control-Evaluation Framework. On the left of the graph is the Capital Planning and Investment Control category. This is followed by a Phase Gate including System & Application Engineering, Product Acquisition/Construction, System Integration, System Integration, System Testing, Verification & Acceptance, Pilots Finalizing, Deploy and Operations & Maintenance. This is followed below with a description of the above mentioned categories.

## APPENDIX B: PHASE DESCRIPTIONS

The following slides illustrate the fifteen major phases of USAID's IT Project Life Cycle Methodology and provide an overview of the process at hand, Phase Gate Reviews, key milestones, and key artifacts with quality factors supported via compliance within the Life Cycle Phase.

# US Agency for International Development



## Introduction to USAID Standards Agenda

- IT Project Life Cycle Phase Details
  - Overview
  - Key Artifacts and Quality Factors
  - Phase Gate Reviews & Checklists

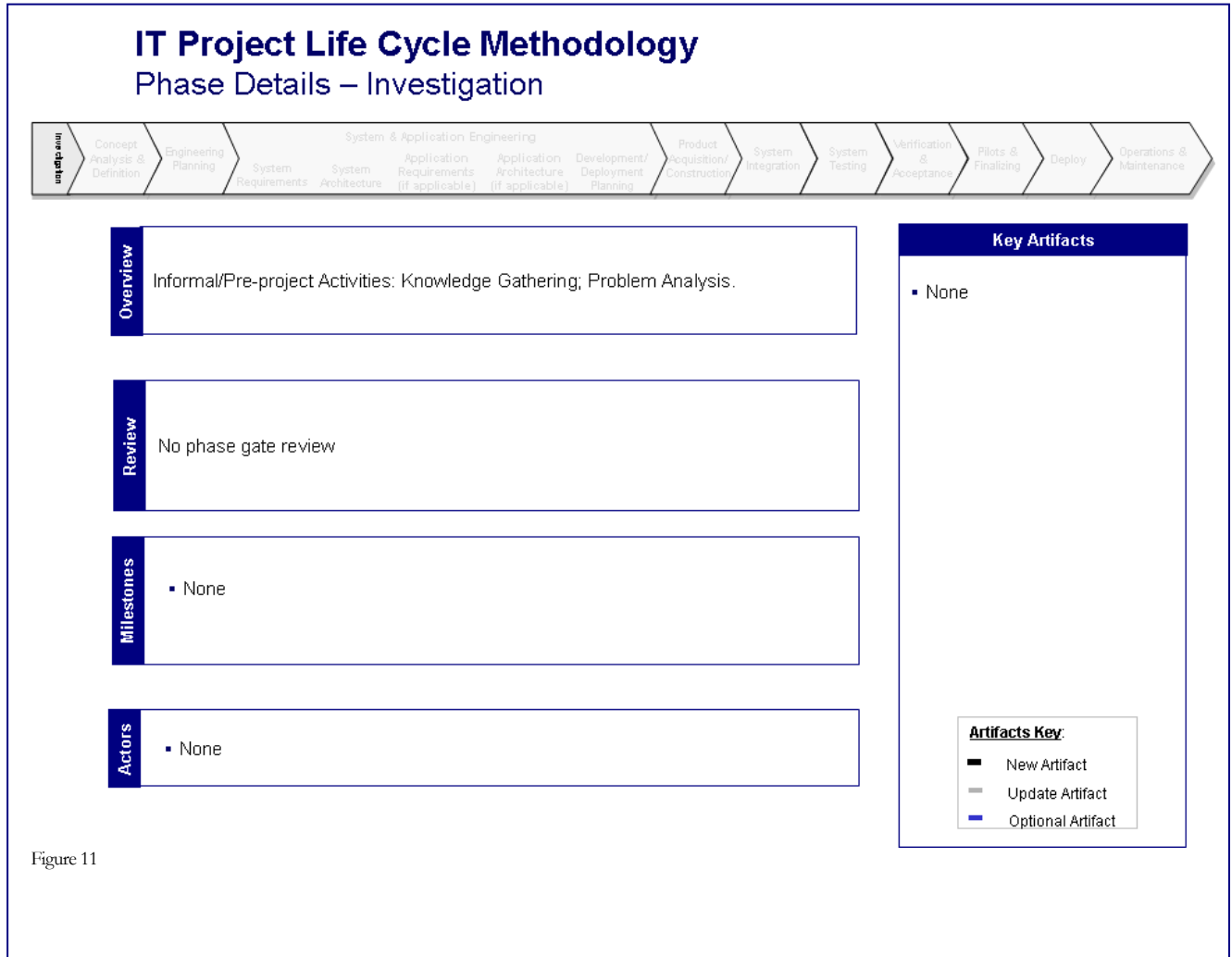
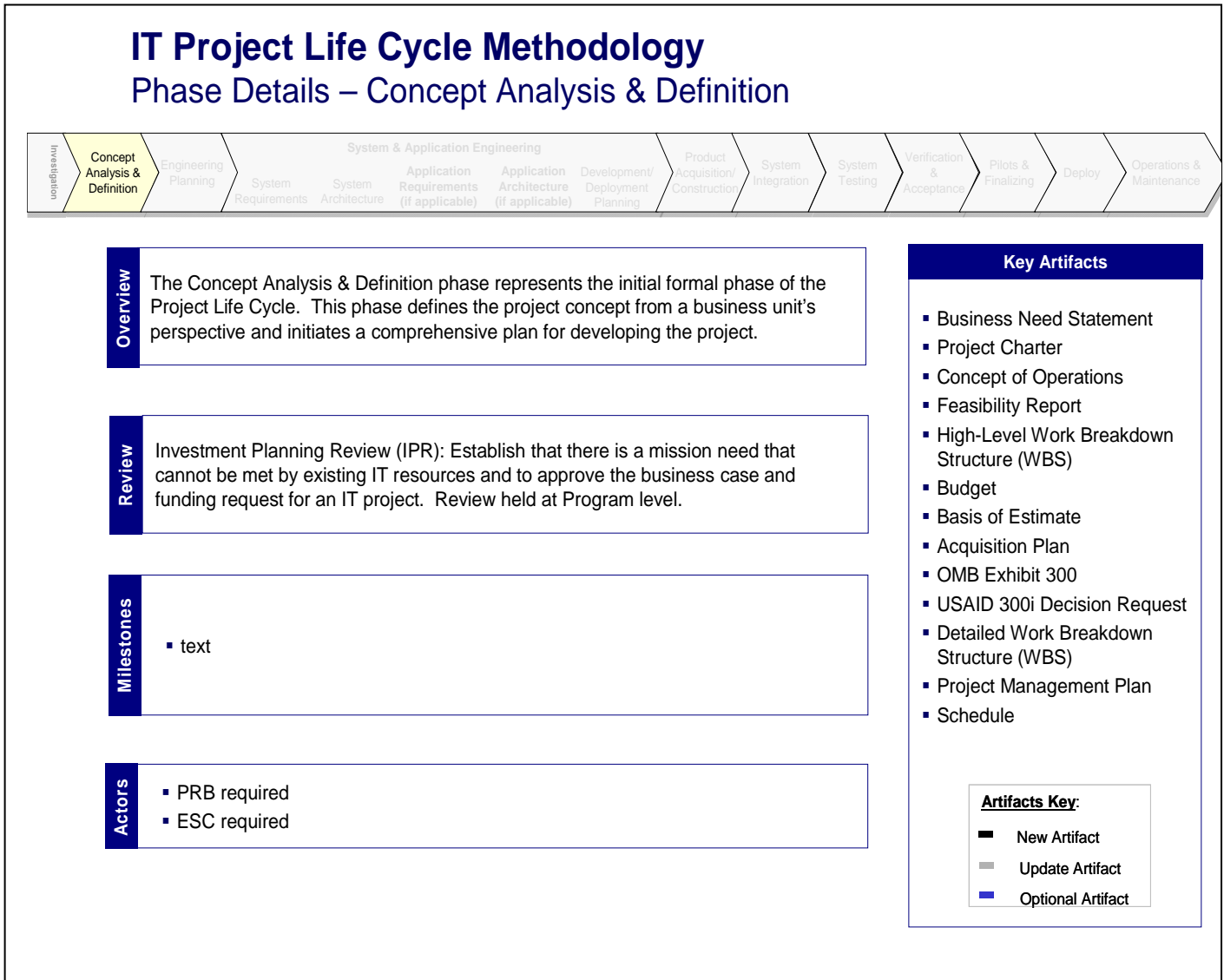


Figure 11

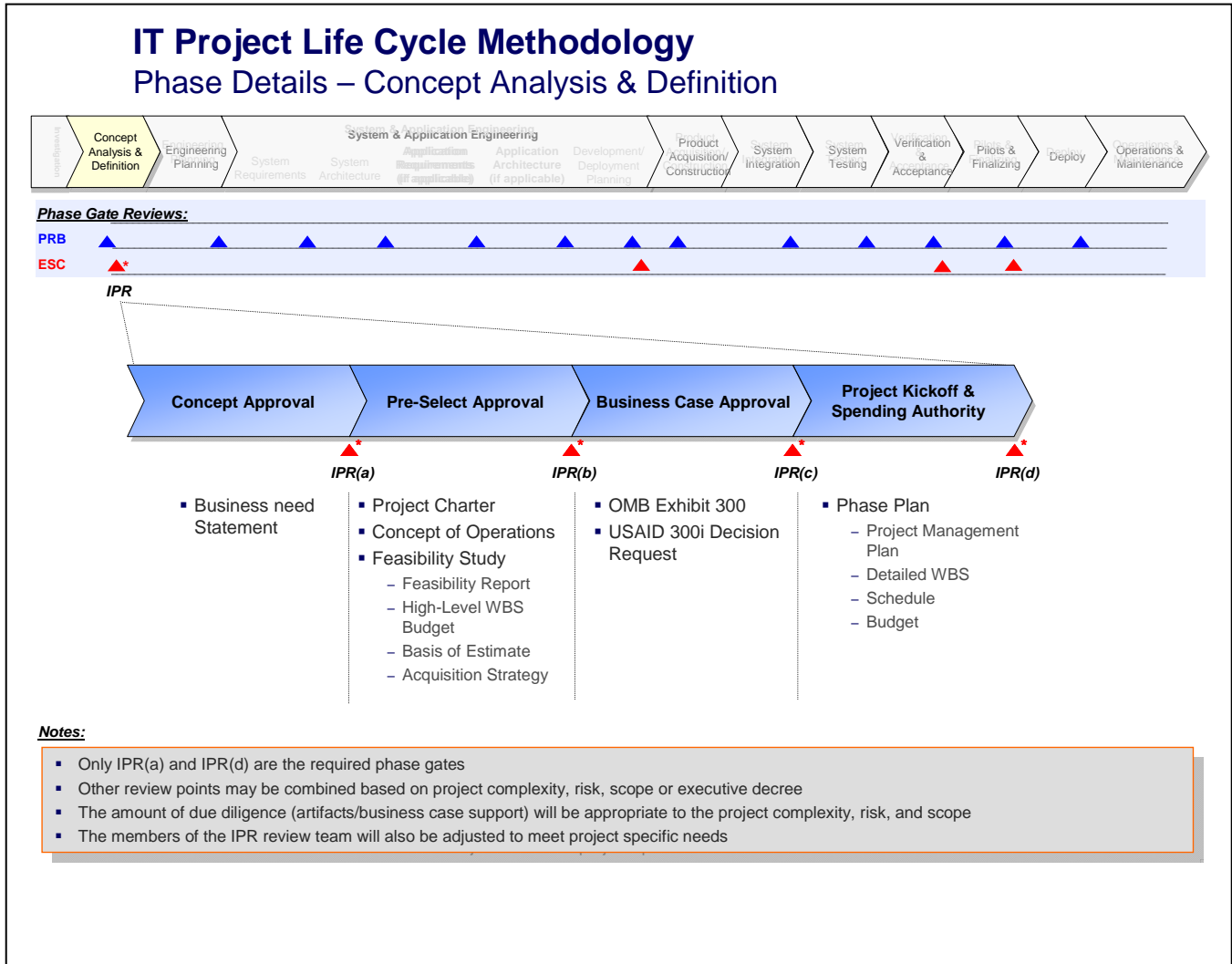
**Figure 11 - IT Project Life Cycle Method Phase Details - Investigation**

Figure 11 represents a diagram of the IT Project Life Cycle Methodology Phase Details - Investigation. In the diagram are categories for Overview, Review, Milestones, Actors and Key Artifacts.



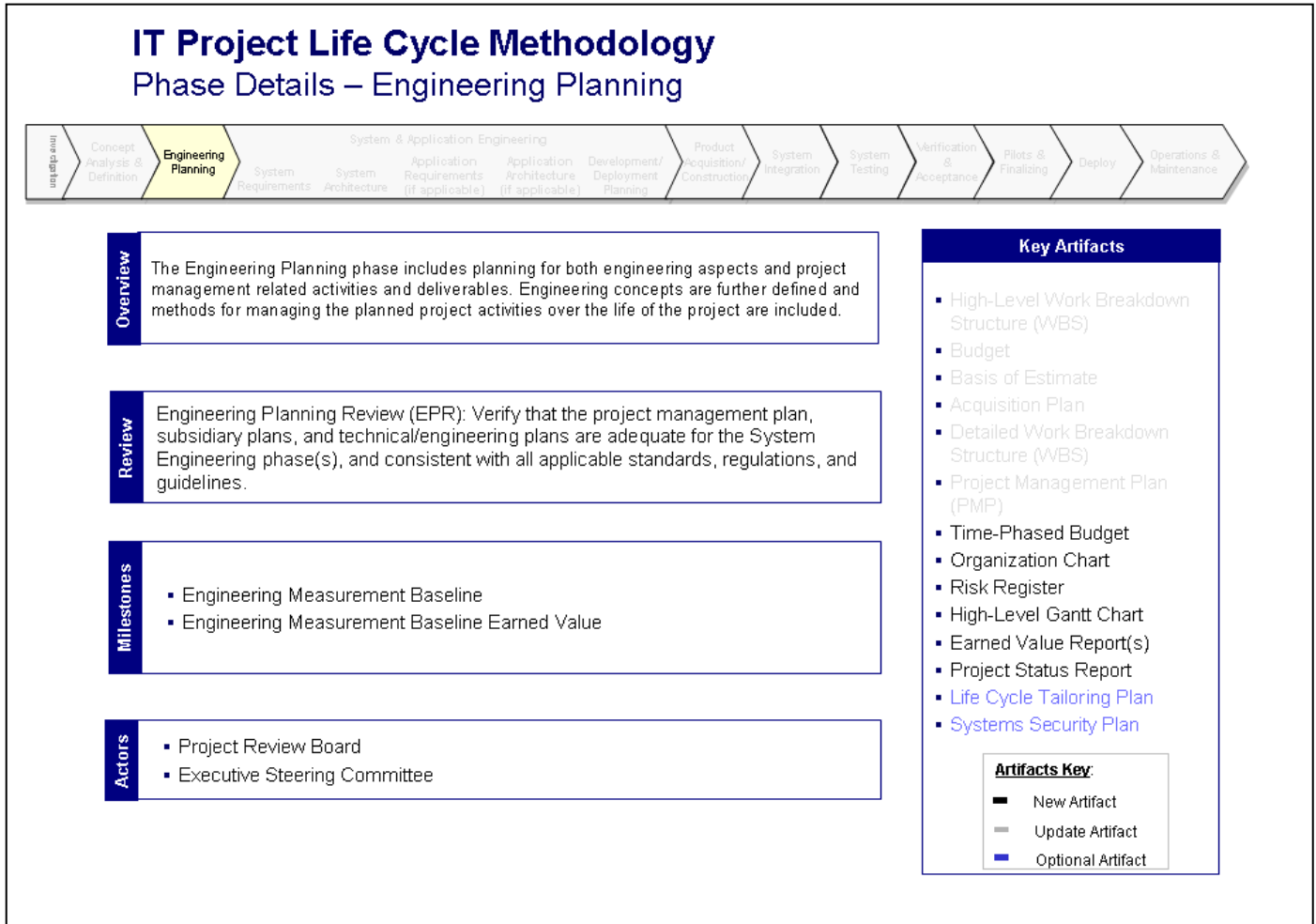
**Figure 12 - IT Project Life Cycle Methodology Phase Details - Concept Analysis & Definition**

Figure 12 represents a diagram of the IT Project Life Cycle Methodology Phase Details – Concept Analysis & Definition. In the diagram are categories for Overview, Review, Milestones, Actors and Key Artifacts.



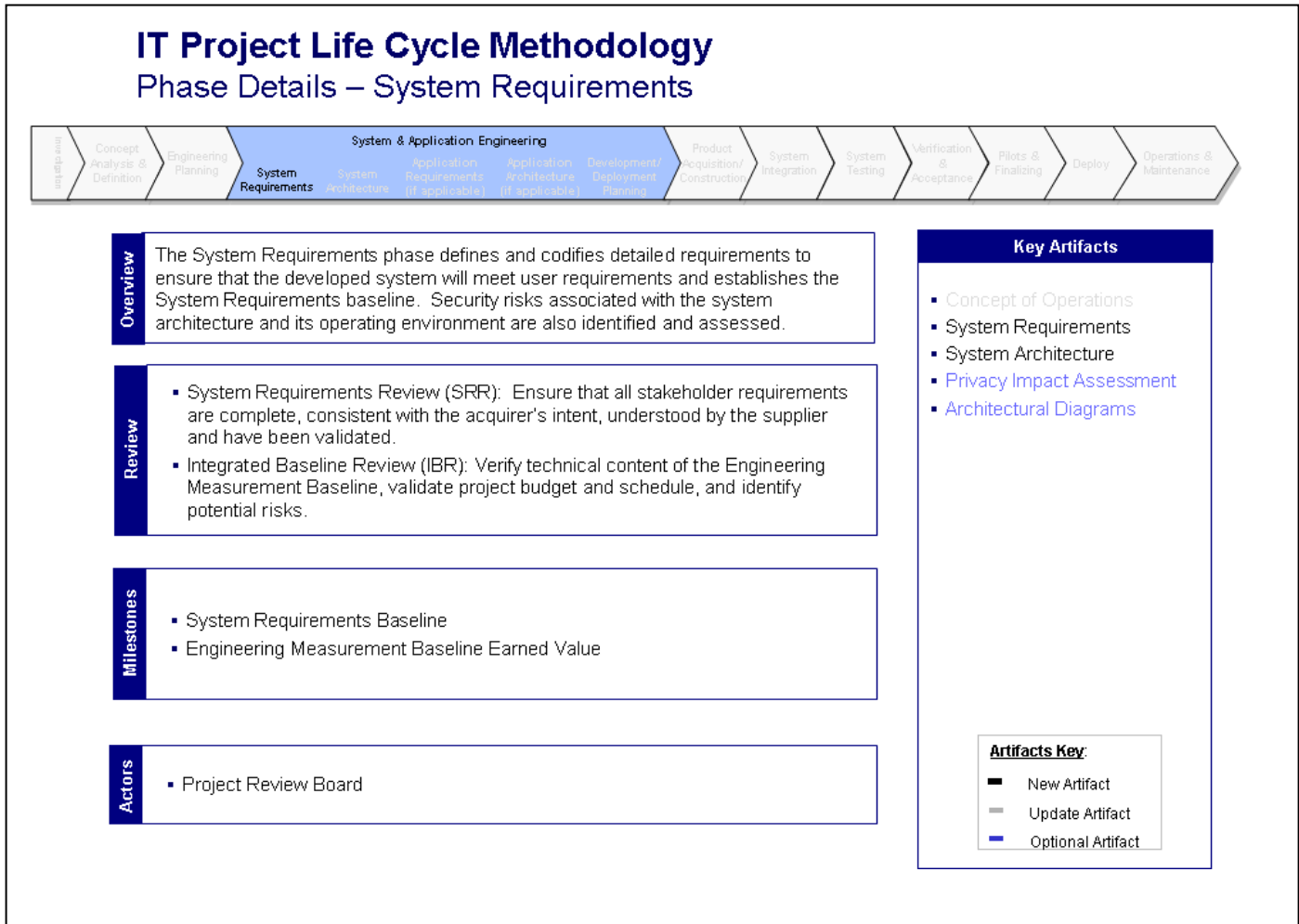
**Figure 13 - IT Project Life Cycle Methodology Phase Details - Concept Analysis & Definition**

Figure 13 represents the continuation of the diagram of the IT Project Life Cycle Methodology Phase Details – Concept Analysis & Definition. At the top is a list of categories including System & Application Engineering, Product Acquisition/Construction, System Integration, System Testing, Verification & Acceptance, Pilots Finalizing, Deploy and Operations & Maintenance. Next comes information on the Project Review Board (PRB) and the Executive Steering Committee (ESC) Phase Gate Reviews. This is followed by information on Investment Planning Review (IPR) including Concept Approval, Pre-Select Approval, Business Case Approval and the Project Kickoff & Spending Authority. At bottom are notes relating to the diagram.



**Figure 14 - IT Project Life Cycle Methodology Phase Details - Engineering Planning**

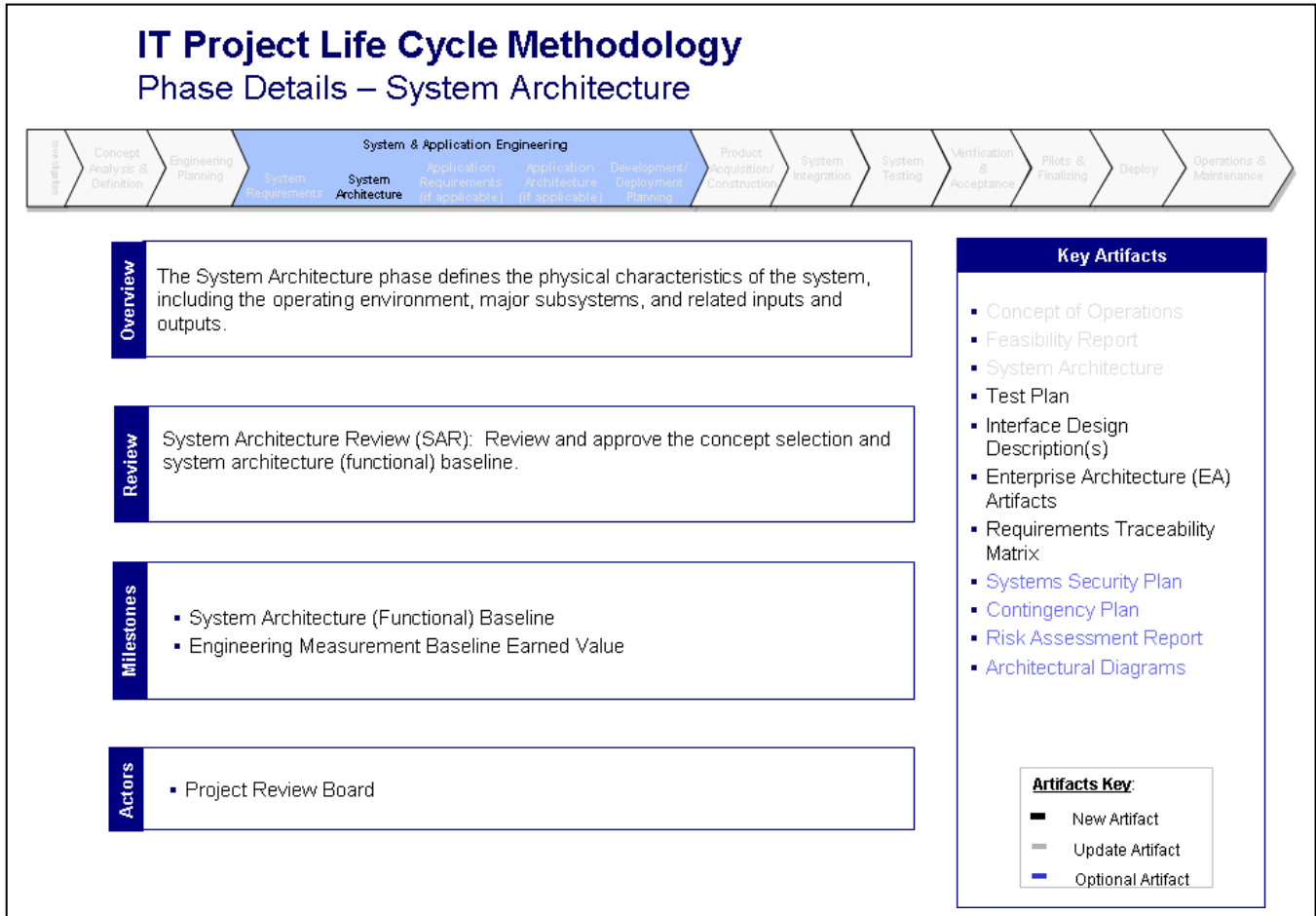
Figure 14 represents a diagram of the IT Project Life Cycle Methodology Phase Details – Engineering Planning. At the top is a list of categories including System & Application Engineering, Product Acquisition/Construction, System Integration, System Testing, Verification & Acceptance, Pilots Finalizing, Deploy and Operations & Maintenance. This is followed by Overview, Review, Milestone, Actor and Key Artifacts information.



**Figure 15 - IT Project Life Cycle Methodology Phase Details - System Requirements**

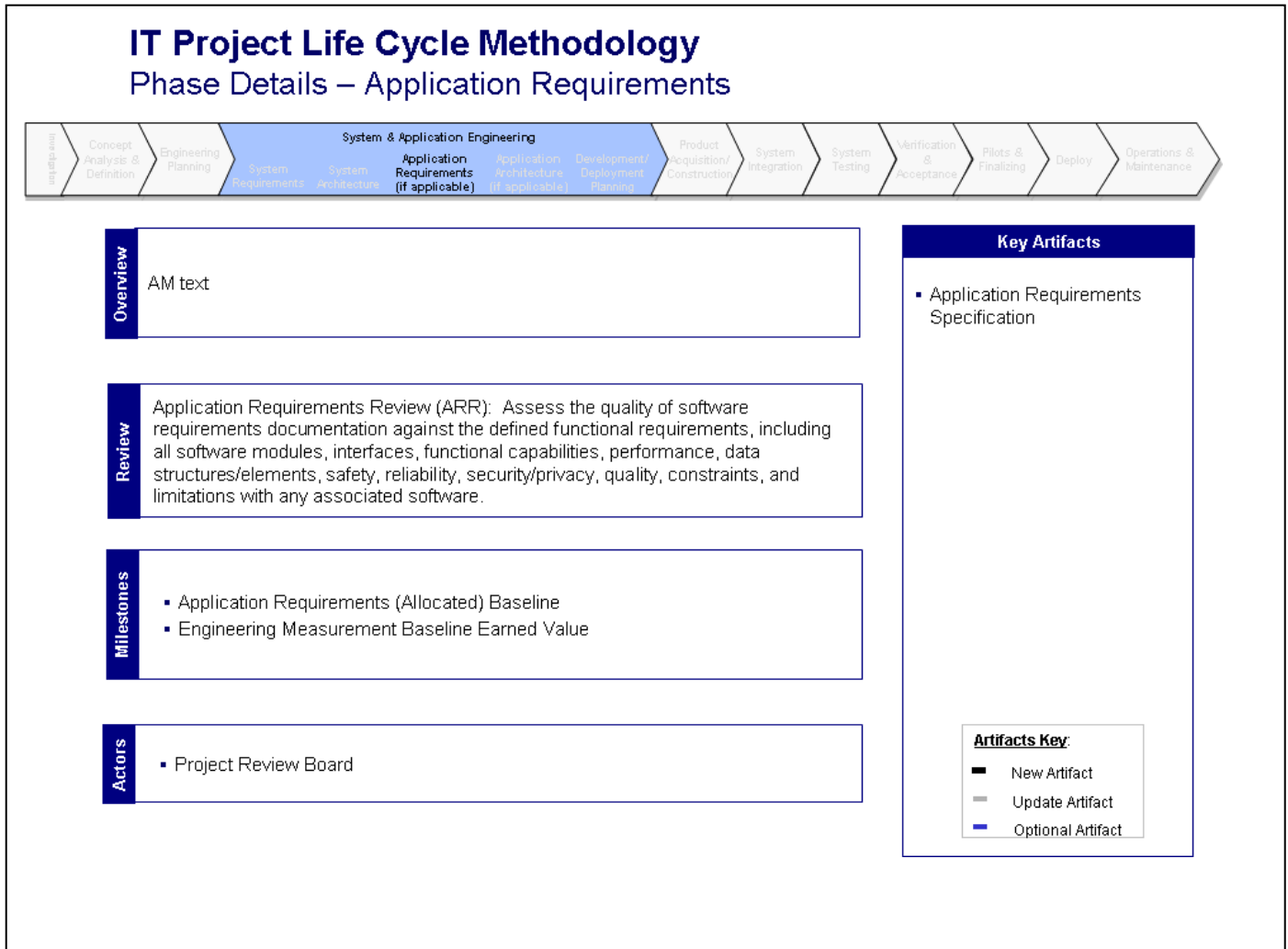
Figure 15 represents a diagram of the IT Project Life Cycle Methodology Phase Details – System Requirements. At the top is a list of categories including System & Application Engineering, Product Acquisition/Construction, System Integration, System Testing, Verification & Acceptance, Pilots Finalizing, Deploy and Operations & Maintenance. This is followed by Overview, Review, Milestone, Actor and Key Artifacts information.





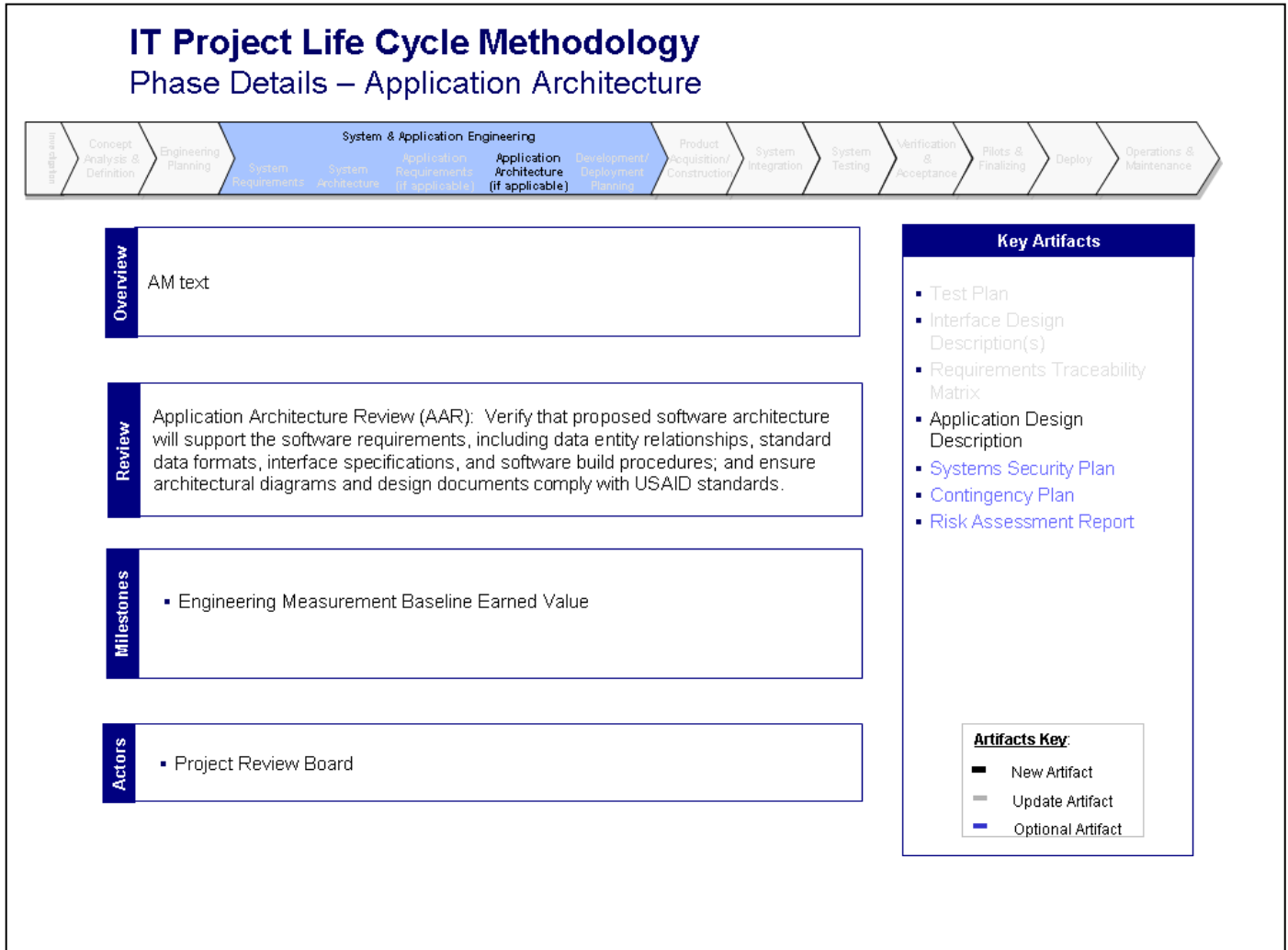
**Figure 16 - IT Project Life Cycle Methodology Phase Details - System Architecture**

Figure 16 represents a diagram of the IT Project Life Cycle Methodology Phase Details – System Architecture. At the top is a list of categories including System & Application Engineering, Product Acquisition/Construction, System Integration, System Testing, Verification & Acceptance, Pilots Finalizing, Deploy and Operations & Maintenance. This is followed by Overview, Review, Milestone, Actor and Key Artifacts information.



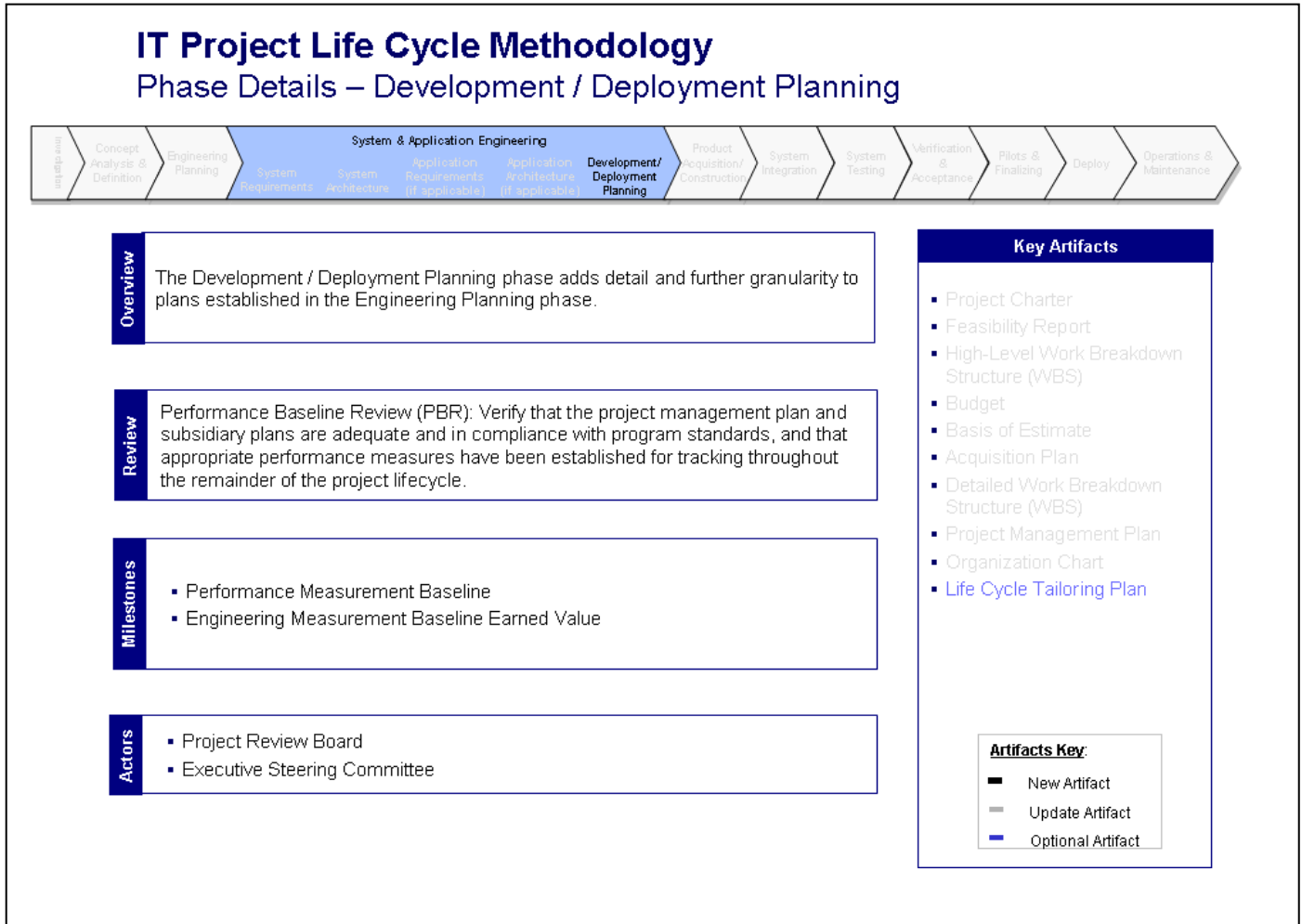
**Figure 17 - IT Project Life Cycle Methodology Phase Details - Application Requirements**

Figure 17 represents a diagram of the IT Project Life Cycle Methodology Phase Details – Application Requirements. At the top is a list of categories including System & Application Engineering, Product Acquisition/Construction, System Integration, System Testing, Verification & Acceptance, Pilots Finalizing, Deploy and Operations & Maintenance. This is followed by Overview, Review, Milestone, Actor and Key Artifacts information.



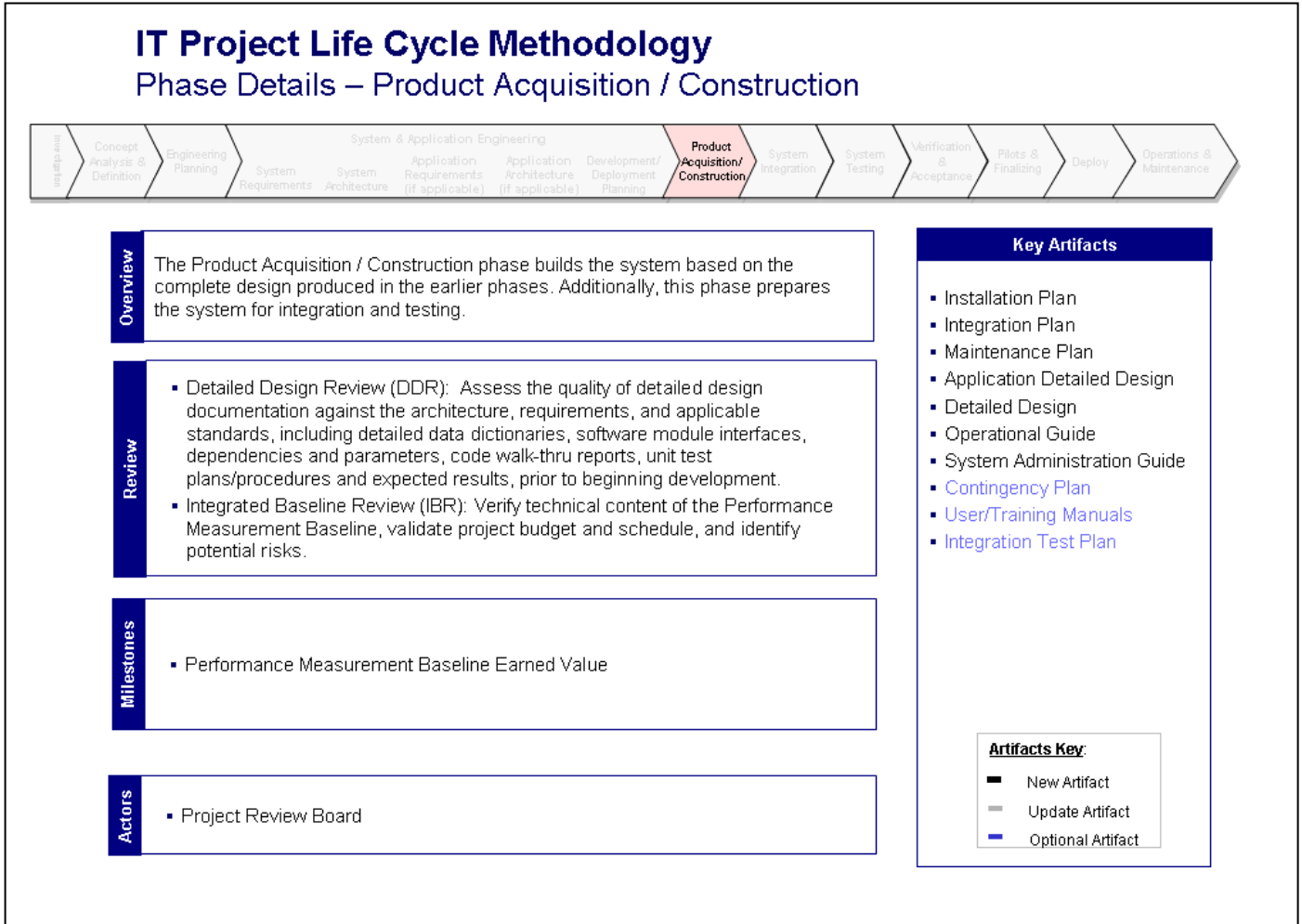
**Figure 18 - IT Project Life Cycle Methodology Phase - Application Architecture**

Figure 18 represents a diagram of the IT Project Life Cycle Methodology Phase Details – Application Architecture. At the top is a list of categories including System & Application Engineering, Product Acquisition/Construction, System Integration, System Testing, Verification & Acceptance, Pilots Finalizing, Deploy and Operations & Maintenance. This is followed by Overview, Review, Milestone, Actor and Key Artifacts information.



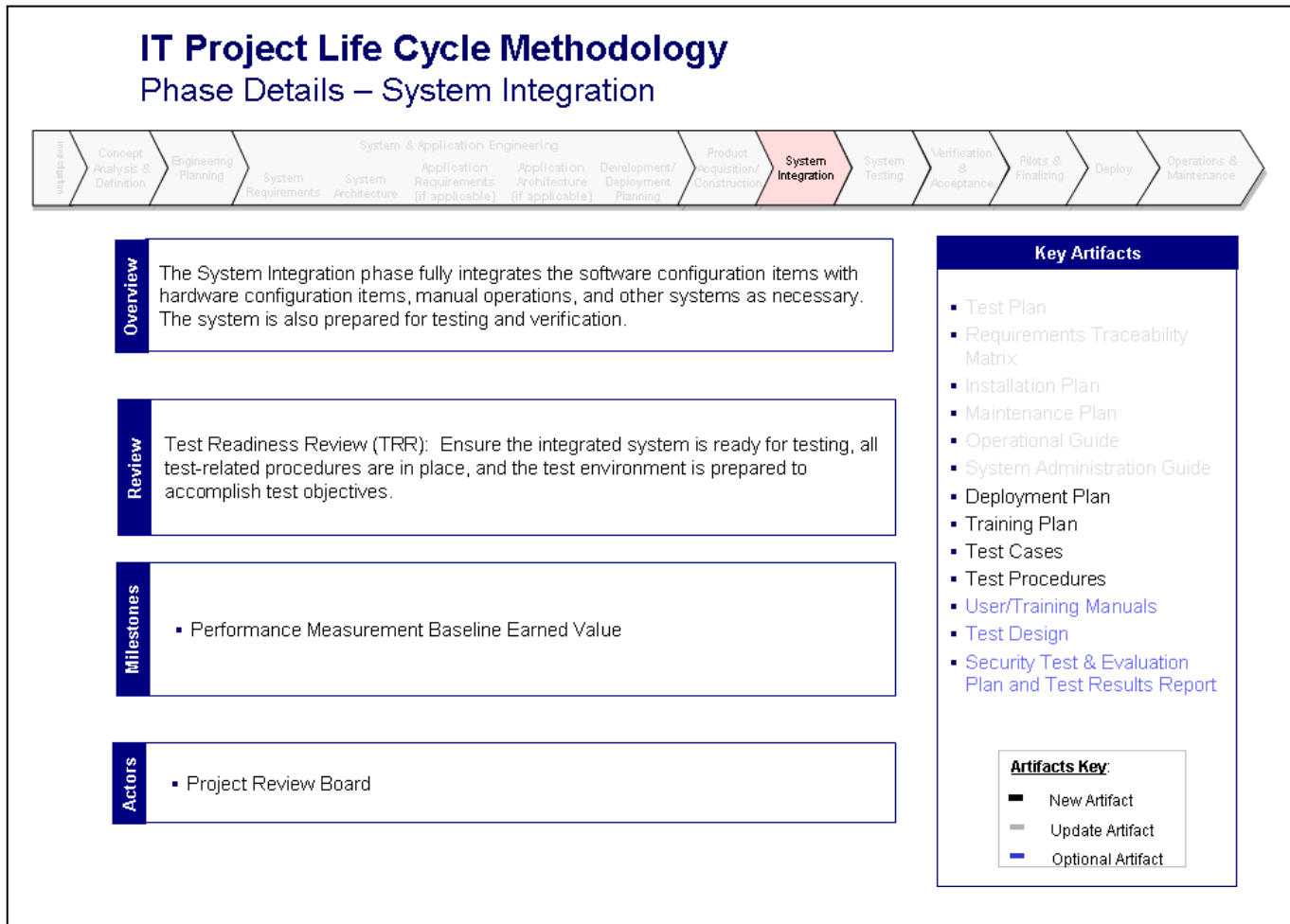
**Figure 19 - IT Project Life Cycle Methodology Phase Details - Development/Deployment Planning**

Figure 19 represents a diagram of the IT Project Life Cycle Methodology Phase Details – Development/Deployment Planning. At the top is a list of categories including System & Application Engineering, Product Acquisition/Construction, System Integration, System Testing, Verification & Acceptance, Pilots Finalizing, Deploy and Operations & Maintenance. This is followed by Overview, Review, Milestone, Actor and Key Artifacts information.



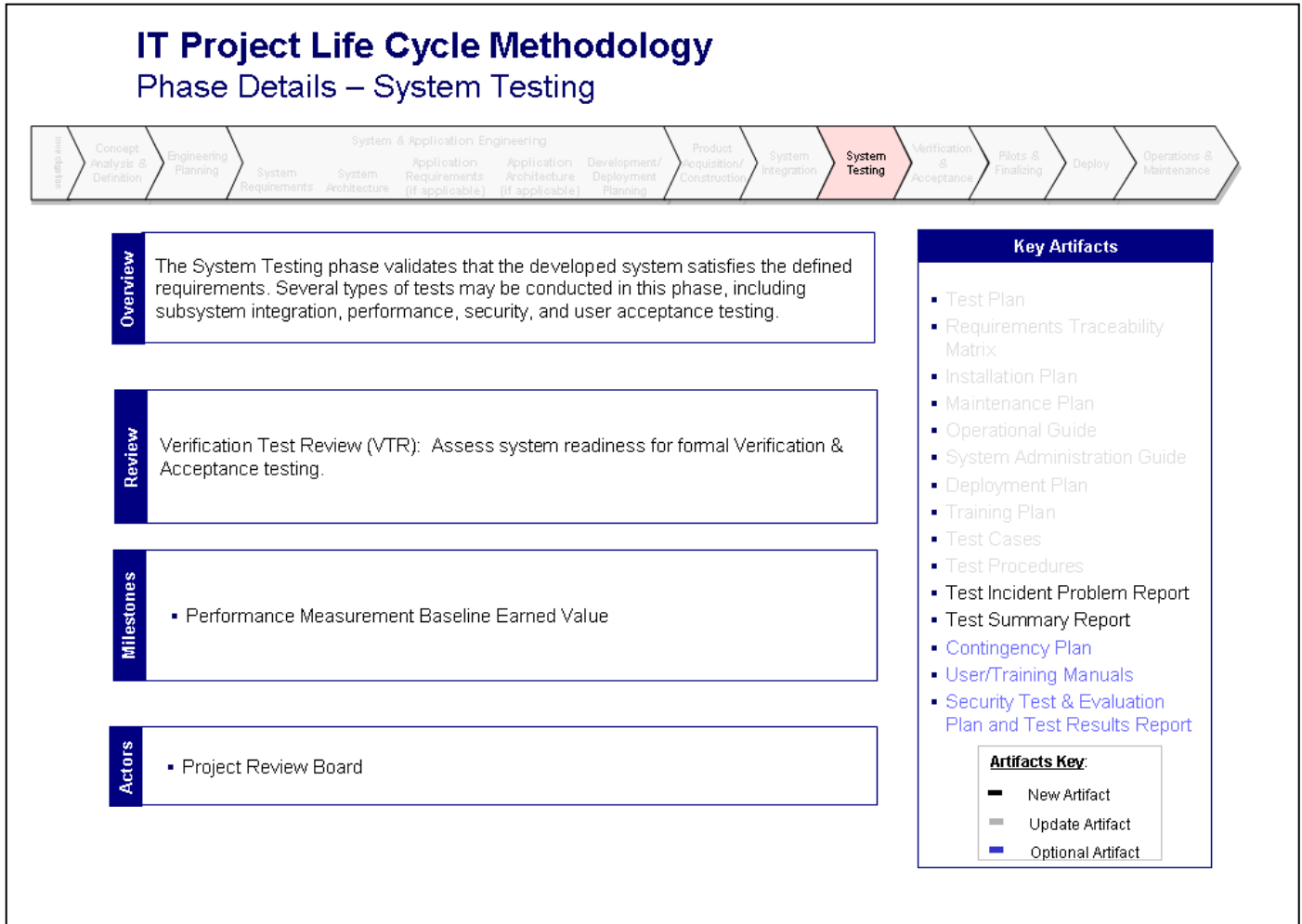
**Figure 20 - IT Project Life Cycle Methodology Phase Details - Product Acquisition/ Construction**

Figure 20 represents a diagram of the IT Project Life Cycle Methodology Phase Details – Product Acquisition/Construction. At the top is a list of categories including System & Application Engineering, Product Acquisition/Construction, System Integration, System Testing, Verification & Acceptance, Pilots Finalizing, Deploy and Operations & Maintenance. This is followed by Overview, Review, Milestone, Actor and Key Artifacts information.



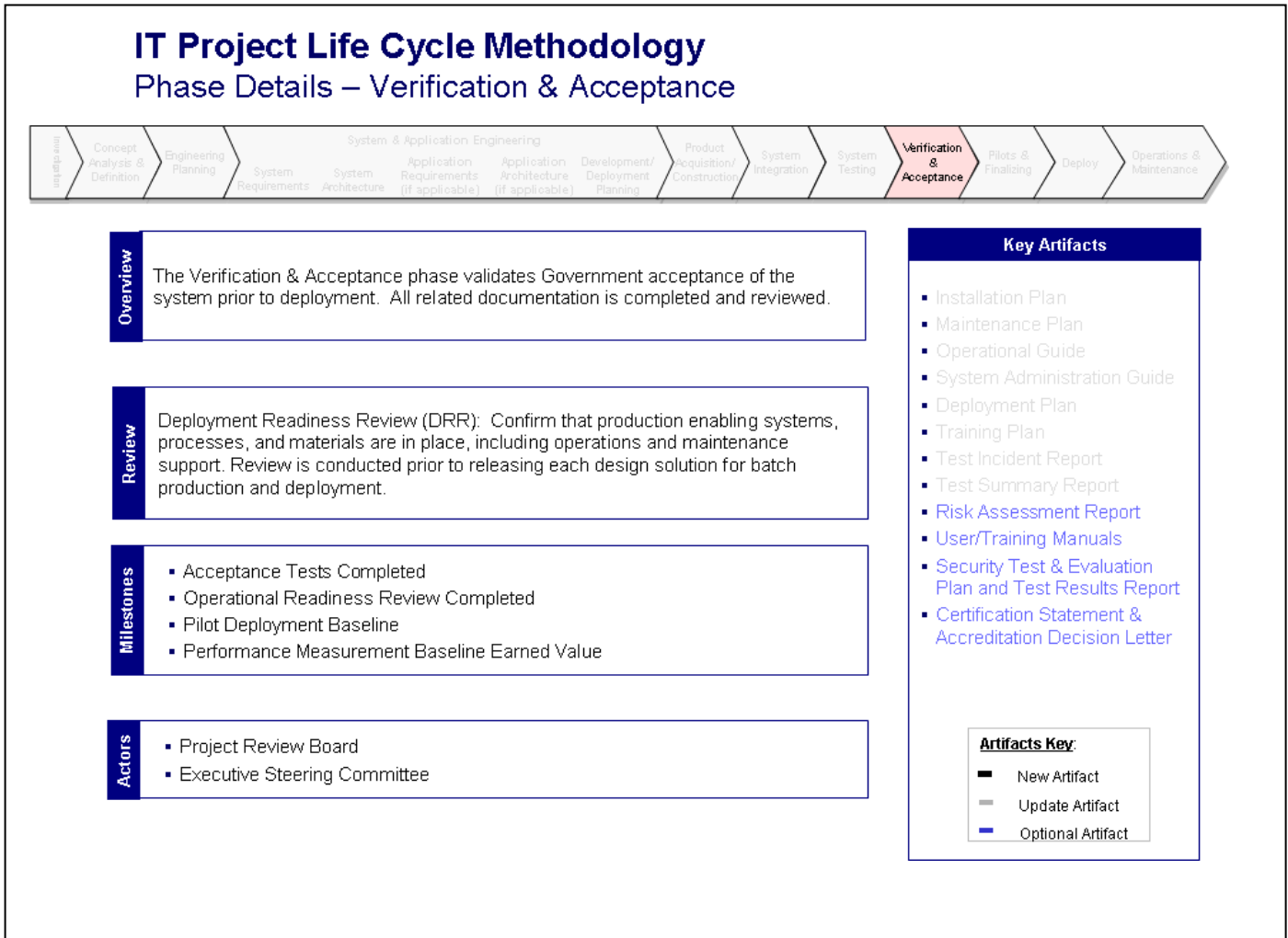
**Figure 21 - IT Project Life Cycle Methodology Phase Details - System Integration**

Figure 21 represents a diagram of the IT Project Life Cycle Methodology Phase Details – System Integration. At the top is a list of categories including System & Application Engineering, Product Acquisition/Construction, System Integration, System Testing, Verification & Acceptance, Pilots Finalizing, Deploy and Operations & Maintenance. This is followed by Overview, Review, Milestone, Actor and Key Artifacts information.



**Figure 22 - IT Project Life Cycle Methodology Phase Details - System Testing**

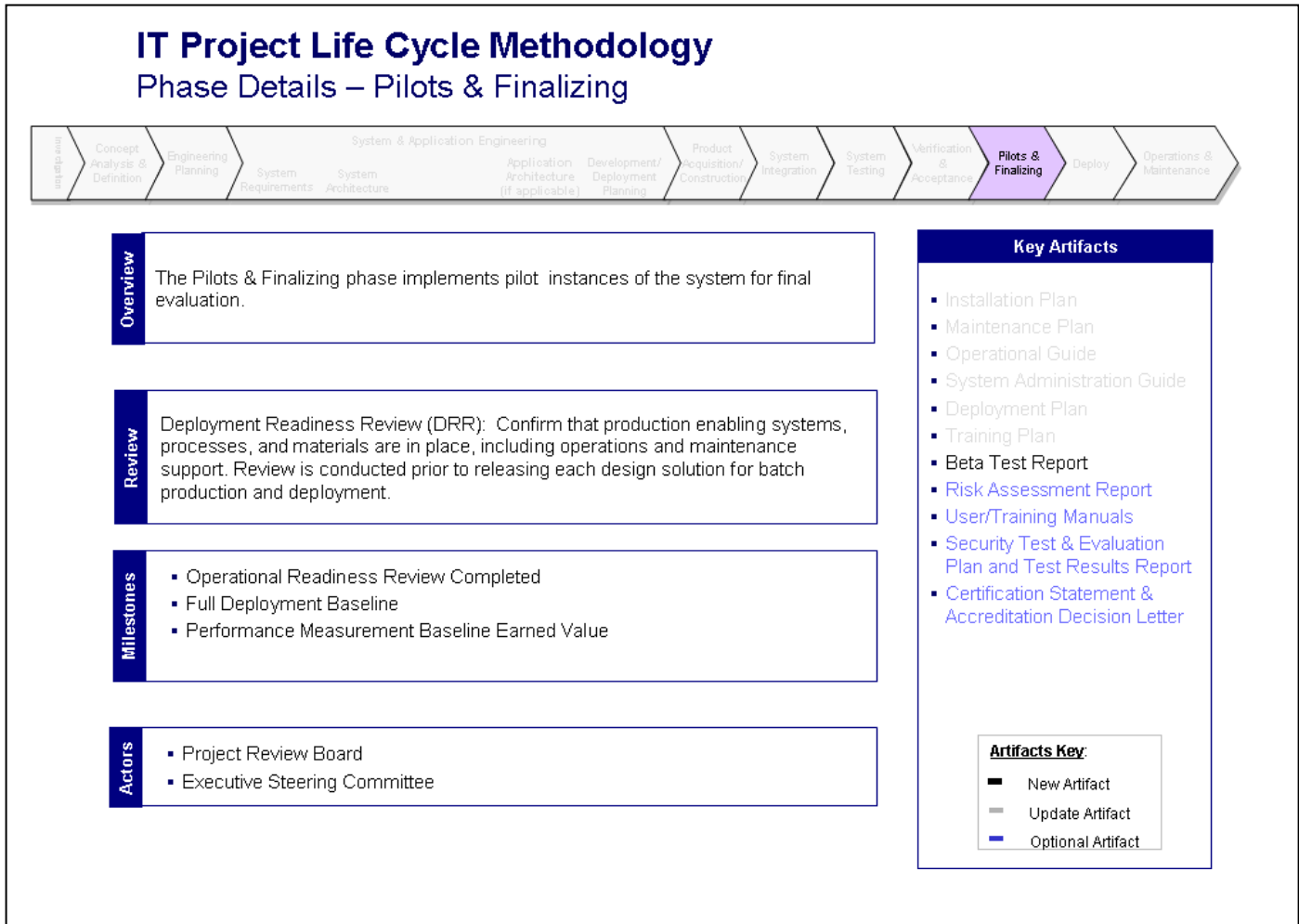
Figure 22 represents a diagram of the IT Project Life Cycle Methodology Phase Details – System Testing. At the top is a list of categories including System & Application Engineering, Product Acquisition/Construction, System Integration, System Testing, Verification & Acceptance, Pilots Finalizing, Deploy and Operations & Maintenance. This is followed by Overview, Review, Milestone, Actor and Key Artifacts information.



**Figure 12 - It Project Life Cycle Methodology Phase Details - Verification & Acceptance**

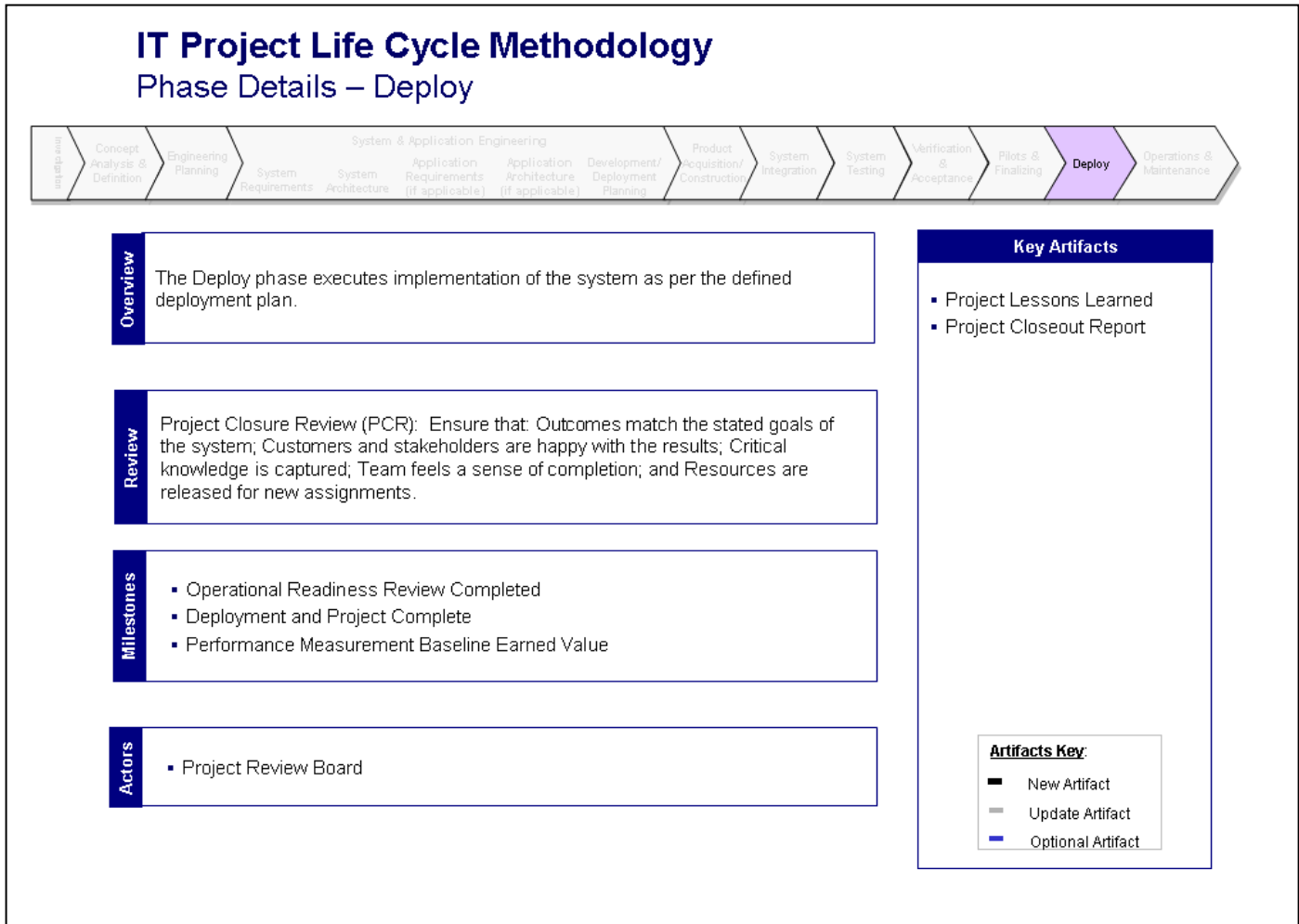
Figure 23 represents a diagram of the IT Project Life Cycle Methodology Phase Details – Verification & Acceptance. At the top is a list of categories including System & Application Engineering, Product Acquisition/Construction, System Integration, System Testing, Verification & Acceptance, Pilots Finalizing, Deploy and Operations & Maintenance. This is followed by Overview, Review, Milestone, Actor and Key Artifacts information.





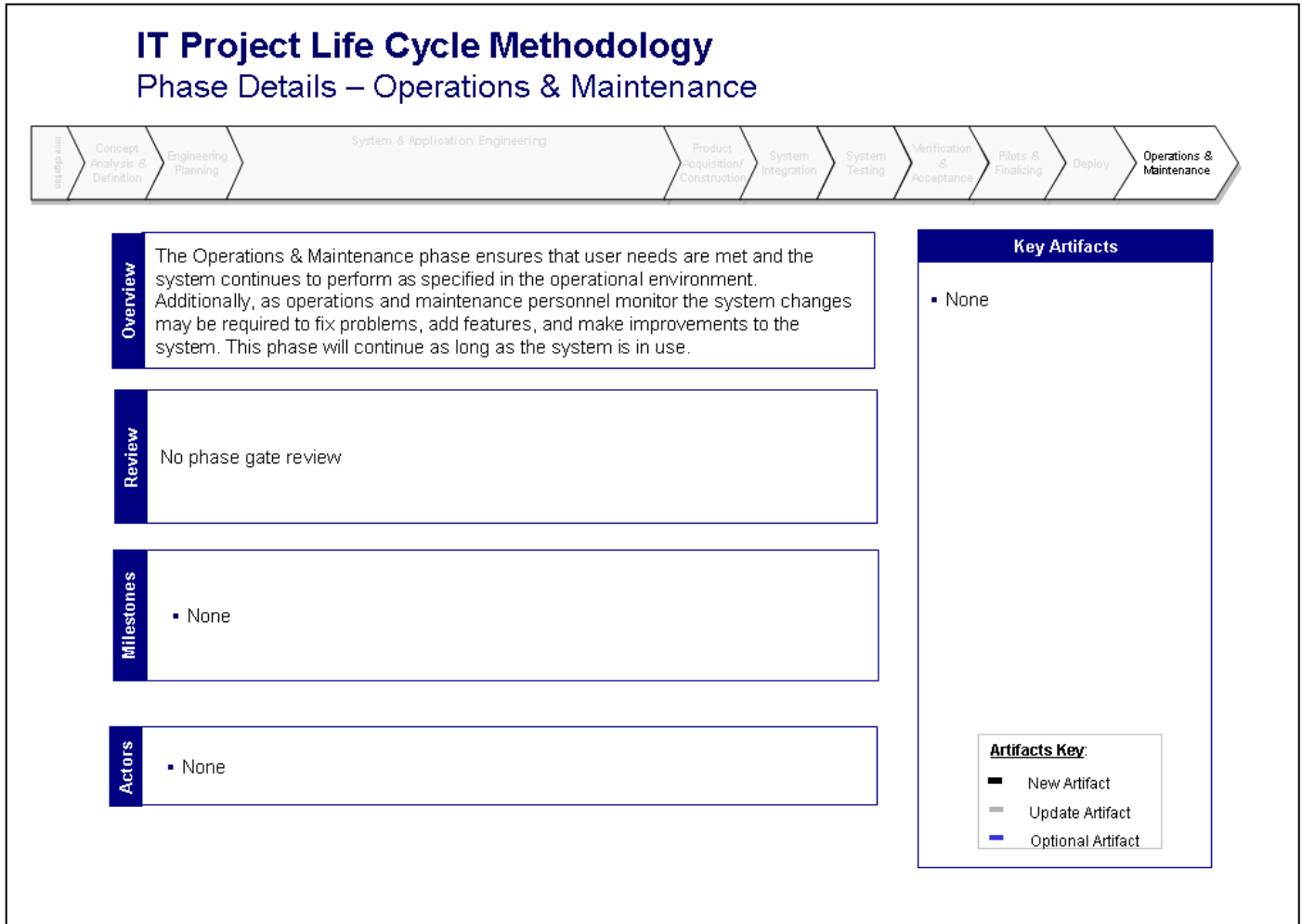
**Figure 24 - IT Project Life Cycle Methodology Phase Details - Pilots & Finalizing**

Figure 24 represents a diagram of the IT Project Life Cycle Methodology Phase Details – Pilots & Finalizing. At the top is a list of categories including System & Application Engineering, Product Acquisition/Construction, System Integration, System Testing, Verification & Acceptance, Pilots Finalizing, Deploy and Operations & Maintenance. This is followed by Overview, Review, Milestone, Actor and Key Artifacts information.



**Figure 25 - IT Project Life Cycle Methodology Phase Details - Deploy**

Figure 25 represents a diagram of the IT Project Life Cycle Methodology Phase Details – Deploy. At the top is a list of categories including System & Application Engineering, Product Acquisition/Construction, System Integration, System Testing, Verification & Acceptance, Pilots Finalizing, Deploy and Operations & Maintenance. This is followed by Overview, Review, Milestone, Actor and Key Artifacts information.



**Figure 26 - IT Project Life Cycle Methodology Phase Details - Operations & Maintenance**

Figure 26 represents a diagram of the IT Project Life Cycle Methodology Phase Details – Operations & Maintenance. At the top is a list of categories including System & Application Engineering, Product Acquisition/Construction, System Integration, System Testing, Verification & Acceptance, Pilots Finalizing, Deploy and Operations & Maintenance. This is followed by Overview, Review, Milestone, Actor and Key Artifacts information.

# APPENDIX C: ARTIFACTS MATRIX

## IT Project Life Cycle with Artifacts

The following section outlines each Life Cycle phase/Phase Gate Review and the artifacts required for the review against a project time line. Artifact names appearing in black and blue should be developed during the phase in which it appears. Names that are grayed-out indicate updates to previously developed documents.

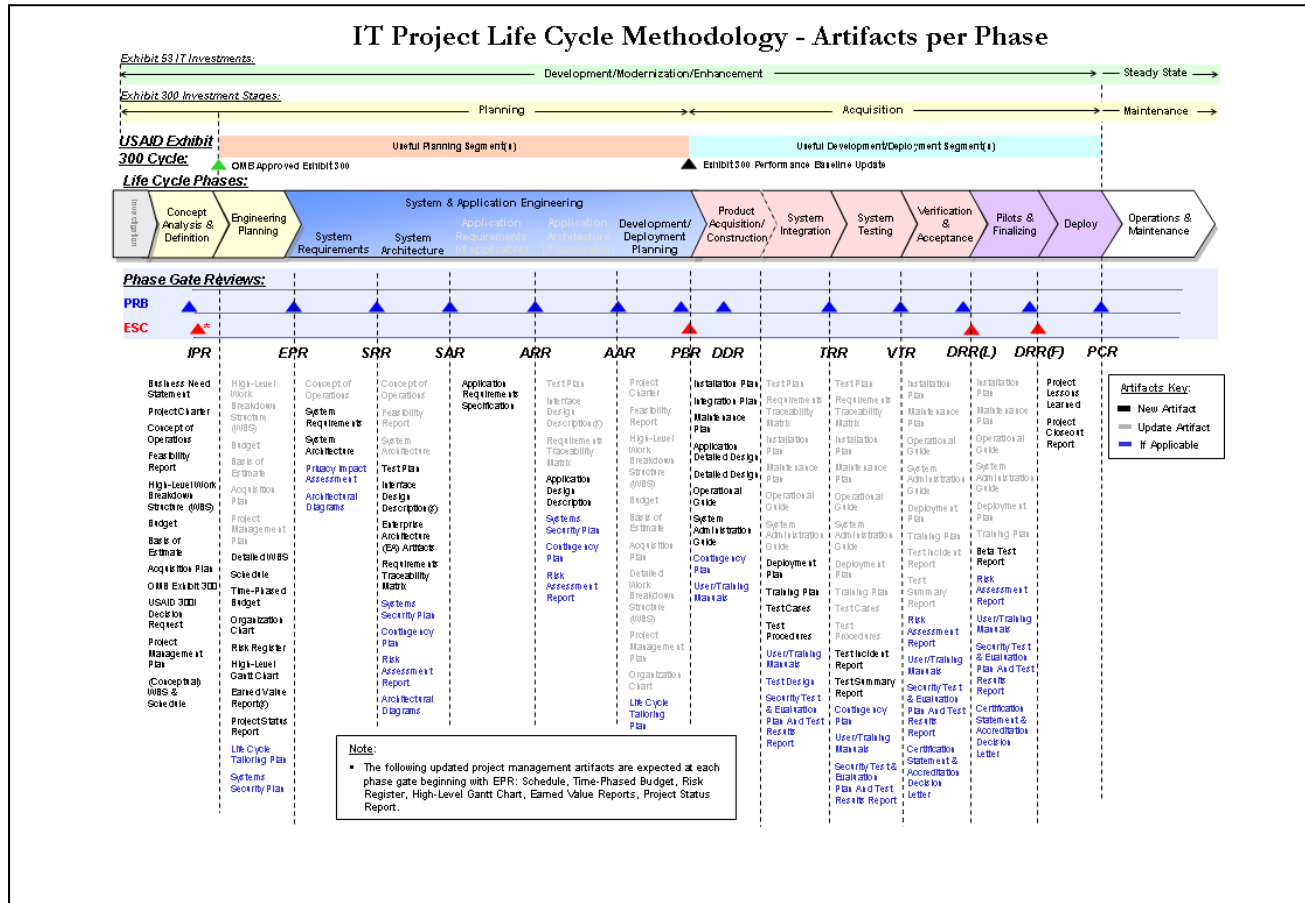


Figure 27 - IT Project Life Cycle Methodology - Artifacts per Phase

Figure 27 represents the IT Project Life Cycle Methodology – Artifacts per Phase. At the top of the graph is a list of Life Cycle Phases consisting of the following categories: System & Application Engineering, Product Acquisition/Construction, System Integration, System Testing, Verification & Acceptance, Pilots Finalizing, Deploy and Operations & Maintenance. Following the Life Cycle Phases is a listing of Phase Gate Reviews. Among the reviews are the Investment Planning Review, Engineering Planning Review, System Requirements Review, System Architecture Review, Application Architecture Review, Application Requirement Review, Application Architecture Review, Performance Baseline Review, Deployment Readiness Review, Test Readiness Review, Verification Test Review, Deployment Readiness Review, Project Closure Review, Post Implementation Review and the Integrated Baseline Review. There is a bulleted Note at the bottom of the graphic..

### Life Cycle Artifacts Listing

Note: (1) Artifacts in <b>BLUE</b> font are to be submitted if applicable. (2) Project artifacts should reference applicable USAID standards such as manuals and policies, demonstrate compliance with those standards, and explain any deviation from those standards.				USAID IT Project Life Cycle Phase Gate												
#	Artifact Name	Artifact Definition	Artifact Reference	IPR	EPR	SRR	SAR	ARR	AAR	PBR	DDR	TRR	VTR	DRR(L)	DRR(F)	PCR
1	Business Need Statement	Documents the need or opportunity to improve business functions. It identifies where strategic goals are not being met or mission performance needs to be improved. Serves as input to the Project Charter. Reviewed in IPR(a).	ANSI/PMI Standard 99-001-2004 , ISO/IEC 15288:2002(E)	X												
2	Project Charter	Documents the business needs and the project to satisfy the business requirements. Includes description of project scope, resources, and assumptions and constraints. Formally recognizes the existence of the project, assigns a project manager, and grants authority to apply organizational resources to project activities. Includes a scope statement documenting the preliminary high level definition, objectives, and boundaries of the project. Normally created at the start of the Pre-Select Approval stage of Concept Analysis & Definition, and updated at later gates.	ANSI/PMI Standard 99-001-2004 , ISO/IEC 12207:1995(E)	X						X						
3	Concept of Operations	Documents requirements that provide a mechanism for users to describe their expectations from the system, including description of the current system, justification for and nature of changes, concepts for the proposed system, operational scenarios, summary of impacts, and an analysis of the proposed system. The initial version of the CONOPS (created in the Pre-Select Approval stage of Concept Analysis & Definition, and reviewed in IPRb) serves as a top-level requirements document and provides a generalized breakdown of the business requirements.	IEEE Std 1362-1998	X		X	X									

4	Feasibility Report	Documents results/recommendation of the completed analyses (gap, return on investment, security and privacy, enterprise architecture, alternatives, risk, etc.). Documents why the proposed system is the best alternative including description of the project scope, concept definition, security categorization, project deliverables, project duration, forecast of resources, and the project selection process. Completed during the <i>Pre-Select Approval</i> sub-phase, during the <i>Concept Business Case</i> activity. Initially reviewed in IPR(b), and updated later in the life cycle.	ANSI/PMI Standard 99-001-2004 , ISO/IEC 15288:2002(E) , ISO/IEC 12207:1995(E)	X	X	X
5	High-Level Work Breakdown Structure (WBS)	Logical hierarchical representation of all work necessary (work packages) to accomplish the project scope. A high-level WBS is reviewed in IPR(b), and should be maintained throughout the project.	ANSI/PMI Standard 99-001-2004	X	X	X
6	Budget	Documents cost estimates and budget for all associated project costs, including labor, materials, ODCs, etc. At IPR this is estimated for the High-Level WBS elements, and then in subsequent gates it is refined in more detail for upcoming phases and reported at the control account level. Updates to the cost estimates and budget should be accompanied by updates to the Basis of Estimate. First reviewed at IPR(b)	ANSI/PMI Standard 99-001-2004	X	X	X
7	Basis of Estimate	Documents the primary methodologies, models, assumptions, constraints, and data sources used to estimate project costs. Identifies parameter values and factors that are used consistently throughout the estimate (e.g., labor rates, overhead factors, contract award fee percentages, quantities, etc.). For each WBS element, describes the derivation of its estimated cost in sufficient detail. A Basis of Estimate is required for all updates to the cost estimates and budget. Initially reviewed at IPR(b).	ANSI/PMI Standard 99-001-2004	X	X	X
8	Acquisition Plan	Documents how all government human resources, contractor support services, hardware, software and telecommunications capabilities are acquired during the life of the project. The plan is developed to help insure that needed resources can be obtained and are available when needed. Includes the Acquisition Strategy, which is reviewed in IPR(b).	ANSI/PMI Standard 99-001-2004, IEEE Std 1062-1998	X	X	X
9	OMB Exhibit 300	Documents the OMB mandated business case for the project. Reviewed in IPR(c).	OMB Circular No. A-11 (2006)	X		

1 0	USAID 300i Decision Request	Documents business case, budget justification, and reporting requirements for IT acquisitions under \$1M. Reviewed in IPR(c).	ADS 577 (June 2005)	X														
1 1	Detailed Work Breakdown Structure (WBS)	Logical hierarchical representation of all work necessary (work packages) to accomplish the project scope. For IPR(d), this should detail the Engineering Planning phase. For the EPR, this should detail System & Application Engineering phases, and for the PBR this should detail Development/Deployment phases, to the level of granularity possible, with updates as needed before other phase gates.	ANSI/PMI Standard 99-001-2004	X	X					X								
1 2	Project Management Plan	Documents the project scope, tasks, schedule, allocated resources, and interrelationships with other projects. The plan provides details on the functional units involved, required job tasks, cost and schedule performance measurement, milestone and review scheduling. Revisions to the Project Management Plan occur at the end of each phase and as information becomes available. The Project Management Plan should address the management oversight activities of the project. Includes the Security Management Plan. Initially reviewed in IPR(d).  <u>Should address the following, or include these as attached subsidiary plans:</u> Communications Plan; Configuration Management Plan; Engineering Plan; Security Plan (unless C&A is necessary, then a separate System Security Plan is required); Quality Management Plan; Risk Management Plan; Test & Evaluation Approach	ANSI/PMI Standard 99-001-2004, IEEE Std 1058-1998	X	X									X				
1 3	Schedule	A detailed plan of major project phases, milestones, activities, tasks and the resources allocated to each task. Initially reviewed in IPR(d).	ANSI/PMI Standard 99-001-2004	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1 4	Time-Phased Budget	Represents the project budget as a function of time. Used as a basis against which to measure, monitor, and control overall cost performance on the project. It is developed by summing estimated costs by period.	ANSI/PMI Standard 99-001-2004		X	X	X	X	X	X	X	X	X	X	X	X	X	X
1 5	Organization Chart	Displays the hierarchal relationships, structure, roles and responsibilities of the project team and its interfaces.	ANSI/PMI Standard 99-001-2004		X									X				
1 6	Risk Register	Lists all the identified risks and the results of their analysis and evaluation. Information on the status of the risk is also included. The risk register should be generated as a report from the risk management database, which is continuously updated and reviewed throughout the course of a project.	ANSI/PMI Standard 99-001-2004		X	X	X	X	X	X	X	X	X	X	X	X	X	X
1 7	High-Level Gantt Chart	Identifies the project objectives, all key milestones, and high-level schedule to project completion. Identifies Budget consistent with the High-Level WBS elements.			X	X	X	X	X	X	X	X	X	X	X	X	X	X
1 8	Earned Value Report(s)	Reports derived from the Earned Value Management system, indicating readiness or status of earned value management.			X	X	X	X	X	X	X	X	X	X	X	X	X	X

1 9	Project Status Report	Report summarizing status of the project (format TBD), which is at least partially compiled from other project artifacts & reports, and includes elements such as issues, risks, progress, EV, etc.		X	X	X	X	X	X	X	X	X	X	X	X	X
2 0	System Requirements	Serves as the foundation for system design and development and captures user requirements to be implemented in a new or enhanced system. Documents functional, operational, performance, interface, and system security requirements.	IEEE/EIA 12207.2-1997, IEEE Std 1233-1998		X											
2 1	Test Plan	Documents the scope, approach, resources, and schedule of intended testing activities. Includes the test approach.	IEEE Std 829-1998 , ANSI/IEEE Std 1008-1987, IEEE/EIA 12207.2-1997			X		X			X	X				
2 2	System Architecture	Addresses system design demonstrating the system architecture, components, system inputs, outputs, interfaces, and end-customer interfaces. The preliminary architecture should be documented in the System Requirements phase.	IEEE/EIA 12207.2-1997		X	X										
2 3	Interface Design Description(s)	Describe the interface characteristics of one or more system, subsystem, hardware item, software item, manual operation, or other system component. May describe any number of interfaces.	IEEE/EIA 12207.1-1997			X		X								
2 4	Enterprise Architecture (EA) Artifacts	Enterprise Architecture artifacts. (Format & content TBD)				X										
2 5	Requirements Traceability Matrix	Manages and verifies the traceability between requirements and designs. Also identifies how each requirement will be tested (i.e. inspection, survey, etc.), and subsequent test results.			X		X			X	X					
2 6	Application Requirements Specification	Documentation of the essential requirements (functions, performance, design, constraints, and attributes) of the software and its external interfaces.	IEEE P12207/CD1, IEEE Std 1012-2004, IEEE/EIA 12207.2-1997					X								
2 7	Application Design Description	Documents top-level structure of the software elements, interfaces, complete set of computer programs, procedures, and data of the system to be developed.	IEEE P12207/CD1, IEEE Std 1012-2004, IEEE/EIA 12207.2-1997					X								



28	Installation Plan	Describes how the information system will be installed into an operational system. The plan contains an overview of the system, a brief description of the major tasks involved in the implementation (includes data backup, migration, back out plan, etc.), the overall resources needed to support the implementation effort (such as hardware, software, facilities, materials, and personnel), and any site-specific implementation requirements. Includes installation procedures. (Can be combined with the Deployment Plan.)	IEEE/EIA 12207.2-1997. <i>Examples: SOM, NNSA.</i>	X	X	X	X	X
29	Integration Plan	Documents how the software components, hardware components, or both are combined and the interaction between them.	IEEE/EIA 12207.2-1997	X				
30	Maintenance Plan	Provides maintenance personnel with the information necessary to maintain the system effectively. Provides the definition of the system environment, the roles and responsibilities of maintenance personnel, and the regular activities essential to the support and maintenance of program modules, job streams, database structures, infrastructure, etc. Appendices with various maintenance procedures, standards, or other essential information such as a Maintenance Manual or Guide may be added or combined with this document as needed, and/or combined with the Operational or System Administration Guides.	IEEE Std 14764-2006	X	X	X	X	X
31	Application Detailed Design	Documents detailed design of each software component.	IEEE P12207/CD1, IEEE Std 1012-2004, IEEE/EIA 12207.2-1997	X				
32	Detailed Design	Documents detailed design of each system component, including operating environment, system and subsystem architecture, files and database design, input formats, output layouts, human-machine interface, detailed design, processing logic, and external interfaces.	IEEE/EIA 12207.2-1997	X				
33	Operational Guide	Provides detailed operational description of the information system and its associated environments, operations, and procedures. (Can be combined with the System Administration Guide.)	<i>Examples: DOJ, NNSA</i>	X	X	X	X	X
34	System Administration Guide	Provides system administrators detailed operational description of the information system and its associated environments, operations, and procedures for client/server architectures. (Can be combined with the Operational Guide.)		X	X	X	X	X
35	Deployment Plan	Documents core activities, as detailed in the USAID Deployment Planning Manual, that are necessary to effectively deploy the software. Includes beta (pilot) deployment plan.	<i>USAID Deployment Planning Manual</i>		X	X	X	X

3 6	Training Plan	Outlines the objectives, needs, strategy, and curriculum to be addressed when training users on the new or enhanced information system. The plan presents the activities needed to support the development of training materials, coordination of training schedules, reservation of personnel and facilities, planning for training needs, and other training-related tasks. Training activities are developed to teach user personnel the use of the system as specified in the training criteria. The plan includes the target audience and topics on which training must be conducted on the list of training needs. It includes, in the training strategy, how the topics will be addressed and the format of the training program, the list of topics to be covered, materials, time, space requirements, and proposed schedules.	ANSI/PMI Standard 99-001-2004	X	X	X	X
3 7	Test Cases	Documents set of conditions or variables under which a tester will determine if a requirement upon an application is partially or fully satisfied. Defines a test case identified by a test design specification.	IEEE Std 829-1998 , ANSI/IEEE Std 1008-1987, IEEE/EIA 12207.2-1997	X	X		
3 8	Test Procedures	Detailed instructions for the set-up, execution, and evaluation of results for a given test case. Specifies the steps for executing a set of test cases.	IEEE Std 829-1998 , ANSI/IEEE Std 1008-1987, IEEE/EIA 12207.2-1997	X	X		
3 9	Test Incident Report	Documents any event that occurs during the testing process that requires investigation.	IEEE Std 829-1998			X	X
4 0	Test Summary Report	Summarizes the outcome of the development team testing, user testing, and government/proxy verification & acceptance testing. Includes items tested and summary of results of the designated testing activities and provides evaluations based on these results.	IEEE Std 829-1998 , ANSI/IEEE Std 1008-1987			X	X
4 1	Beta Test Report	Documents test results of system in limited deployment. Testing is conducted of revised system and performed by users at their facilities under normal operating conditions. Beta test plan is documented in the Deployment Plan.					X
4 2	Project Lessons Learned	Documents knowledge derived from the implementation and evaluation of a full-deployment that can be used to identify strengths and weaknesses.	ANSI/PMI Standard 99-001-2004				X



5 2	Security Test & Evaluation Plan And Test Results Report	Defines the plan for and results of the Security Test & Evaluation (ST&E) activities for the System, as per NIST SP 800-53: Recommended Security Controls for Federal Information Systems. The results outlined in this document include the potential vulnerabilities, identification, and validation of security control.	USAID Certification & Accreditation Process Overview	X X X X
5 3	Certification Statement & Accreditation Decision Letter	Statement certifying that the system meets all Federal security requirements, and decision letter granting accreditation approval to operate.	USAID Certification & Accreditation Process Overview	X X

**Figure 28 - Life Cycle Artifacts Listing**

Figure 28 represents a listing of Life Cycle Artifacts. There are 5 major columns. The columns represent the following categories: itemized Numbers, Artifact Name, Artifact Definition, Artifact Reference information, and the USAID IT Project Life Cycle Phase Gates.

## APPENDIX D: CHECKLISTS & ARTIFACT QUALITY FACTORS

This section summarizes each Life Cycle Phase/Phase Gate and a checklist with critical quality factors for each. Since each project differs in requirement, additions or subtractions (tailoring) to artifacts can be expected. Quality factors reflect industry best practices and define (at a minimum) the quality level of each major artifact.

[Note: These documents are only available on the USAID M/CIO intranet.]

Life Cycle Phase	Phase Gate Checklist	Artifact Quality Factor *
<b>Concept Analysis &amp; Definition</b>	IPR: Investment Planning Review	Budget, Concept of Operations, Project Management Plan, Schedule, WBS
<b>Engineering Planning</b>	EPR: Engineering Planning Review	Configuration Management Plan, Communication Management Plan, Organization Chart, Quality Assurance Plan, Risk Management Plan, Risk Register, System Security Plan, Testing Approach
<b>System Requirements</b>	SRR: System Requirements Review	Privacy Impact Assessment, System Architecture Document & Diagrams, System Requirements
<b>System Architecture</b>	SAR: System Architecture Review	Requirements Traceability Matrix, Test Plan
<b>Application Requirements</b>	ARR: Application Requirements Review	Application Requirements Specification
<b>Application Architecture</b>	AAR: Application Architecture Review	Application Design Description
<b>Development / Deployment Planning</b>	PBR: Performance Baseline Review	Review updated Acquisition Plan, Basis of Estimate, Budget, Feasibility Report, Project Charter, Project Management Plan, Organization Chart, and WBS
<b>Product Acquisition/ Construction</b>	DDR: Detailed Design Review	Installation Plan, Integration Test Plan, Maintenance Plan, Procedural Manual
<b>System Integration</b>	TRR: Test Readiness Review	Deployment Plan, Training Plan
<b>System Testing</b>	VTR: Verification Test Review	Acceptance Test Report, Test Analysis Approval Determination, Test Analysis Report, Test Problem Report
<b>Verification &amp; Acceptance</b>	DRR: Deployment Readiness Review Limited & Full	IT Systems Security Certification & Accreditation, Transition Plan
<b>Pilots &amp; Finalizing</b>	DRR: Deployment Readiness Review Limited & Full	IT Systems Security Certification & Accreditation, Transition Plan

<b>Deploy</b>	PCR: Project Closure Review	Project Lessons Learned, Project Closure Report
<b>Operations &amp; Maintenance</b>	Annual Reviews	On-going steady state assessment of supporting mission needs, maintenance cost, and potential retirement of investment.
* Additional artifacts may be required. See the Phase Gate Checklists or IT Project Life Cycle Methodology: Artifacts per Phase for more information.		

**Figure 29 - Checklist & Artifact Quality Factors**

Figure 29 represents a table Checklist for Artifact Quality Factors. The table consists of 3 columns. Column 1 identifies each Life Cycle Phase. Column 2 lists the Phase Gate Checklist. Column 3 describes Artifact Quality Factors associated with each Life Cycle Phase.

## Concept Analysis & Definition

### Quality Factors

PROJECT BUDGET	
REF #	QUALITY FACTOR
<b>Project Budget and Basis of Estimate</b>	
BUDG-01	Detail description of the methodology or combination of methodologies used to arrive at the estimates.
BUDG-02	Include line items for all associated project costs including labor months and other direct costs.
BUDG-03	Include breakout of project phase activities. This should be detailed for the next phase of development and in summary form for the rest of the project.
BUDG-04	Document revisions from the prior phase of development, if there are approved changes that increase or decrease project cost.
BUDG-05	Document assumptions upon which the estimates are based.
BUDG-06	List factors used to arrive at the contingency numbers.
CONCEPT OF OPERATIONS	
REF #	QUALITY FACTOR
CONOPS-01	Describe the intended system.
CONOPS-02	Identify various user classes.
CONOPS-03	Clarify user needs.
CONOPS-04	Identify different modes of operation.
CONOPS-05	Prioritize desired and optional user needs.
CONOPS-06	Support decision-making process that determines whether a system should be developed.
CONOPS-07	Capture results of the conceptual analysis process and contribute to the functional requirements development process.
PROJECT SCHEDULE	
REF #	QUALITY FACTOR
<b>Project Schedule and Work Breakdown Structure</b>	
SCH-01	Base the Project Schedule on a work breakdown structure (WBS).
SCH-02	Assign resources for all deliverables or activities.
SCH-03	Project start and end dates for each activity.
SCH-04	Identify critical path(s) and dependencies.
<b>Project Schedule and Earned Value Management</b>	
SCH-05	Support relevant EVMS implementation guidelines (if applicable).
SCH-06	Resource-loaded schedule of work to be performed at the lowest level required for performance measurement.
SCH-07	Demonstrate an ability to provide status against the baseline plan and identify significant schedule and cost variances.
SCH-08	Demonstrate an ability to analyze variances for early warning signs and take corrective action, as necessary.
SCH-09	Provide estimate of final cost and schedule outcomes.
<b>Project Schedule and Financial Status</b>	
SCH-10	Document planned/approved expenditure level to date.

SCH-11	Document actual expenditure level to date.
SCH-12	Document the delta between planned and actual expenditure levels, if any, and to what this difference is attributable.
SCH-13	Include any deltas should in the project plan.
<b>WORK BREAKDOWN STRUCTURE</b>	
REF #	QUALITY FACTOR
WBS-01	Utilize the established “USAID IT-Project WBS” Examples and Definitions.
WBS-02	Develop WBS incrementally through IT Project Life Cycle phases.
WBS-03	Maintain a top-level WBS view to convey the scope of the project. Management will decide appropriate level.
WBS-04	Represent total required work through comparison of “As Is” and “To Be.”
WBS-05	Focus on the complete IT Project Life Cycle, to include O&M, as well as disposal of the legacy system.
WBS-06	Identify O&M components necessary to sustain the project.
WBS-07	Decompose WBS definitions to assign accountability to individual or contractor.
WBS-08	Define costs, resources, and risks for each work package.
WBS-09	Use a project WBS Dictionary. (Optional)
WBS-10	Each deployment contains each basic WBS category, except for governance and project management which will be covered at the project level.
WBS-11	Establish control accounts.

**Figure 30 - Project Budget Quality Factors**

Figure 30 represents a Project Budget table. The table is divided into the following categories: Project Budget and Basis of Estimate, Concept of Operations, Project Schedule (Project Schedule and /Work Breakdown Structure/Earned Value Management/Financial Status), and Work Breakdown Structure.

## Engineering Planning

### Phase Gate Checklist

#### Engineering Planning Review (EPR) Checklist

<b>Review Purpose:</b>	To verify that the project management plan (PMP) and subsidiary plans are adequate for the System Engineering sub-phases and consistent with applicable standards, regulations, and guidelines.		
<b>Project:</b>			
<b>Review Date:</b>		<b>Project Manager:</b>	
EPR Entry Criteria.- Activities and Products		Comments and Actions	
<p>1. Project Charter and appropriate Business Case documents (as applicable) have been completed and approved by stakeholders (including ERT). List all Concept Analysis &amp; Definition documents:</p> <ul style="list-style-type: none"> <li>▪ _____</li> <li>▪ _____</li> <li>▪ _____</li> </ul> <p>Have these documents been base lined and placed under CM control following approval in an IPR review? Or are they pending approval for base lining via the upcoming EPR review? Please specify:</p> <ul style="list-style-type: none"> <li>▪ _____</li> </ul>			



2. All action items assigned at the IPR review have been completed.	
<p>3. All project planning documents have been reviewed and approved by stakeholders (including ERT). These documents focus on the System Engineering sub-phases, with estimates detailed as appropriate for subsequent phases.</p> <p>The following documents are required at a minimum:</p> <ul style="list-style-type: none"> <li>▪ Project Management Plan</li> <li>▪ Work Breakdown Structure (WBS)</li> <li>▪ Schedule (with WBS elements identified)</li> <li>▪ Time Phased Budget (with Basis of Estimate)</li> <li>▪ Risk Register</li> <li>▪ Org Chart</li> </ul> <p>List all other applicable project documents. (May include subsidiary management plans such as Risk, Communications, Configuration, Security, Quality, Acquisition, etc., the Engineering Approach, and Life Cycle Tailoring Plan):</p> <ul style="list-style-type: none"> <li>▪ _____</li> <li>▪ _____</li> <li>▪ _____</li> <li>▪ _____</li> </ul>	
4. All work necessary for System & Application Engineering is represented in the WBS, and planning packages (to the level of detail possible) are included for subsequent phases.	
5. The project spend and funding plans have been approved by appropriate management stakeholders.	
6. Earned value management reports can be generated, to demonstrate compliance with USAID earned value standards. Charge numbers and work authorizations approved as applicable.	
7. An EPR briefing has been prepared using the standard template.	

	<b>Comments</b>
<p>Figure 13 -</p> <p>Figure 14 - Engineering Planning (EPR) Checklist</p> <p>Figure 15</p> <p>Figure 16</p> <p>Figure 17 -</p> <p>Figure 18 - Engineering Planning Review (EPR) Checklist</p> <p>Figure 19 - Engineering Planning Review (EPR) Echecklist</p> <p>Figure 20 - Engineering Planning Review (EPR) Checklist</p> <p style="text-align: center;"><b>EPR Exit Criteria - Activities and Products</b></p> <p>1. Project Review Board (PRB) review completed. Engineering measurement baseline (and any pending prior phase documents, if applicable) approved for baselining.</p> <p>2. (After PRB approval): Executive Steering Committee (ESC) review completed (if applicable). Engineering measurement baseline (and any pending prior phase documents, if applicable) approved for baselining.</p> <p>3. Inter-group coordination issues settled.</p> <p>4. PRB (and ESC if applicable) decisions on project issues completed, and action items assigned with realistic due dates.</p> <p>5. The next applicable PRB review, and the project artifacts which will be prepared for that review, have been identified.</p> <p>6. Meeting notes and decisions recorded.</p> <p><b>*Comments:</b></p>	

**Figure 31 - Engineering Planning Review (EPR) Checklist**

Figure 31 represents the Engineering Planning Review Checklist. The Review Purpose, Project Name Review Date and Project Manager are listed at top. This is followed by EPR Entry Criteria Activities and Products Column and a Comments and Action Column.

## Quality Factors

<b>CONFIGURATION MANAGEMENT PLAN</b>	
REF #	QUALITY FACTOR
<b>Configuration Management Plan</b>	
CMP-01	Follow applicable USAID Configuration and Change Management standards and/or manuals. Note any deviations from such standards, and provides satisfactory reasons for such deviations.

CMP-02	Identify individual(s) responsible for executing the Configuration Management Plan, or refers to a separate project org chart or responsibility matrix containing that information.
CMP-03	Include procedures for tracking and controlling SCI Identification: Functional baseline (requirements specification); Project performance baseline; Design baseline (system/subsystem specifications); Production baseline (first version of deployable code/system); Operations baseline (final version of deployable code/system).
CMP-04	Define Change Initiation process. The name and organization of the individual(s) who are authorized to submit requests for change. Includes the form for submittal of change.
CMP-05	Define change evaluation process. Includes the name and organization of the individual who is responsible to evaluate the request for change and the change evaluation criteria.
CMP-06	Define change approval process. Includes the name and organization of the individual(s) who is authorized to make decisions as to the disposition of evaluated changes and the acceptable disposition of the change request.
<b>Configuration Management Plan and Change Control</b>	
CMP-07	Confirm that change activity is being properly recorded and controlled.
CMP-08	Document that all changes to the project baseline have been evaluated, approved, and noted.
CMP-09	Include impact of accepted changes in the project plan, particularly in revised estimates.
CMP-10	Document that all changes, additions, and deletions of the requirements are properly identified, approved, and recorded.
CMP-11	Reflect schedule and budget changes in the new baseline.
<b>COMMUNICATIONS PLAN</b>	
<b>REF #</b>	<b>QUALITY FACTOR</b>
<b>Communications Plan</b>	
COM-01	Follow applicable USAID Communications and Project Management standards and/or manuals. Note any deviations from such standards, and provides satisfactory reasons for such deviations.
COM-02	Identify individual(s) responsible for executing the Communication Plan, or refers to a separate project org chart or responsibility matrix containing that information.
COM-03	Describe the method for reporting project progress and problems.
COM-04	Document frequency of status meetings.
COM-05	Document procedure for tracking actions items to closure.
COM-06	Include names of individuals responsible for concurrence/non-concurrence sign-off.
<b>Communications Plan and Status Report</b>	
COM-07	Document in the latest status report that the Communications Plan is properly implemented.
<b>Communications Plan and Action Item List</b>	
COM-08	Document in the latest action item list up to date and demonstrate that the Communications Plan is properly implemented.
<b>ORGANIZATION CHART</b>	
<b>REF #</b>	<b>QUALITY FACTOR</b>
ORG-01	Provide an organizational chart and/or Resource Assignment Matrix for the project. Identify team members for the next phase of development and, if possible, for the entire project.
ORG-02	Support team composition through project schedule and estimates.
ORG-03	Define roles and responsibilities of all team members and customers.
ORG-04	Include names of individuals responsible for concurrence/non-concurrence sign-off, and problem escalation.
ORG-05	Include necessary resources (i.e., hardware, software, people, office space, etc.) and timeframe when they are required.

<b>QUALITY ASSURANCE PLAN</b>	
REF #	QUALITY FACTOR
<b>Quality Assurance Plan</b>	
QAP-01	Follow applicable USAID Quality Assurance standards and/or manuals. Note any deviations from such standards, and provides satisfactory reasons for such deviations.
QAP-02	Identify individual(s) responsible for executing the Quality Assurance Plan, or refer to a separate project org chart or responsibility matrix containing that information.
QAP-03	Define process for quality control.
QAP-04	Document applicability of published standards and procedures.
QAP-05	Include monitoring for application of applicable standards and procedures.
QAP-06	Document assurance of resolution of discrepancies.
QAP-07	Include assessment of project progress.
QAP-08	Document assuring the integrity of the software product.
<b>Quality Assurance Plan and Quality Control Reports</b>	
QAP-09	Demonstrate in the latest quality control report that the Quality Assurance Plan is properly implemented.
<b>RISK MANAGEMENT PLAN</b>	
REF #	QUALITY FACTOR
<b>Risk Management Plan</b>	
RMP-01	Follow applicable USAID Risk Management standards and/or manuals. Note any deviations from such standards, and provides satisfactory reasons for such deviations.
RMP-02	Identify individual(s) responsible for executing the Risk Management Plan, or refer to a separate project org chart or responsibility matrix containing that information.
RMP-03	Define process for risk assessment, analysis, handling, and reporting.
RMP-04	Describe risk approach to identify and analyze the risk associated with the project.
RMP-05	Provide a list of risk sources and categories.
RMP-06	Describe risk reporting methods and how actions taken to handle risk will be assigned, monitored, and controlled.
RMP-07	Identify areas of potential risk for all cost, schedule, and technical performance parameters.
RMP-08	Describe the risk quantification/classification methods used to evaluate risks and the risk interactions to assess the range of possible project outcomes.
RMP-09	Include specific management techniques that will be used to control risk (i.e., risk avoidance, risk mitigation, risk acceptance, and risk transfer).
RMP-10	Describe risk analytical tool and how risks will be prioritized.
<b>RISK REGISTER</b>	
REF #	QUALITY FACTOR
<b>Risk Management Plan and Risk Register</b>	
RR-01	Demonstrate that the latest Risk Register or Report is up to date and that the Risk Management Plan is properly implemented.
RR-02	Identify risks and results of risk evaluation and analysis.
RR-03	Document information on the status of risk.
<b>SYSTEM SECURITY PLAN</b>	
REF #	QUALITY FACTOR

SMP-01	Follow applicable USAID Security Management standards and/or manuals. Note any deviations from such standards, and provides satisfactory reasons for such deviations.
SMP-02	Identify individual(s) responsible for executing the Security Management Plan, or refer to a separate project organization chart or responsibility matrix containing that information.
SMP-03	Provides overview of system including its description and purpose, environment or special conditions, interconnection and information sharing, and its operational status.
SMP-04	Provide description of data processed (sensitivity).
SMP-05	Detail description of management controls (Including Risk Assessment and Management, Review of Security Controls, Rules of Behavior, Planning for Security in the Life Cycle, and Security Control Measures).
SMP-06	Detail description of operational controls (Including Personnel Security, Physical and Environment Protection, Production Input and Output Controls, Contingency Planning, Application Software and Maintenance Controls, Documentation, and Security Awareness and Training).
SMP-07	Detail description of technical controls (Including User Identification and Authentication, Logical Access Control, Public Access Controls, Audit Trail, and Complementary Controls Provided by Support Systems).
SMP-08	Detail the project approach to System Security Guidelines, including management, operational, and technical controls.

**TESTING APPROACH**

REF #	QUALITY FACTOR
TST-01	Document high-level approach to testing.
TST-02	Detail purpose and scope of test efforts to be conducted, and which types of testing are planned.
TST-03	List and provide rationale of any items that will not be tested.
TST-04	Define roles & responsibilities - who (organization) will be responsible for conducting and approving the tests, both for system testing and final verification/acceptance testing.
TST-05	List physical location(s) where testing is planned to be conducted, and list of known requirements for conducting testing activities (e.g. hardware, software, skills, space, equipment, special operational/environmental requirements).

Error! No sequence specified. -

Error! No sequence specified.

Figure 32 represents the Configuration Management Plan table. The table is divided into the following categories: Configuration Management Plan, Communications Plan, Organization Chart, Quality Assurance Plan, Risk Management Plan, Risk Register, System Security Plan and the Testing Approach. Each category has a column for a Reference Number and another column for Quality Factors.

## System Requirements

### Phase Gate Checklist

#### System Requirements Review (SRR) Checklist

<b>Review Purpose:</b>	Ensure that all stakeholder requirements are complete, consistent with the acquirer’s intent, understood by the supplier, and validated.		
<b>Project:</b>			
<b>Review Date:</b>		<b>Project Manager:</b>	
<b>SRR Entry Criteria - Activities and Products</b>			<b>Comments and Actions</b>

<p>1. Engineering Planning documents have been completed and approved by stakeholders (including ERT). List all Engineering Planning documents:</p> <ul style="list-style-type: none"> <li>▪ _____</li> <li>▪ _____</li> <li>▪ _____</li> <li>▪ _____</li> </ul> <p>Have these documents been base lined and placed under CM control following approval in an EPR review? Or are they pending approval for base lining via the upcoming SRR review? Please specify:</p> <p>i. _____</p> <p>Are any other prior phase documents (per the Life Cycle Tailoring Plan) pending approval for baselining via the upcoming SRR review? Please specify:</p> <p>ii. _____</p> <p>iii. _____</p>	
<p>2. All action items assigned at the EPR review (or prior review gate per the Life Cycle Tailoring Plan) have been completed.</p>	
<p>3. All System Requirements documents have been reviewed and approved by stakeholders (including ERT). The following is required at a minimum:</p> <ul style="list-style-type: none"> <li>▪ System Requirements Document(s)</li> </ul> <p>List all other applicable related documents (Preliminary Architecture is recommended; may also include Concept of Operations, Privacy Impact Assessment, etc.):</p> <ul style="list-style-type: none"> <li>▪ _____</li> <li>▪ _____</li> <li>▪ _____</li> <li>▪ _____</li> </ul>	
<p>4. All work necessary to complete the System &amp; Application Engineering phases is represented in the WBS, and planning packages (to the level of detail possible) are included for subsequent phases.</p>	
<p>5. Project execution &amp; control artifacts have been updated to reflect current status, including the Detailed Schedule and High Level GANTT Chart, Time Phased Budget including actual costs, and Risk Register. Earned value reports have been generated; any variance is within acceptable limits and/or has acceptable explanations.</p>	
<p>6. An SRR briefing has been prepared using the standard template.</p>	
<p><b>SRR Exit Criteria - Activities and Products</b></p>	<p><b>Comments</b></p>
<p>1. Project Review Board (PRB) review completed. System Requirements (and any pending prior phase documents, if applicable) approved for baselining.</p>	
<p>2. (After PRB approval): Executive Steering Committee (ESC) review completed (if applicable). System Requirements (and any pending prior phase documents, if applicable) approved for baselining</p>	
<p>3. Inter-group coordination issues settled.</p>	
<p>4. PRB (and ESC if applicable) decisions on project issues completed, and action items assigned with realistic due dates.</p>	
<p>5. The next applicable PRB review, and the project artifacts which will be prepared for that review, have been identified.</p>	

6. Meeting notes and decisions recorded.	
<b>*Comments:</b>	

**Figure 33 - System Requirements Review (SRR) Checklist**

Figure 33

### Quality Factors

SYSTEM ARCHITECTURE DOCUMENT & DIAGRAMS	
REF #	QUALITY FACTOR
<b>Reference System Architecture Document</b>	
ARCH-01	Reference quality factors for System Architecture Document (Quality Factors SA Draft v1.doc)
<b>Physical Architecture Design</b>	
ARCH-02	Detail inventory of current hardware, software, and networking capabilities.
ARCH-03	Document fundamental organization of the system, its components, and its relationships to each other and the system environment.
ARCH-04	Define long-range plans, priorities for future purchases, and plans for upgrade and/or replacing dated hardware, software, and other infrastructure components.
<b>Functional Design</b>	
ARCH-05	Define each module of the system and assigned responsibility.
ARCH-06	Describe features of the software behavior.
ARCH-07	Include description of: Purpose, Input, Process, and Output.
<b>Entity/Relationship Diagram (ERD)</b>	
ARCH-08	Specify all input and output data objects.
ARCH-09	Define attributes of data objects.
ARCH-10	Define relationships of data objects.
<b>Data Flow Diagram (DFD)</b>	
ARCH-11	Document information flow (input to output).
ARCH-12	Represent a context level data flow diagram.
ARCH-13	Label all information flow paths and processes.
ARCH-14	Utilize a data dictionary to document descriptions of data objects.
<b>Interface Design</b>	
ARCH-15	Document how software communicates with itself.
ARCH-16	Document how software interoperates with other systems.
ARCH-17	Document how end-user interaction is conducted.
PRIVACY IMPACT ASSESSMENTS	
REF #	QUALITY FACTOR
PIA-01	Document all relevant contact information.
PIA-02	Document system application information.
PIA-03	Document data contained in system application.
PIA-04	Document attributes of data in the system.
PIA-05	Document maintenance and administrative controls.
PIA-06	Document access to data.
PIA-07	Document all applicable official approvals.
SYSTEM ARCHITECTURE DOCUMENT	
REF #	QUALITY FACTOR

<b>System Architecture Document</b>	
SAD-01	Address system design demonstrating the system architecture, components, system inputs, outputs, interfaces, and end-customer interfaces.
SAD-02	Address design methods used, design entities, and design dependencies.
SAD-03	Detail security and control measures (to include error handling) that will be incorporated into the system.
SAD-04	Document decisions, dependencies, and assumptions, including trade studies, as applicable.
SAD-05	Align design documents to project scope, requirements, and established WBS.
SAD-06	Represent all functional, operational, performance, security, and interface requirements, as applicable.
SAD-07	Provides adequate architecture information to develop a testing strategy.
<b>Reference System Architecture Diagrams</b>	
SAD-08	Include 1 or more of the System Architecture Diagrams; reference Quality Factors ARCH Draft v1.doc.
<b>SYSTEM REQUIREMENTS DOCUMENT</b>	
REF #	QUALITY FACTOR
SRD-01	Document functional (including data, interface, & communication) system requirements.
SRD-02	Document operational (including implementation, and continuity of operations/disaster recovery, as applicable) system requirements.
SRD-03	Document performance system requirements.
SRD-04	Document security system requirements.
SRD-05	Define project boundaries and interface requirements, and coordinate with external organizations, as applicable.
SRD-06	Requirements exhibit good attributes including clarity (no ambiguity), statement of a business problem or need (not the solution), and sufficient detail to allow for testing.
SRD-07	The defined requirements are sufficient to meet the project scope, as defined in the Project Management Plan.
SRD-08	Each requirement can be traced to an original source.
SRD-09	Document requirements and initial plans for availability, data backup and recovery, operations, and other disaster recovery elements.

**Figure 34**

## System Architecture

### Phase Gate Checklist

#### SYSTEM ARCHITECTURE REVIEW

<b>Review Purpose:</b>	Review and approve the concept selection and system architecture (functional) baseline.		
<b>Project:</b>			
<b>Review Date:</b>		<b>Project Manager:</b>	
<b>SAR Entry Criteria - Activities and Products</b>			<b>Comments and Actions</b>



<p>1. System Requirements documents have been completed and approved by stakeholders (including ERT). List all System Requirements documents:</p> <ul style="list-style-type: none"> <li>▪ _____</li> <li>▪ _____</li> <li>▪ _____</li> <li>▪ _____</li> </ul> <p>Have these documents been base lined and placed under CM control following approval in an SRR review? Or are they pending approval for baselining via the upcoming SAR review? Please specify:</p> <p>i. _____</p> <p>Are any other prior phase documents (per the Life Cycle Tailoring Plan) pending approval for baselining via the upcoming SAR review? Please specify:</p> <p>ii. _____</p> <p>iii. _____</p>	
<p>2. All action items assigned at the SRR review (or prior review gate per the Life Cycle Tailoring Plan) have been completed.</p>	
<p>3. All System Architecture documents have been reviewed and approved by designated stakeholders (including the ERT). The following document is required at a minimum:</p> <ul style="list-style-type: none"> <li>▪ System Architecture Document(s)</li> </ul> <p>List all other applicable documents. (May include Physical, Logical, and/or other architectural diagrams which are maintained separately, and an updated Concept of Operations. Shall include the test approach defined in the initial Test Plan, and the Requirements Traceability Matrix):</p> <ul style="list-style-type: none"> <li>▪ _____</li> <li>▪ _____</li> <li>▪ _____</li> <li>▪ _____</li> </ul>	
<p>4. All work necessary to complete the System &amp; Application Engineering phases is represented in the WBS, and planning packages (to the level of detail possible) are included for subsequent phases.</p>	
<p>5. Project execution &amp; control artifacts have been updated to reflect current status, including the schedule, actual costs, and risk register. Earned value reports have been generated; any variance is within acceptable limits and/or has acceptable explanations.</p>	
<p>6. An SAR briefing has been prepared using the standard template.</p>	

SAR Exit Criteria - Activities and Products	Comments
<p>1. Project Review Board (PRB) review completed. System Architecture (and any pending prior phase documents, if applicable) approved for base lining.</p>	
<p>2. (After PRB approval): Executive Steering Committee (ESC) review completed (if applicable). System Architecture (and any pending prior phase documents, if applicable) approved for baselining.</p>	
<p>3. Inter-group coordination issues settled.</p>	

4. PRB (and ESC if applicable) decisions on project issues completed, and action items assigned with realistic due dates.	
5. The next applicable PRB review, and the project artifacts which will be prepared for that review, have been identified.	
6. Meeting notes and decisions recorded.	
<b>*Comments:</b>	

**Figure 35 – System Architecture Review**

## Quality Factors

<b>REQUIREMENTS TRACEABILITY MATRIX</b>	
<b>REF #</b>	<b>QUALITY FACTOR</b>
RTM-01	Design entities are traced back to the project requirements.
RTM-02	Ensure that all requirements are satisfied, and traceable to one or more design entities.
RTM-03	If any requirements are changed, reason for change and approval sources must be noted.
<b>TEST PLAN</b>	
<b>REF #</b>	<b>QUALITY FACTOR</b>
STP-01	Document scope of the testing effort.
STP-02	Detail the system test plan schedule.
STP-03	Document system test plan objectives.
STP-04	Document definition of the test cases.
STP-05	Detail required set-up (facilities, equipment, tools, etc.) to perform each test or set of tests.
STP-06	Detail requirements verification matrix mapping each test to specific requirements.
STP-07	Document responsibilities definition.
STP-08	Detail how will fixes to defects be tested and how will re-testing be conducted.
STP-09	Detail how volume and stress testing will be conducted.

**Figure 36**

## Development / Deployment Planning

### Phase Gate Checklist

#### Performance Baseline Review (PBR) Checklist

<b>Review Purpose:</b>	Verify that project management and subsidiary plans are adequate; comply with program standards; and establish appropriate performance measures for tracking throughout the remainder of the project life cycle.		
<b>Project:</b>			
<b>Review Date:</b>		<b>Project Manager:</b>	
PBR Entry Criteria - Activities and Products		Comments and Actions	
<p>1. System (and Application, if applicable) requirements and architecture documents have been completed and approved by stakeholders (including ERT). List all requirements and architecture documents:</p> <ul style="list-style-type: none"> <li>▪ _____</li> <li>▪ _____</li> <li>▪ _____</li> <li>▪ _____</li> </ul> <p>Have these documents been baselined and placed under CM control following approval in prior review gates (SRR &amp; SAR, and ARR &amp; AAR if applicable)? Or are they pending approval for baselining via the upcoming PBR review? Please specify:</p> <p>i. _____</p> <p>Are any other prior phase documents (per the Life Cycle Tailoring Plan) pending approval for baselining via the upcoming PBR review? Please specify:</p> <p>ii. _____</p>			
<p>2. All action items assigned at the prior review gate (SAR, AAR, or other per the Life Cycle Tailoring Plan) have been completed.</p>			
<p>3. All project planning documents have been reviewed and approved by designated stakeholders (including the ERT). The following documents are required at a minimum:</p> <ul style="list-style-type: none"> <li>▪ Project Management Plan</li> <li>▪ Work Breakdown Structure (WBS)</li> <li>▪ Schedule (with WBS elements identified)</li> <li>▪ Time Phased Budget (with Basis of Estimate)</li> <li>▪ Risk Register</li> </ul> <p>List all other applicable project planning documents (may include subsidiary management plans such as Risk, Communications, Configuration, Security, Quality, Acquisition, etc.):</p> <ul style="list-style-type: none"> <li>▪ _____</li> <li>▪ _____</li> <li>▪ _____</li> </ul>			
<p>4. Work for all architecture components, including integration, testing, and deployment, can be demonstrated and is represented in the WBS.</p>			
<p>5. The project spend and funding plans have been approved by appropriate management stakeholders.</p>			

6. Earned value management reports can be generated, to demonstrate compliance with earned value standards. Charge numbers and work authorizations approved as applicable.	
7. A PBR briefing has been prepared using the standard template.	

<b>PBR Exit Criteria - Activities and Products</b>	<b>Comments</b>
1. Project Review Board (PRB) review completed. Performance baseline approved, (and any pending prior phase documents, if applicable, also approved for base lining).	
2. (After PRB approval): Executive Steering Committee (ESC) review completed (if applicable). Performance baseline approved, (and any pending prior phase documents, if applicable, also approved for base lining).	
3. Inter-group coordination issues settled.	
4. PRB (and ESC if applicable) decisions on project issues completed, and action items assigned with realistic due dates.	
5. The next applicable PRB review, and the project artifacts which will be prepared for that review, have been identified.	
6. Meeting notes and decisions recorded.	
<b>*Comments:</b>	

Figure 37 – Performance Baseline Review (PBR) Review

## Product Acquisition / Construction

### Quality Factors

<b>INSTALLATION PLAN</b>	
<b>REF #</b>	<b>QUALITY FACTOR</b>
IP-01	Document general information relevant to the installation process.
IP-02	Detail assumptions relevant to the installation process.
IP-03	Document and list dependencies relevant to the installation process.
IP-04	Detail the strategy for phasing in the new system and disposing of the old one.
IP-05	Document schedule for phasing in the new system and disposing of the old one.
<b>INTEGRATION TEST PLAN</b>	
<b>REF #</b>	<b>QUALITY FACTOR</b>
ITP-01	Detail purpose of test effort.
ITP-02	Detail scope of test effort.
ITP-03	List systems/items to be tested.
ITP-04	List systems/items not to be tested and rationale.
ITP-05	Document responsible party for each activity including sign-off, management, and acceptance.

ITP-06	Document test schedules.
ITP-07	Detail the testing methodology and types of test to be conducted.
<b>MAINTENANCE PLAN</b>	
REF #	QUALITY FACTOR
MP-01	Document responsible party for providing maintenance support.
MP-02	Detail service level agreements.
MP-03	Document maintenance processes and procedures to be followed.
MP-04	Document maintenance schedules, if appropriate.
<b>PROCEDURAL MANUAL</b>	
REF #	QUALITY FACTOR
PM-01	Detail instructions required to access and use the system functions.
PM-02	Document overview of system history, background, architecture, and current version.
PM-03	Detail complete coverage of all system functions in a logical order.
PM-04	Detail instructions for setting up and using the system.
PM-05	Document security features and functions.
PM-06	List system contact information.

**Figure 38 – Performance Baseline Review (PBR) Review**

## System Integration

### Phase Gate Checklist

#### TRR: Test Readiness Review

<b>Review Purpose:</b>	Ensure the integrated system is ready for testing, all test-related procedures are in place, and the test environment is prepared to accomplish test objectives.		
<b>Project:</b>			
<b>Review Date:</b>		<b>Project Manager:</b>	
TRR Entry Criteria - Activities and Products		Comments and Actions	
1. Detailed Design documents approved as per a completed DDR review, as applicable. All outstanding issues have been resolved. List all Detailed Design documents that have been baselined and placed under CM control: <ul style="list-style-type: none"> <li>▪ _____</li> <li>▪ _____</li> <li>▪ _____</li> <li>▪ _____</li> </ul>			
2. Successful integration and checkout of hardware & software subsystems/products have been completed.			

<p>3. All System Testing documents have been reviewed and approved by designated stakeholders (including the ERT). The following document is required at a minimum:</p> <ul style="list-style-type: none"> <li>▪ System Test Plan</li> </ul> <p>List all other applicable documents. (May include Test Procedures, Cases, Scripts, Problem/Results Report Templates, and an updated Requirements Traceability Matrix):</p> <ul style="list-style-type: none"> <li>▪ _____</li> <li>▪ _____</li> <li>▪ _____</li> <li>▪ _____</li> </ul>	
<p>4. Test lab/environment is ready for formal system testing.</p>	
<p>5. Project execution &amp; control artifacts have been updated to reflect current status, including schedule, expenditures, and risk register. Earned value reports have been generated; any variance is within acceptable limits and/or has acceptable explanations.</p>	
<p>6. A TRR briefing has been prepared by the project manager using the standard template, and reviewed with the sponsor.</p>	

TRR Exit Criteria - Activities and Products	Comments
1. Project Review Board (PRB) review completed. System Test Plan & Readiness approved.	
2. Executive Steering Committee (ESC) review completed (if applicable). System Test Plan & Readiness approved.	
3. Inter-group coordination issues settled or taken offline.	
4. Sr. management decisions on project issues complete and action items assigned with realistic due dates.	
5. Meeting notes and decisions recorded.	
*Comments:	

Figure 39 – TRR: Test Readiness Review

## Quality Factors

DEPLOYMENT PLAN	
REF #	QUALITY FACTOR
DP-01	Document the system components and related infrastructure for system deployment.
DP-02	Detail justification of the system deployment.
DP-03	Identify and document the stakeholders and their roles and responsibilities for the system deployment.
DP-04	Document the location of the system deployment.
DP-05	Document a schedule detailing a timescale of the system deployment.
DP-06	Detail the procedures for implementation or setup tasks required for the system deployment.
TRAINING PLAN	
REF #	QUALITY FACTOR
TRNG-01	Document training requirements.

TRNG-02	Detail training objectives.
TRNG-03	Detail the training strategy to include type of training, schedule, duration, and facilities.
TRNG-04	Document training resources including resources required and responsibilities of involved parties.
TRNG-05	Detail listing of all training materials.

**Figure 40**

## System Testing

### Phase Gate Checklist

<b>Project:</b>			
<b>Review Date:</b>		<b>Project Manager:</b>	
TRR Entry Criteria - Activities and Products			Comments and Actions
<p>1. System Test Plan documents approved as per a completed TRR review, as applicable. All outstanding issues have been resolved. List all System Test Plan documents that have been baselined and placed under CM control:</p> <ul style="list-style-type: none"> <li>▪ _____</li> <li>▪ _____</li> <li>▪ _____</li> <li>▪ _____</li> </ul>			
<p>2. System testing has been completed according to plan. Problems have been corrected and/or are within tolerable limits. All engineering, testing, and deployment documents have been updated, if applicable, to reflect problem corrections.</p>			
<p>3. All documents necessary for Verification &amp; Acceptance testing have been reviewed and approved by designated stakeholders (including the ERT). The following documents are required at a minimum:</p> <ul style="list-style-type: none"> <li>▪ System Test Results</li> <li>▪ System Test Problem Reports</li> <li>▪ Installation &amp; Deployment Procedures</li> <li>▪ System Administration &amp; Operation Procedures</li> </ul> <p>List all other applicable documents. (May include Test Procedures, Cases, Scripts, Certification/Acceptance Templates, User/Training Manuals, and an updated Requirements Traceability Matrix):</p> <ul style="list-style-type: none"> <li>▪ _____</li> <li>▪ _____</li> <li>▪ _____</li> <li>▪ _____</li> </ul>			
<p>4. Pre-Production lab/environment &amp; personnel, and Government/proxy test witness personnel, are ready for formal verification &amp; acceptance testing.</p>			
<p>5. Project execution &amp; control artifacts have been updated to reflect current status, including schedule, expenditures, and risk register. Earned value reports have been generated; any variance is within acceptable limits and/or has acceptable explanations.</p>			
<p>6. A VTR briefing has been prepared by the project manager using the standard template, and reviewed with the sponsor.</p>			

**Figure 41**

## Quality Factors

<b>ACCEPTANCE TEST REPORT</b>	
<b>REF #</b>	<b>QUALITY FACTOR</b>
ATR-01	Document summary of test procedures executed.
ATR-02	Detail list of problems detected.
ATR-03	Detail list of problems corrected.
ATR-04	Document projected schedule for correcting any problem reports.
ATR-05	Document summary of volume and stress testing results.
<b>TEST ANALYSIS APPROVAL DETERMINATION</b>	
<b>REF #</b>	<b>QUALITY FACTOR</b>
TAAD-01	Document the final result of the test reviews and testing levels above the integration test.
TAAD-02	Summarize the perceived readiness for migration of the system.
<b>TEST ANALYSIS REPORT</b>	
<b>REF #</b>	<b>QUALITY FACTOR</b>
TAR-01	Document each test unit/module.
TAR-02	Detail each test subsystem integration plan.
TAR-03	List each system.
TAR-04	Document user acceptance for each test.
TAR-05	Detail security for each test.
<b>TEST PROBLEM REPORTS</b>	
<b>REF #</b>	<b>QUALITY FACTOR</b>
TPR-01	Document system and acceptance testing results.
TPR-02	Detail correction of any defects found according to the established procedures that should include the process for assigning, handling, and disposing defects.

Figure 42

## Verification & Acceptance

### Phase Gate Checklist

<b>DDR(L) Phase Gate Review</b>	
<b>Review Purpose:</b>	Confirm that production enabling systems, processes, and materials are in place, including operations and maintenance support.
<b>Project:</b>	
<b>Review Date:</b>	
<b>Project Manager:</b>	

<b>DRR(L) Entry Criteria</b>		
<b>Ref #</b>	<b>Activities and Products</b>	<b>Comments and Actions</b>



1.	<p>Verification Test documents approved as per the VTR review. All action items have been completed. List all Verification Test documents that have been baselined and placed under CM control:</p> <ul style="list-style-type: none"> <li>▪ _____</li> <li>▪ _____</li> <li>▪ _____</li> <li>▪ _____</li> </ul>	
2.	<p>All Deployment Readiness documents have been reviewed and approved by designated stakeholders (including the ERT). The following document is required at a minimum:</p> <ul style="list-style-type: none"> <li>▪ Deployment Plan</li> <li>▪ Test Reports</li> <li>▪ Requirements Matrix (Updated)</li> <li>▪ Acceptance Test Report</li> <li>▪ Integration Plan</li> <li>▪ Installation Plan</li> <li>▪ Operating Documentation</li> <li>▪ Procedure Manual</li> <li>▪ Training Plan</li> <li>▪ Maintenance Plan</li> </ul>	
3.	<p>List all other applicable related documents:</p> <ul style="list-style-type: none"> <li>▪ _____</li> <li>▪ _____</li> <li>▪ _____</li> <li>▪ _____</li> </ul>	
4.	<p>Completed the Deployment Planning Checklist, as detailed in the <i>Deployment Planning Manual</i>.</p>	
5.	<p>All work necessary to complete the Verification &amp; Acceptance phase is represented in the Work Breakdown Structure (WBS), and planning packages (to the level of detail possible) are included for subsequent phases.</p>	
6.	<p>Project execution &amp; control artifacts have been updated to reflect current status, including the schedule, actual costs, and risk register. Earned value reports have been generated; any variance is within acceptable limits and/or has acceptable explanations.</p>	
7.	<p>A DRR(L) briefing has been prepared by the Project Manager using the standard template.</p>	

**DRR(L) Exit Criteria**

Ref #	Activities and Products	Comments
1.	Project Review Board (PRB) review completed. Verification & Acceptance documents have been approved and base lined.	
2.	(After PRB approval): Executive Steering Committee (ESC) review completed (if applicable). Verification & Acceptance documents approved and base lined.	
3.	Inter-group coordination issues settled.	
4.	PRB (and ESC if applicable) decisions on project issues completed, and action items assigned with realistic due dates.	
5.	The next applicable PRB review, and the project artifacts which will be prepared for that review, have been identified.	
6.	Meeting notes and decisions recorded.	

**DDR(F) Phase Gate Review**

<b>Review Purpose:</b>	Confirm that production enabling systems, processes, and materials are in place, including operations and maintenance support.
<b>Project:</b>	
<b>Review Date:</b>	
<b>Project Manager:</b>	

**DRR(F) Entry Criteria**

Ref #	Activities and Products	Comments and Actions
1.	<p>Deployment Readiness documents approved as per the DRR(L) review. All action items have been completed. List all Deployment Readiness documents that have been base lined and placed under CM control:</p> <ul style="list-style-type: none"> <li>▪ _____</li> <li>▪ _____</li> <li>▪ _____</li> <li>▪ _____</li> </ul>	

2.	<p>All Deployment Readiness documents have been updated, reviewed, and approved by designated stakeholders (including the ERT). The following document is required at a minimum:</p> <ul style="list-style-type: none"> <li>▪ Deployment Plan</li> <li>▪ Test Reports</li> <li>▪ Requirements Matrix (Updated)</li> <li>▪ Acceptance Test Report</li> <li>▪ Integration Plan</li> <li>▪ Installation Plan</li> <li>▪ Operating Documentation</li> <li>▪ Procedure Manual</li> <li>▪ Training Plan</li> <li>▪ Maintenance Plan</li> </ul>	
3.	<p>List all other applicable related documents:</p> <ul style="list-style-type: none"> <li>▪ _____</li> <li>▪ _____</li> <li>▪ _____</li> <li>▪ _____</li> </ul>	
4.	<p>All work necessary to complete the Pilots &amp; Finalizing phase is represented in the Work Breakdown Structure (WBS), and planning packages (to the level of detail possible) are included for subsequent phases.</p>	
5.	<p>Completed the Deployment Planning Checklist, as detailed in the <i>Deployment Planning Manual</i>.</p>	
6.	<p>System deployment methods have been validated in the Pre-Production Lab (PPL).</p>	
7.	<p>A Service Profile has been completed, as detailed in the <i>Deployment Planning Manual</i>.</p>	
8.	<p>A Production Change Request has been completed and approved by the FAM and CCB.</p>	
9.	<p>Project execution &amp; control artifacts have been updated to reflect current status, including the schedule, actual costs, and risk register. Earned value reports have been generated; any variance is within acceptable limits and/or has acceptable explanations.</p>	
10.	<p>A DRR(F) briefing has been prepared by the project manager using the standard template.</p>	

<b>DRR(F) Exit Criteria</b>		
<b>Ref #</b>	<b>Activities and Products</b>	<b>Comments</b>
1.	Project Review Board (PRB) review completed. Pilots & Finalizing documents have been approved and baselined.	

2.	(After PRB approval): Executive Steering Committee (ESC) review completed (if applicable). Pilots & Finalizing documents approved and baselined.	
3.	Inter-group coordination issues settled.	
4.	PRB (and ESC if applicable) decisions on project issues completed, and action items assigned with realistic due dates.	
5.	The next applicable PRB review, and the project artifacts which will be prepared for that review, have been identified.	
6.	Meeting notes and decisions recorded.	

**Figure 43**

## Quality Factors

IT SYSTEMS SECURITY CERTIFICATION & ACCREDITATION	
REF #	QUALITY FACTOR
C&A-01	Document certification and accreditation of an information system before it becomes operational.
C&A-02	Documents needing certification and accreditation include: <ul style="list-style-type: none"> <li>▪ System Security Plan</li> <li>▪ Rules of Behavior</li> <li>▪ Security Test and Evaluation</li> <li>▪ Contingency Plan</li> <li>▪ Privacy Impact Assessments</li> <li>▪ Certification and Accreditation Memorandums</li> </ul>
TRANSITION PLAN	
REF #	QUALITY FACTOR
TP-01	Document the detailed plans, procedures, and schedule to guide the transition process to full operation.
TP-02	Coordinate transition plan with operational and maintenance personnel.

**Figure 44**

## APPENDIX E: PHASE GATE MATERIALS

### Capital Planning Phases

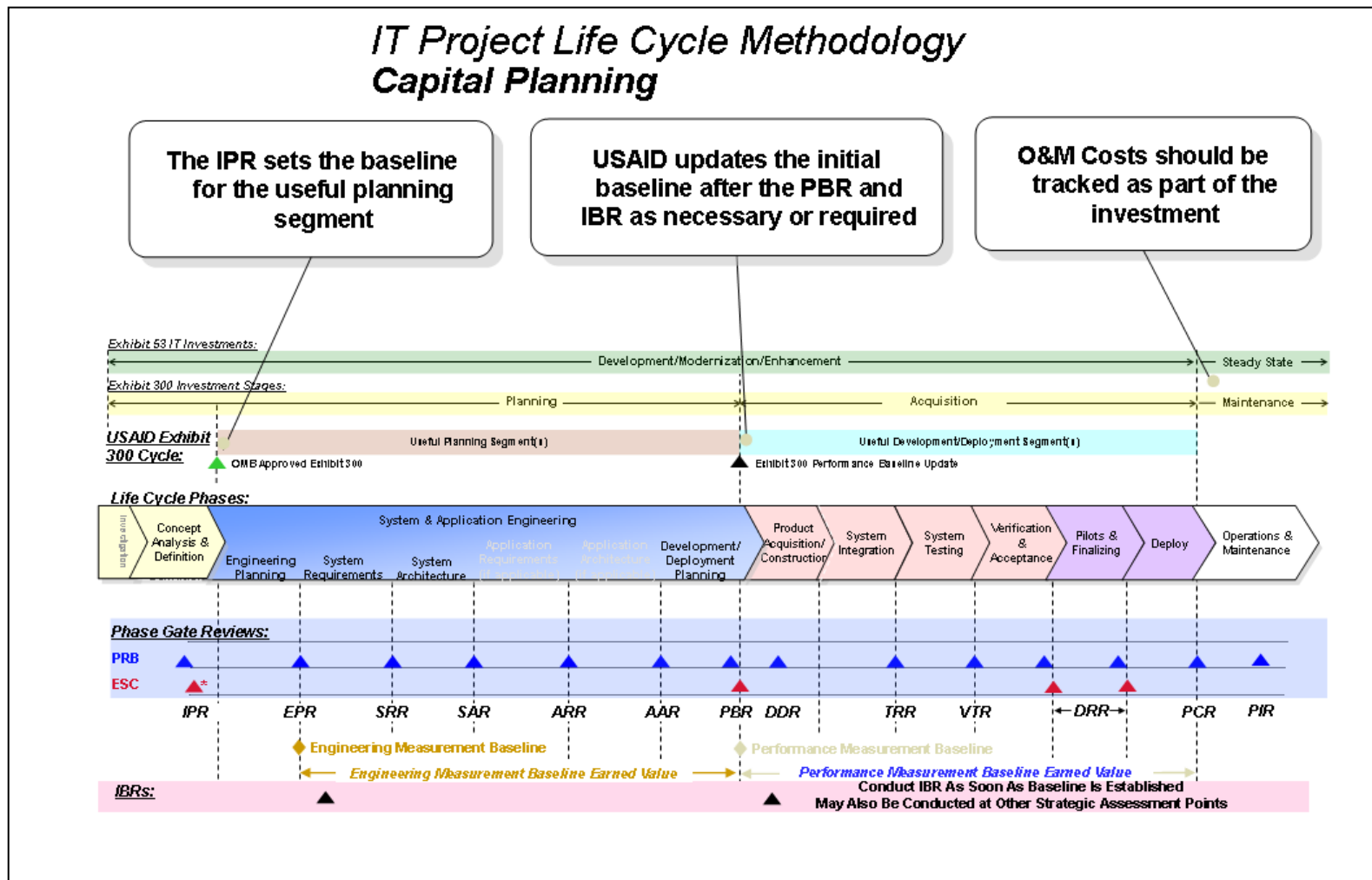
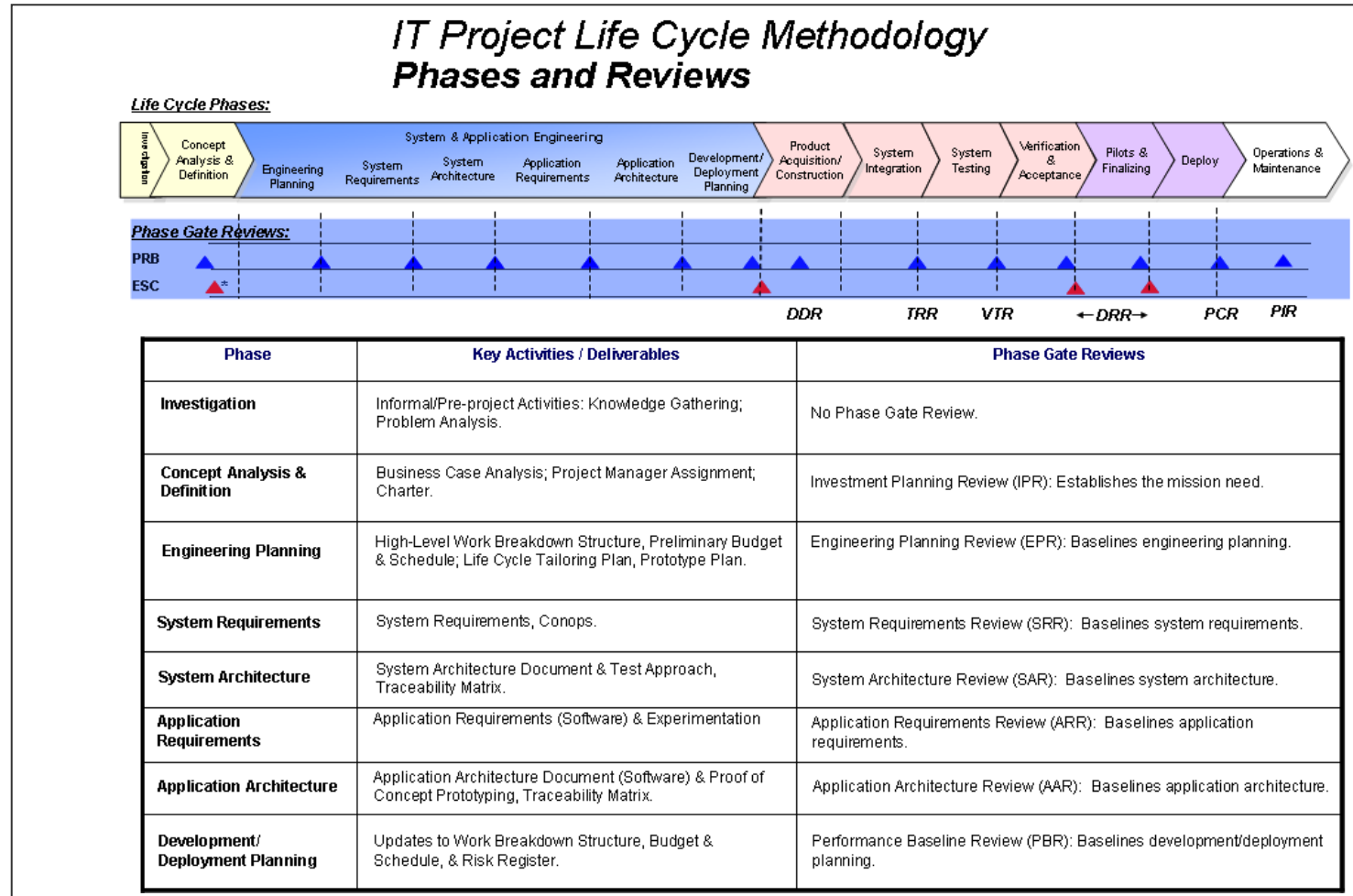
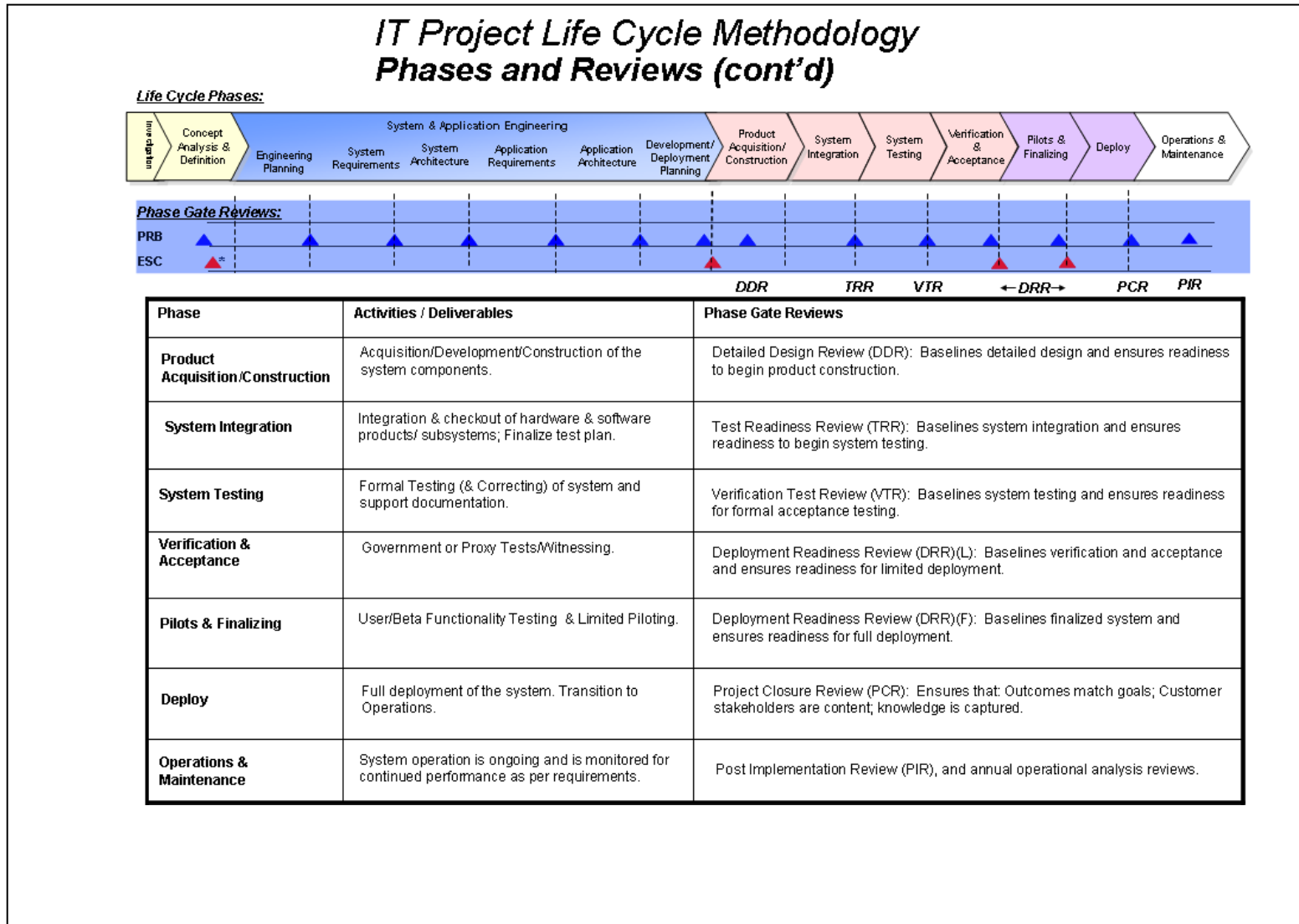


Figure 45 – IT Project Life Cycle Methodology: Capital Planning

## Phase and Review Descriptions



**Figure 46 – IT Project Life Cycle Methodology: Phases and Reviews**



**Figure 47 – IT Project Life Cycle Methodology: Phases and Reviews (cont'd)**

## APPENDIX F: PHASE GATE REVIEW ORGANIZATIONAL RESPONSIBILITY

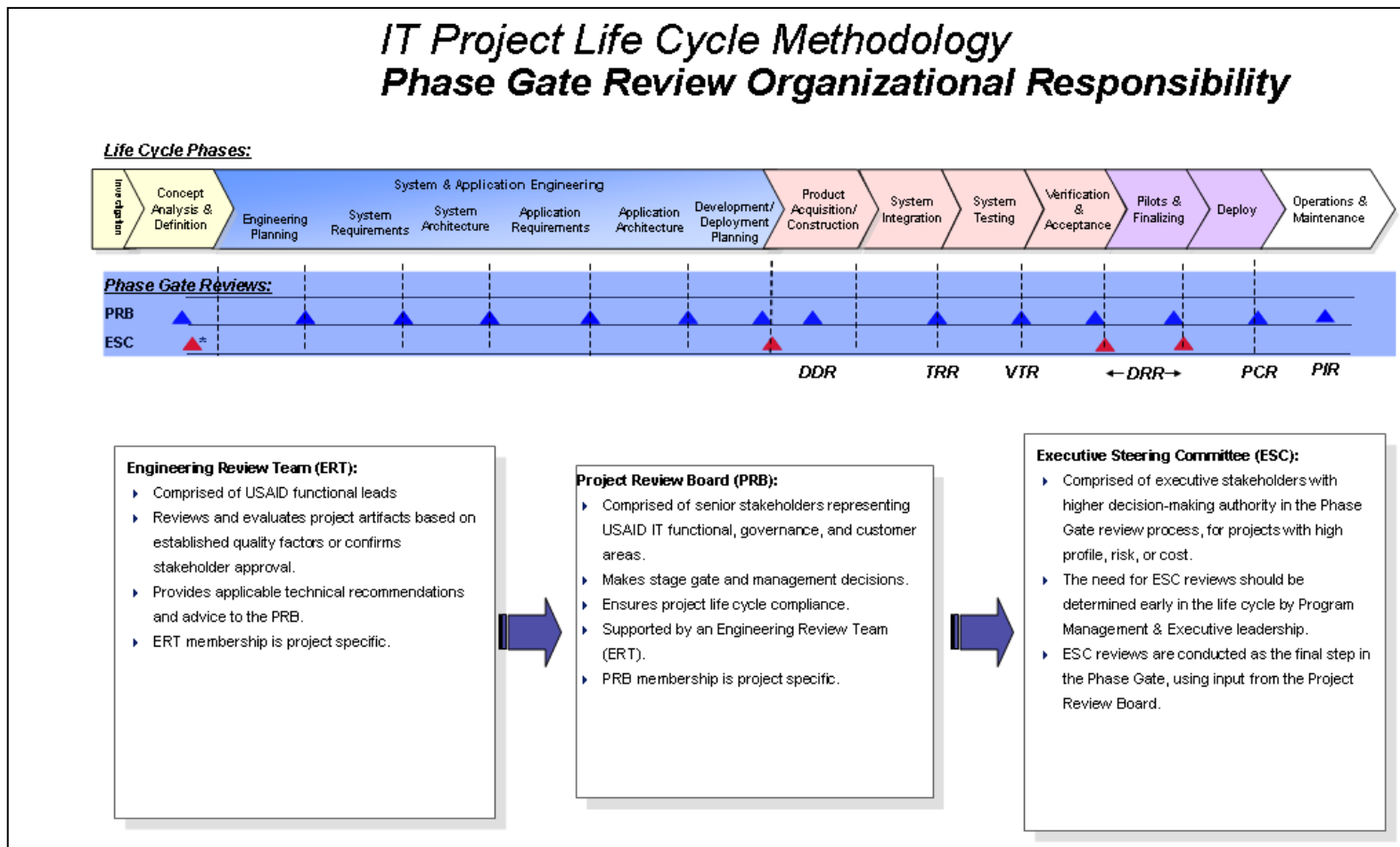


Figure 48 – IT Project Life Cycle Methodology: Phase Gate Review Organizational Responsibility



## APPENDIX G: LIFE CYCLE TAILORING

### Life Cycle Tailoring Chart

The Life Cycle Methodology is intended to provide a comprehensive set of project artifacts and Phase Gate Reviews for all IT projects. However, as described in appendices section 8.4, since each project has different requirements the USAID governance approach allows the project to tailor artifacts to fit its requirements. The first diagram provides an example of how phase gate reviews could be tailored to fit three different project types. The second worksheet provides a method for tailoring project artifacts.

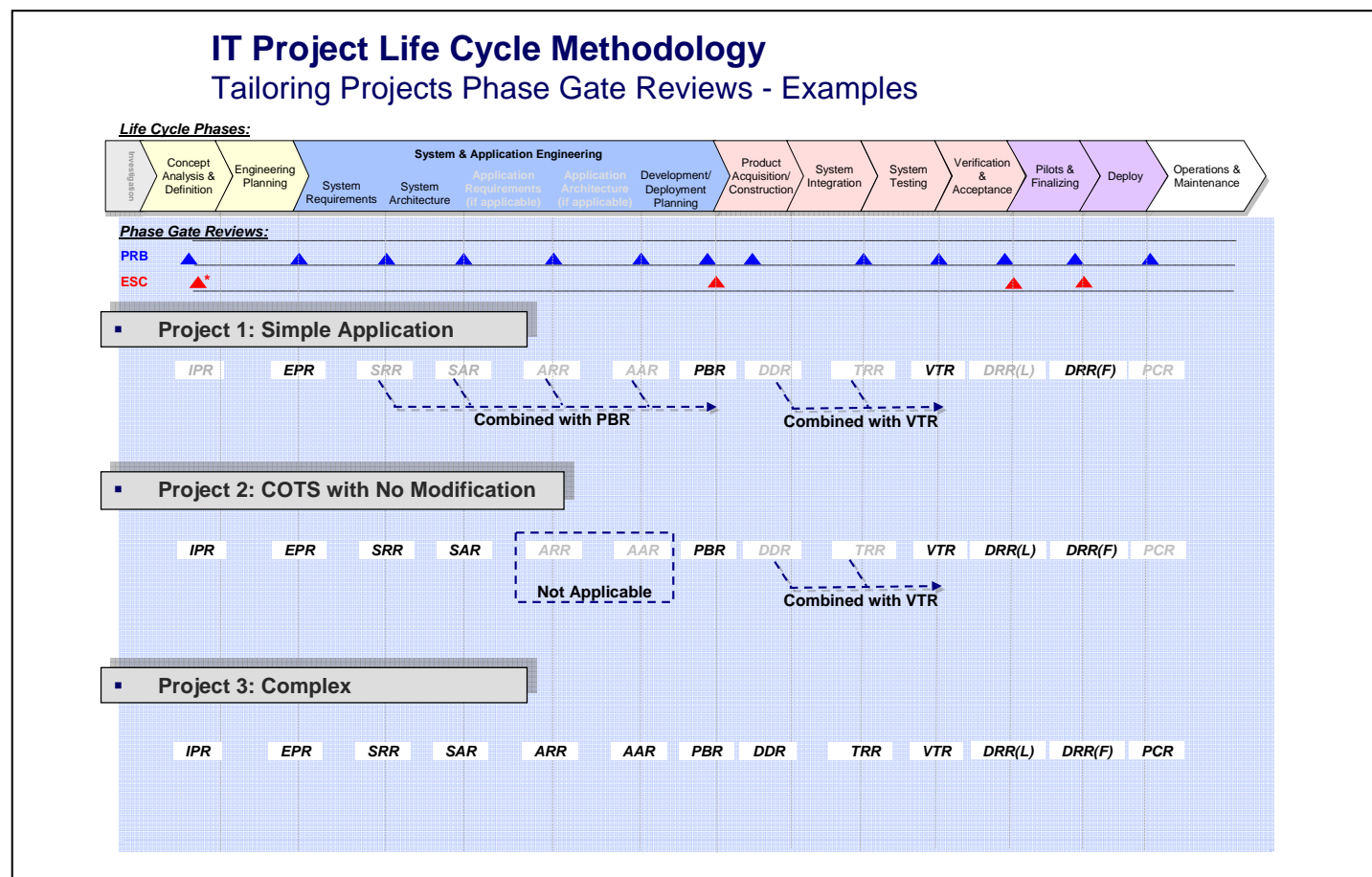


Figure 49 – IT Project Life Cycle Methodology: Tailoring Projects Phase Gate Reviews -Examples

## Project Governance Tailoring Worksheet

USAID TAILORING PLAN			
<b>Project Name:</b>		<b>Version:</b>	
<b>Brief Description:</b>			
<b>Project Manager:</b>			
<b>Project Sponsor:</b>			
<b>Date Completed:</b>		<b>By:</b>	
<b>Date Distributed:</b>		<b>By:</b>	
<b>Date Returned:</b>		<b>By:</b>	
Section I- Deliverable Tailoring			
<p>This worksheet is used by the Project Manager (PM) to tailor the deliverables of a work pattern for the IT Project Life Cycle. In this section, the PM should carefully review each deliverable to determine whether it is relevant and whether it can be combined with others. For those deliverables that the PM elects to tailor out or consolidate, he/she should provide a justification for the decision, identify risks when possible, and list any plans to manage those risks.</p>			
Deliverable Name	Tailored Out	Included with other deliverable	Justification/Explanation
Business Need Statement	<input type="checkbox"/>	<input type="checkbox"/>	
Project Charter	N/A-Required		
Concept of Operations	<input type="checkbox"/>	<input type="checkbox"/>	
Feasibility Report	<input type="checkbox"/>	<input type="checkbox"/>	
Work Breakdown Structure (WBS)	N/A-Required		
Budget and Basis of Estimate	N/A-Required		
Acquisition Plan	<input type="checkbox"/>	<input type="checkbox"/>	
OMB Exhibit 300	<input type="checkbox"/>	<input type="checkbox"/>	
Project Identification Document (PID)	<input type="checkbox"/>	<input type="checkbox"/>	
Project Management Plan	<input type="checkbox"/>	<input type="checkbox"/>	
Schedule	N/A-Required		
Time-Phased Budget	N/A-Required		

Organization Chart	N/A-Required		
Risk Register	N/A-Required		
High-Level Gantt Chart	N/A-Required		
Earned Value Report(s)	<input type="checkbox"/>	<input type="checkbox"/>	
Lifecycle Tailoring Request	<input type="checkbox"/>	<input type="checkbox"/>	
Systems Security Plan	N/A-Required		
System Requirements	N/A-Required		
System Architecture	N/A-Required		
Privacy Impact Assessment	N/A-Required		
Architectural Diagrams	<input type="checkbox"/>	<input type="checkbox"/>	
Test Plan	N/A-Required		
Interface Design Description (s)	<input type="checkbox"/>	<input type="checkbox"/>	
Enterprise Architecture (EA) Artifacts	<input type="checkbox"/>	<input type="checkbox"/>	
Requirements Traceability Mix	N/A-Required		
Systems Security Plan	<input type="checkbox"/>	<input type="checkbox"/>	
Contingency Plan	<input type="checkbox"/>	<input type="checkbox"/>	
Risk Assessment Report	<input type="checkbox"/>	<input type="checkbox"/>	
Architectural Diagrams	<input type="checkbox"/>	<input type="checkbox"/>	
Application Requirements Specification	<input type="checkbox"/>	<input type="checkbox"/>	
Application Design Description	<input type="checkbox"/>	<input type="checkbox"/>	
Installation Plan	<input type="checkbox"/>	<input type="checkbox"/>	
Integration Plan	<input type="checkbox"/>	<input type="checkbox"/>	
Operations and Maintenance Plan	N/A-Required		
Application Detailed Design	<input type="checkbox"/>	<input type="checkbox"/>	

Detailed Design	<input type="checkbox"/>	<input type="checkbox"/>	
Operational Guidance	<input type="checkbox"/>	<input type="checkbox"/>	
System Administration Guide	<input type="checkbox"/>	<input type="checkbox"/>	
User/Training Manuals	<input type="checkbox"/>	<input type="checkbox"/>	
Deployment and Implementation Plan	N/A-Required		
Training Plan	<input type="checkbox"/>	<input type="checkbox"/>	
Test Cases	<input type="checkbox"/>	<input type="checkbox"/>	
Test Procedures	<input type="checkbox"/>	<input type="checkbox"/>	
Test Design	<input type="checkbox"/>	<input type="checkbox"/>	
Security Test & Evaluation Plan and Test Results Report	<input type="checkbox"/>	<input type="checkbox"/>	
Test Incident Report	<input type="checkbox"/>	<input type="checkbox"/>	
Test Summary Report	N/A-Required		
Certification Statement & Accreditation Decision Letter	<input type="checkbox"/>	<input type="checkbox"/>	
Beta Test Report	<input type="checkbox"/>	<input type="checkbox"/>	
Project Lessons Learned	<input type="checkbox"/>	<input type="checkbox"/>	
Project Closeout Report	N/A-Required		

**Section II- Phase Gate Tailoring**

This worksheet is used by the Project Manager to tailor the phase gate reviews of the IT Project Life Cycle for the system development project. As in the previous section, the PM should carefully review each phase gate review to determine whether it is relevant and whether it can be combined with other deliverables. For those phase gate reviews that the PM elects to tailor out or consolidate, he/she should provide a justification for the decision, identify risks when possible, and list any plans to manage those risks.

<b>Phase Gate Name</b>	<b>Tailored Out</b>	<b>Combined with other Phase Gates</b>	<b>Justification/Explanation</b>
Investment Planning Review (IPR)	<input type="checkbox"/>	<input type="checkbox"/>	

Engineering Planning Review (EPR)	<input type="checkbox"/>	<input type="checkbox"/>	
System Requirements Review (SRR)	<input type="checkbox"/>	<input type="checkbox"/>	
System Architecture Review (SAR)	<input type="checkbox"/>	<input type="checkbox"/>	
Application Requirements Review (ARR)	<input type="checkbox"/>	<input type="checkbox"/>	
Application Architecture Review (AAR)	<input type="checkbox"/>	<input type="checkbox"/>	
Performance Baseline Review (PBR)	N/A-Required		
Detailed Design Review (DDR)	<input type="checkbox"/>	<input type="checkbox"/>	
Test Readiness Review (TRR)	<input type="checkbox"/>	<input type="checkbox"/>	
Verification Test Review (VTR)	<input type="checkbox"/>	<input type="checkbox"/>	
Deployment Readiness Review-L (DRR-L)	<input type="checkbox"/>	<input type="checkbox"/>	
Deployment Readiness Review-F (DRR-F)	N/A-Required		
Project Closure Review (PCR)	<input type="checkbox"/>	<input type="checkbox"/>	
Post Implementation Review (PIR)	<input type="checkbox"/>	<input type="checkbox"/>	

**Section III- Approvals**

This section is used to record and verify necessary approval of the Tailoring Plan. It must be signed by all four parties for the Tailoring Plan to take effect.

\_\_\_\_\_  
Name, Project Manager

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

Comments:

<hr style="border: 0; border-top: 1px solid black; margin-bottom: 5px;"/> Name, BSE/BIE Division Chief	<hr style="border: 0; border-top: 1px solid black; margin-bottom: 5px;"/> Signature	<hr style="border: 0; border-top: 1px solid black; margin-bottom: 5px;"/> Date
Comments:		
<hr style="border: 0; border-top: 1px solid black; margin-bottom: 5px;"/> Name, Chief Engineer	<hr style="border: 0; border-top: 1px solid black; margin-bottom: 5px;"/> Signature	<hr style="border: 0; border-top: 1px solid black; margin-bottom: 5px;"/> Date
Comments:		
<hr style="border: 0; border-top: 1px solid black; margin-bottom: 5px;"/> Name, Project Sponsor	<hr style="border: 0; border-top: 1px solid black; margin-bottom: 5px;"/> Signature	<hr style="border: 0; border-top: 1px solid black; margin-bottom: 5px;"/> Date
Comments:		

<b>Section IV-Revisions</b>	
This section is used to track revisions to the Tailoring Plan.	
Version: <input style="width: 80%;" type="text"/>	Approved by: <input style="width: 80%;" type="text"/>
Revision Description:	
Version: <input style="width: 80%;" type="text"/>	Approved by: <input style="width: 80%;" type="text"/>
Revision Description:	
Version: <input style="width: 80%;" type="text"/>	Approved by: <input style="width: 80%;" type="text"/>
Revision Description:	
Version: <input style="width: 80%;" type="text"/>	Approved by: <input style="width: 80%;" type="text"/>
Revision Description:	

## APPENDIX H: IT PROJECT WBS

### Cost Estimate Guidance

The following table describes the three-level cost estimation approach used by the USAID IT Project Life Cycle Methodology. The initial cost estimation is designed to be a Rough Order of Magnitude (ROM). However, as the Project Life Cycle progresses and project requirements are realized, subsequent cost estimations are designed to predict costs more accurately.

USAID IT Project Cost Estimating Guidance			Range of Variance	
Estimate Name	Project Life Cycle Gate	Description	Complex project, major unknowns, high risks, software development	Simple project, well known, prior experience, low risk, no software development
<b>Level 1 Concept Estimate</b>	Investment Planning Review (IPR)	Rough order of magnitude, by conducting a high level "top down" analysis of deliverables. Based on comparisons to similar past projects, and/or expert judgment.	+ 400% to - 400%	+ 100% to - 50%
<b>Level 2 Engineering Estimate</b>	Engineering Planning Review (EPR)	Greater fidelity, a more detailed top down estimate; should include "bottom up" estimates of known engineering work.	+ 300% to - 200%	+ 50% to - 25%
<b>Level 3 Performance Estimate</b>	Performance Baseline Review (PBR)	Based on actual costs for the completed Engineering phases, and detailed definitive "bottom up" WBS estimates of all remaining project work.	+ 10% to - 10%	+ 10 % to - 5%
The cost estimate must be based on the completed USAID standard work breakdown structure (WBS), and should be validated by the project team and independent SMEs.				
<b>References:</b>	1) GAO-07-1134SP Cost Assessment Guide, Exposure Draft, July 2007 2) PMBOK Guide, Third Edition, 2004 3) USAID IT Project Life Cycle Methodology			

## USAID IT Project WBS Examples

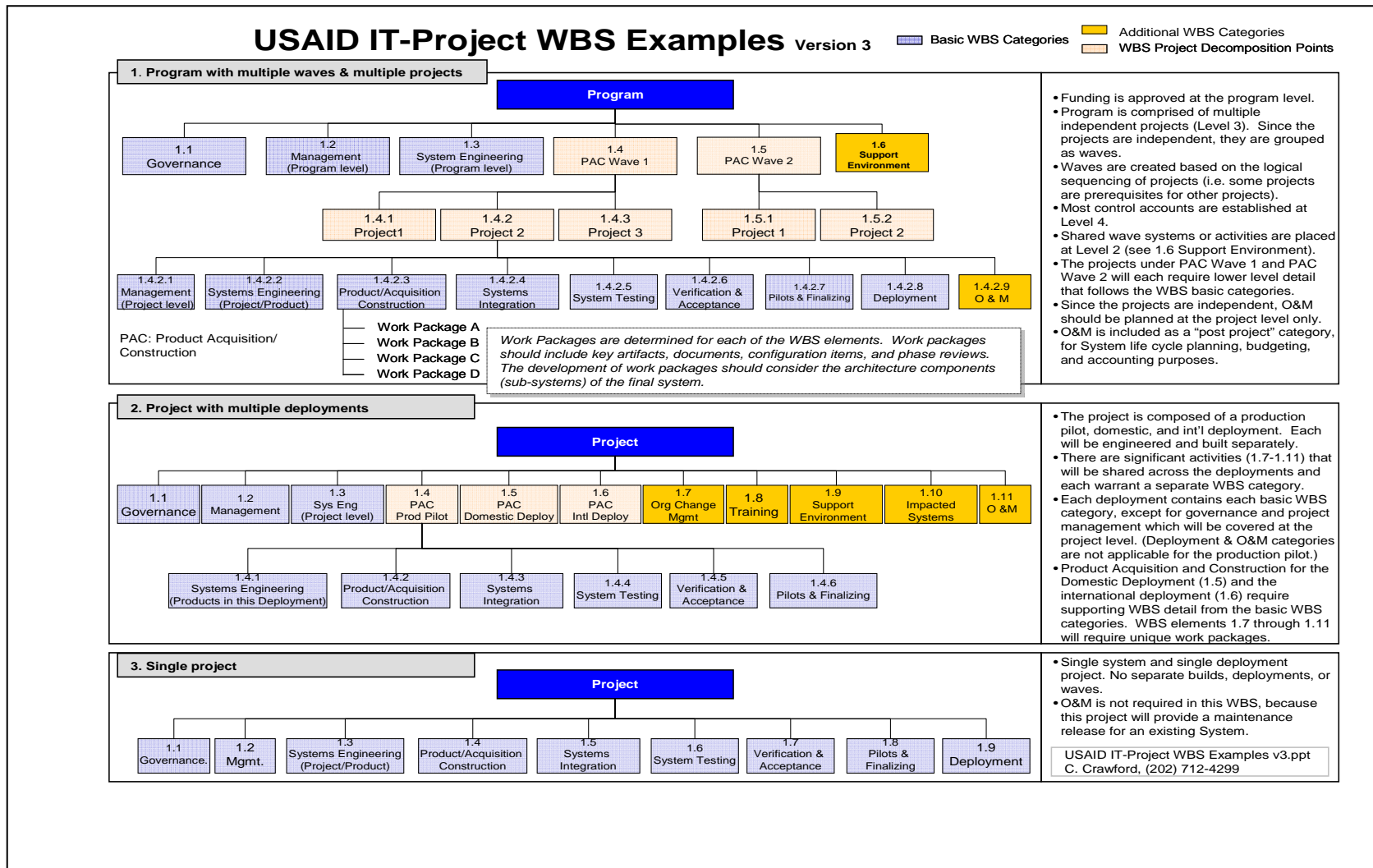


Figure 50 – USAID IT-Project WBS Example



## APPENDIX I: IT GOVERNANCE PROJECT DEFINITIONS

### USAID IT Project WBS Definitions

The WBS elements will be used for estimating, budgets, and reporting, regardless of life cycle phase model used. Please also see "USAID IT-Project WBS Examples v3.ppt" for more information.

<b>DEFINITION</b>	<i>A program or project may be decomposed into sub-projects or builds, as necessary. WBS elements support the system of deliverable products as a whole. A System consists of People, Processes, and Technology organized to support a defined function or achieve a specific organizational goal.</i>
<b><u>BASIC DEFINITIONS</u></b>	<u>These categories are used for basic decomposition of a project, program, or the sub-projects within a program.</u>
<b>Governance</b>	All deliverables and work effort performed by personnel external to the project team associated with executive governance of the project within USAID. This includes Project Review Boards, Executive Steering Committees, other Key Decision Points, external Change Control Boards, and responses to IG and OMB inquiries. (Any related work by the internal project teams shall be assigned to the "Management" WBS category.)
<b>Management (Project &amp; Engineering)</b>	All deliverables and work effort associated with planning and management of the project related to the Deliverable Products being developed. This includes all non-discrete support activities related to the project (CM, RM, QA, Life cycle tailoring, security, EVM, test approach planning, internal project reviews, management/admin support, etc.) This excludes management activities/deliverables that can be assigned to lower-level sub-system developments.
<b>System &amp; Application Engineering</b>	All deliverables and work effort associated with engineering the System. This includes: (a) all business-related exploration and definition (concept of operations, mission need analysis, top-level requirements, feasibility analysis, market analysis, alternatives analysis, ROI analysis); and (b) all engineering-related exploration and definition (experimentation, prototyping, System requirements, System architecture design, interface design, database design, BPR, and engineering updates).
<b>Product Acquisition/ Construction</b>	All deliverables and work effort associated with the acquisition/construction of the System components. This is a decomposition of the System into all of its architectural subsystems and/or components. This includes all hardware, telecomm, documentation, processes, and software, both Commercial off-the-shelf (COTS) items as well as all developmental items (i.e., in-house software), and assembly/test/checkout of individual components.
<b>System Integration</b>	All deliverables and work effort associated with integrating the Systems. It also includes all technical support activities associated with supporting the System during the life of the project (i.e., until it is turned over to operations, and System correction before acceptance).

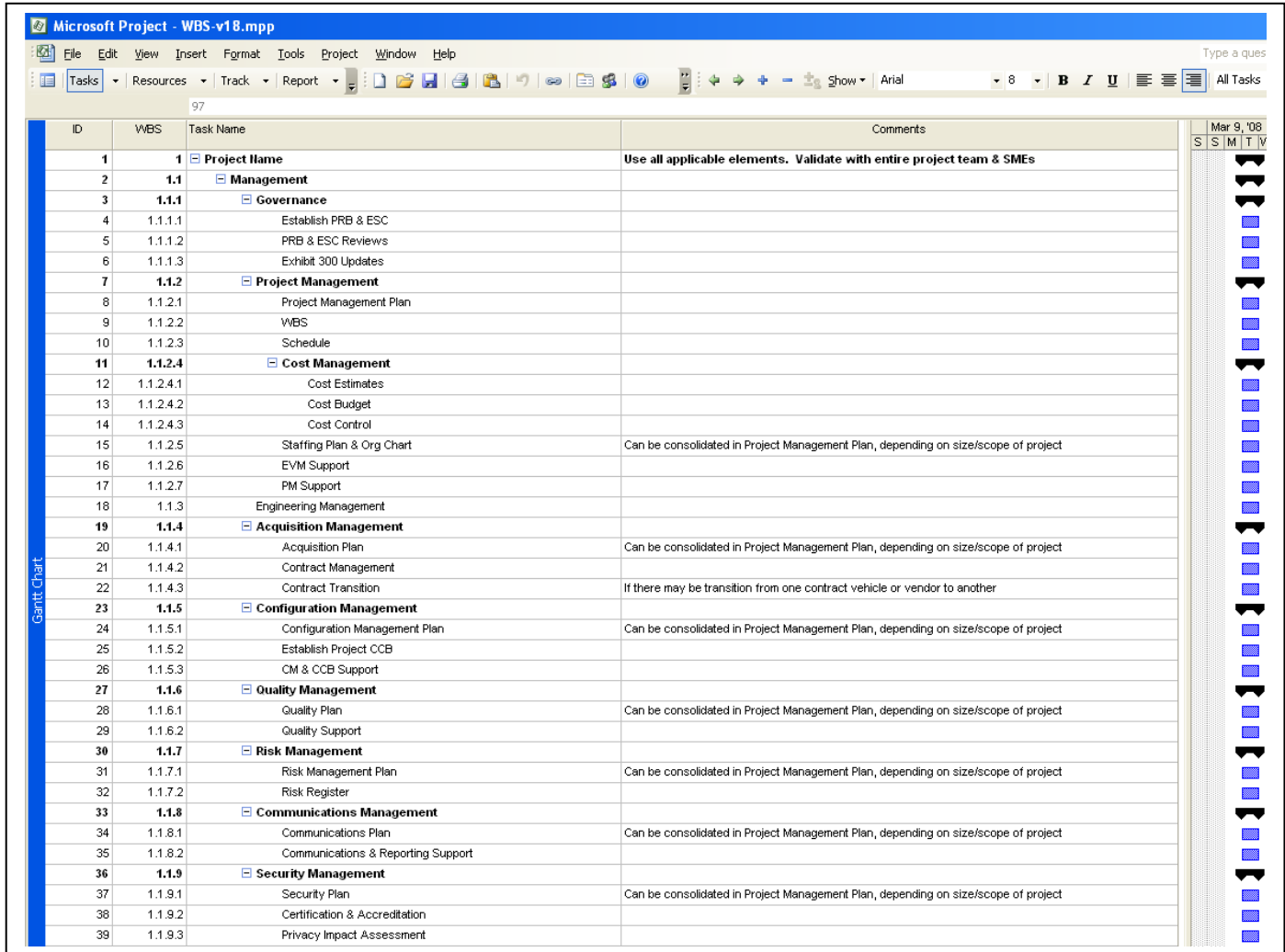
<i>System Testing</i>	All deliverables and work effort associated with performing testing of the integrated System as a whole. It includes development, testing, and approval of all tests, scripts, and procedures that will be used for Government acceptance of the System and its user documentation in the "Verification & Acceptance" WBS category, as well as formal and informal testing by the Developer to prepare for Government Independent Verification and Validation (IV&V) and certification and accreditation (C&A). Excluded are activities/deliverables associated with correction of discovered problems.
<i>Verification &amp; Acceptance</i>	All deliverables and work effort associated with the Government's verification and acceptance of the System and its user documentation deliverables, and C&A. Excluded are activities/deliverables associated with correction of discovered problems.
<i>Pilots &amp; Finalizing</i>	All deliverables and work effort associated with beta testing, piloting, and finalizing the System in preparation for the "Deployment" WBS category. This includes the integration of the System into the USAID General Support System (GSS) infrastructure. Each installation/activation will exist as a separate WBS Sub-Project.
<i>Deployment</i>	All deliverables and work effort associated with deploying the System to other sites for installation/activation. Each installation/activation, such as for each Mission, will exist as a separate WBS Sub-Project.
<b><u>ADDITIONAL DEFINITIONS:</u></b> <i>Org Chg Mgmt</i>	<u>These categories are used when applicable, as additional decompositions of a project, or of a program.</u> All deliverables and work effort associated with organizational change to support the project's objectives and the System's integration into USAID organization processes. This includes external communications and organizational transition staff acquisition activities. This excludes Business Process Reengineering (BPR), which is conducted in "System & Application Engineering."
<i>Training</i>	All deliverables and work effort associated with training execution for the System. Includes training materials, user training, as well as O&M staff training in preparation for deployment.
<i>Facilities</i>	All deliverables and work effort associated with central/HQ facility (non-Mission specific) changes required to support the System activation.
<i>Support Environment, Tools, Spares</i>	All deliverables and work effort associated with tools and initial spares to be acquired in order to develop or maintain the System. This includes software tools, data migration tools, and activities to maintain and support a development environment and System components in the pre-production lab.
<i>Impacted Systems</i>	All support associated with modifications to other external Systems that are impacted by the System. This includes decommissioning and retirement of the System being replaced.
<i>Operations &amp; Maintenance</i> <b><u>LEVEL TWO DEFINITIONS</u></b>	This is a "post project" category, included for System life cycle planning, budgeting, and accounting purposes.

<b><i>Management (Project &amp; Engineering)</i></b>	All deliverables and work effort associated with project planning and management of the project related to the Deliverable Products being developed. This includes all support activities related to the project (CM, RM, QA, Life cycle tailoring, security, EVM, internal project reviews, management/admin support, governance, etc.) This excludes management activities/deliverables that can be assigned to lower-level sub-system developments.
<b><i>System Engineering</i></b>	All deliverables and work effort associated with engineering the System. This includes: (a) all business-related exploration and definition (concept of operations, mission need analysis, top-level requirements, feasibility analysis, market analysis, alternatives analysis, ROI analysis); and (b) all engineering-related exploration and definition (experimentation, prototyping, System requirements, System architecture design, interface design, database design, BPR design, and engineering updates).
<b><i>Primary Product / Products</i></b>	All deliverables and work effort associated with the software product of the project. This is a decomposition of the system into all of its planned releases, architectural subsystems, and/or components, with the exception of hardware, which is planned for under "Environments." This primarily focuses on software, and whatever is necessary to prepare the software for use, which may include telecomm, documentation, processes, and software, both Commercial off-the-shelf (COTS) items as well as all developmental items (i.e., in-house software), and assembly/test/checkout of individual components. Releases are decomposed into Components, and the life cycle definitions (see below) necessary to prepare the software for deployment.
<b><i>Data Migration</i></b>	All deliverables and work effort associated with data migration, including engineering and developing data migration processes and scripts. Data migration is decomposed according to the life cycle definitions (see below) necessary to prepare data migration for implementation. This WBS leaf includes implementation, if it can be universally/centrally accomplished, but excludes local/Mission-specific implementation which should be planned under the Mission-specific deployment.
<b><i>Organizational &amp; Business Process Change</i></b>	All deliverables and work effort associated with organization change management (OCM) and business process reengineering (BPR). This includes detailed analysis, engineering, and development of the processes designed during System Engineering, and is decomposed according to the life cycle definitions (see below) necessary to prepare for implementation. This WBS leaf includes implementation, if it can be universally/centrally accomplished, but excludes local/Mission-specific implementation which should be planned under Mission-specific deployment.
<b><i>Environments</i></b>	All deliverables and work effort associated with the environments necessary for the project. This includes all hardware and operating system/infrastructure software & tools necessary for the environments, with the exception of Mission-specific environments that should be planned as part of the Mission deployment. This includes Development, Testing, Training, Production, Debug, Disaster Recovery, SBC, and PPL environments. Each environment is decomposed according to the life cycle definitions (see below) necessary to prepare for implementation.

<b><i>Impacted &amp; Impacting Systems</i></b>	All support associated with modifications to other external Systems that are impacted by the System, or to address external impacts to the System. This includes decommissioning and retirement of the System being replaced.
<b><i>Deployment (Customer Implementation)</i></b>	All deliverables and work effort associated with piloting and finalizing, and deployment or customer implementation of the software product and/or System to the end user customers. This includes development of installation processes and scripts, training, support during the project, and any locally required implementation of environments, processes, and products. Each installation/activation, such as for each Mission, will exist as a separate WBS Sub-Project.
<b><i>O&amp;M / Steady State</i></b>	All deliverables and work effort associated with maintaining and supporting the new product/system after implementation. This includes tools/spares, ongoing training for new users, bug fixes, and semi-annual maintenance releases. The project team will transition these functions to steady state personnel as the project is implemented and completed.
<b><u>LIFE CYCLE DEFINITIONS:</u></b> <b><i>Management</i></b>	These categories are used to decompose project elements that require their own life cycle to completion, including products and environments. All deliverables and work effort associated with project planning and management of a project element. See "Management" above for more detail on what is included.
<b><i>Engineering</i></b>	All deliverables and work effort associated with engineering of a project element. See "System Engineering" above for more detail on what is included.
<b><i>Construction</i></b>	All deliverables and work effort associated with the acquisition/construction/ development of a project element, including assembly/test/checkout.
<b><i>Integration</i></b>	All deliverables and work effort associated with integrating project elements, such as components, subsystems, products, or environments.
<b><i>Testing</i></b>	All deliverables and work effort associated with testing of integrated project elements. It includes development, testing, and approval of all tests, scripts, and procedures that will be used for Government acceptance per the "Verification & Acceptance" WBS category, as well as formal and informal testing by the Developer to prepare for Government IV&V and C&A.
<b><i>Verification &amp; Acceptance</i></b>	All deliverables and work effort associated with the Government's verification and acceptance of project elements, such as deployable products and user documentation deliverables. This includes C&A, IV&V, and PPL testing.
<b><i>Implementation</i></b>	All deliverables and work effort associated with implementing project elements.

## APPENDIX J: IT PROJECT WBS TEMPLATE

The current version of the standard project WBS is available in a MS Project file entitled WBS v18.mpp. These figures are provided here for reference.



ID	WBS	Task Name	Comments
1	1	<b>Project Name</b>	Use all applicable elements. Validate with entire project team & SMEs
2	1.1	<b>Management</b>	
3	1.1.1	<b>Governance</b>	
4	1.1.1.1	Establish PRB & ESC	
5	1.1.1.2	PRB & ESC Reviews	
6	1.1.1.3	Exhibit 300 Updates	
7	1.1.2	<b>Project Management</b>	
8	1.1.2.1	Project Management Plan	
9	1.1.2.2	WBS	
10	1.1.2.3	Schedule	
11	1.1.2.4	<b>Cost Management</b>	
12	1.1.2.4.1	Cost Estimates	
13	1.1.2.4.2	Cost Budget	
14	1.1.2.4.3	Cost Control	
15	1.1.2.5	Staffing Plan & Org Chart	Can be consolidated in Project Management Plan, depending on size/scope of project
16	1.1.2.6	EVM Support	
17	1.1.2.7	PM Support	
18	1.1.3	Engineering Management	
19	1.1.4	<b>Acquisition Management</b>	
20	1.1.4.1	Acquisition Plan	Can be consolidated in Project Management Plan, depending on size/scope of project
21	1.1.4.2	Contract Management	
22	1.1.4.3	Contract Transition	If there may be transition from one contract vehicle or vendor to another
23	1.1.5	<b>Configuration Management</b>	
24	1.1.5.1	Configuration Management Plan	Can be consolidated in Project Management Plan, depending on size/scope of project
25	1.1.5.2	Establish Project CCB	
26	1.1.5.3	CM & CCB Support	
27	1.1.6	<b>Quality Management</b>	
28	1.1.6.1	Quality Plan	Can be consolidated in Project Management Plan, depending on size/scope of project
29	1.1.6.2	Quality Support	
30	1.1.7	<b>Risk Management</b>	
31	1.1.7.1	Risk Management Plan	Can be consolidated in Project Management Plan, depending on size/scope of project
32	1.1.7.2	Risk Register	
33	1.1.8	<b>Communications Management</b>	
34	1.1.8.1	Communications Plan	Can be consolidated in Project Management Plan, depending on size/scope of project
35	1.1.8.2	Communications & Reporting Support	
36	1.1.9	<b>Security Management</b>	
37	1.1.9.1	Security Plan	Can be consolidated in Project Management Plan, depending on size/scope of project
38	1.1.9.2	Certification & Accreditation	
39	1.1.9.3	Privacy Impact Assessment	

Figure 51 – IT Project WBS Template

Gantt Chart

40	1.2	System Engineering	
41	1.2.1	Enterprise Architecture	
42	1.2.2	Concept of Operations	
43	1.2.3	Site Surveys & Analysis	Identify current systems/environments/H/W/S/W/business processes in each location
44	1.2.4	System Requirements	Includes system analysis
45	1.2.5	Prototyping & Demonstrations	
46	1.2.6	Alternatives Analysis	
47	1.2.7	System Architecture	Includes design of business processes
48	1.2.8	Application Requirements	
49	1.2.9	Application Architecture	
50	1.2.10	System Engineering Support	System engineering support through remainder of project life cycle
51	1.3	Primary Product	<b>Repeat this structure for each independent primary product (main IT/software deliverable)</b>
52	1.3.1	Product Management	
53	1.3.2	Release 1 (R1)	<b>First operational release</b>
54	1.3.2.1	Release 1 Management	
55	1.3.2.2	Release 1 Engineering	
56	1.3.2.2.1	Release 1 Requirements	
57	1.3.2.2.2	Release 1 Architecture	
58	1.3.2.3	Release 1 Component A	<b>Examples: Database, COTS S/W, Reporting Module, Training/User Guide</b>
59	1.3.2.3.1	R1 Component A Management	
60	1.3.2.3.2	R1 Component A Engineering	
61	1.3.2.3.3	R1 Component A Acquisition / Construction	Decompose subcomponents if applicable
62	1.3.2.4	Release 1 Component B	
63	1.3.2.4.1	Thru 1.3.1.4.3 - Same Elements as Component A	
64	1.3.2.5	Release 1 Component C	<b>Note: repeat for all components</b>
65	1.3.2.5.1	Thru 1.3.1.5.3 - Same Elements as Component A	
66	1.3.2.6	Release 1 System Integration	
67	1.3.2.6.1	Component Integration	
68	1.3.2.6.2	Integration Tests	
69	1.3.2.7	Release 1 System Testing	
70	1.3.2.7.1	R1 Test Procedures & Scripts	
71	1.3.2.7.2	R1 Test Data	
72	1.3.2.7.3	R1 Test Execution	
73	1.3.2.7.4	R1 Test Reports	
74	1.3.2.8	Release 1 Verification & Acceptance	
75	1.3.2.8.1	R1 Verification & Acceptance Tests	
76	1.3.2.8.2	R1 IV&V Support	
77	1.3.2.8.3	R1 Certification & Accreditation Tests	
78	1.3.2.8.4	R1 User Acceptance Tests	
79	1.3.2.8.5	R1 Performance Tests	
80	1.3.2.8.6	R1 Pre-Production Lab Tests	

Figure 52 – IT Project WBS Template (cont'd)

Gantt Chart	81	1.3.3	☐ Release 2 (R2)	
	82	1.3.3.1	Thru 1.3.2.8.6 - Same Elements as for Release 1	
	83	1.3.4	☐ Release 3 (R3)	
	84	1.3.4.1	Thru 1.3.3.8.6 - Same Elements as for Release 1	
	85	1.4	☐ Data Migration	<b>As designed during System Engineering</b>
	86	1.4.1	Data Migration Management	
	87	1.4.2	Data Migration Engineering	Detailed analysis and engineering of data and migration proces
	88	1.4.3	Data Migration Construction	Examples: Building data migration scripts
	89	1.4.4	Data Migration Integration	
	90	1.4.5	Data Migration Testing	
	91	1.4.6	Data Migration Verification & Acceptance	
	92	1.4.7	Data Migration Implementation	If can be implemented centrally. If locally implemented, include in
	93	1.5	☐ Organizational & Business Process Change	<b>As designed during System Engineering</b>
	94	1.5.1	Organizational Change Management	
	95	1.5.2	Organizational Change Engineering	Detailed engineering of organizational/process changes
	96	1.5.3	Organizational Change Construction	Policies, procedures, communications
	97	1.5.4	Organizational Change Integration	
	98	1.5.5	Organizational Change Testing	
	99	1.5.6	Organizational Change Verification & Acceptance	
	100	1.5.7	Organizational/Process Change Implementation	If can be implemented centrally. If locally implemented, include in
	101	1.6	☐ Environments	<b>Includes hardware &amp; infrastructure software</b>
102	1.6.1	☐ Development Environment		
103	1.6.1.1	Environment Management		
104	1.6.1.2	Environment Engineering		
105	1.6.1.3	Environment Acquisition / Construction		
106	1.6.1.4	Environment Integration		
107	1.6.1.5	Environment Testing		
108	1.6.1.6	Environment Verification & Acceptance		
109	1.6.1.7	Environment Implementation		
110	1.6.1.8	Environment Maintenance & Support		
111	1.6.1.9	Environment Updates for Subsequent Releases		
112	1.6.2	☐ Test Env.		
113	1.6.2.1	Thru 1.5.2.9 - Same Elements as Dev Env (as applicable)		
114	1.6.3	☐ User Acceptance Test Env.		
115	1.6.3.1	Thru 1.5.3.9 - Same Elements as Dev Env (as applicable)		
116	1.6.4	☐ Training Env.		
117	1.6.4.1	Thru 1.5.4.9 - Same Elements as Dev Env (as applicable)		
118	1.6.5	☐ Production Env.	<b>Except Mission site specific environments, which shou</b>	
119	1.6.5.1	Thru 1.5.5.9 - Same Elements as Dev Env (as applicable)		
120	1.6.6	☐ Debug Env.		
121	1.6.6.1	Thru 1.5.6.9 - Same Elements as Dev Env (as applicable)		

Figure 52 – IT Project WBS Template (cont'd)

Gantt Chart	122	1.6.7	☐ Disaster Recovery Env.	
	123	1.6.7.1	Thru 1.5.7.9 - Same Elements as Dev Env (as applicable)	
	124	1.6.8	☐ User Sandbox Env.	
	125	1.6.8.1	Thru 1.5.8.9 - Same Elements as Dev Env (as applicable)	
	126	1.6.9	☐ COOP Env.	
	127	1.6.9.1	Thru 1.5.9.9 - Same Elements as Dev Env (as applicable)	
	128	1.6.10	☐ SBC Env	
	129	1.6.10.1	Thru 1.5.10.9 - Same Elements as Dev Env (as applicable)	
	130	1.6.11	☐ PPL Env.	
	131	1.6.11.1	Thru 1.5.11.9 - Same Elements as Dev Env (as applicable)	
	132	1.7	☐ Impacted & Impacting Systems	Does not include interfaces, which should be defined as a Primary Product component
	133	1.7.1	Impacted/Impacting Systems Management	
	134	1.7.2	Impacted/Impacting Systems Engineering	
	135	1.7.3	☐ Impacted Systems Modification	
	136	1.7.3.1	Example - "Upgrade System A HW/SW"	
	137	1.7.3.2	Example - "Decommission System B"	
	138	1.7.4	☐ Impacting Systems Modification	
	139	1.7.4.1	Example - Modify Primary Product Import Scripts	
	140	1.8	☐ Deployments (Customer Implementation)	
	141	1.8.1	Deployment Management	
	142	1.8.2	☐ Deployment Engineering	
	143	1.8.2.1	Software Packaging	
	144	1.8.2.2	Installation Scripts	
	145	1.8.3	☐ Beta	
	146	1.8.3.1	Site Preparation	
	147	1.8.3.2	Organizational/Process Change Implementation	If must be implemented locally
	148	1.8.3.3	Data Migration	
	149	1.8.3.4	Training	
	150	1.8.3.5	Product Implementation	
	151	1.8.3.6	Help Desk / Support	
152	1.8.4	☐ Pilots		
153	1.8.4.1	☐ Pilot User Group A		
154	1.8.4.1.1	Site Preparation		
155	1.8.4.1.2	Organizational/Process Change Implementation	If must be implemented locally	
156	1.8.4.1.3	Data Migration		
157	1.8.4.1.4	Training		
158	1.8.4.1.5	Product Implementation		
159	1.8.4.1.6	Help Desk / Support		

Figure 53 – IT Project WBS Template (cont'd)



Gantt Chart	160	1.8.4.2	▢ Pilot User Group B	
	161	1.8.4.2.1	Thru 1.7.4.2.6 - Same Elements as Pilot User Group A	
	162	1.8.5	▢ AID/W Deployment	
	163	1.8.5.1	Site Preparation	
	164	1.8.5.2	Organizational/Process Change Implementation	If must be implemented locally
	165	1.8.5.3	Data Migration	
	166	1.8.5.4	Training	
	167	1.8.5.5	Product Implementation	
	168	1.8.5.6	Help Desk / Support	To activate/start support, then ongoing Help Desk/Support should be defined under O&M / Steady State
	169	1.8.6	▢ Region or Mission A (one centrally or locally hosted deployment)	
	170	1.8.6.1	Thru 1.7.6.6 - Same Elements as AID/W Deployment (as applicable)	
	171	1.8.7	▢ Region or Mission B (one centrally or locally hosted deployment)	
	172	1.8.7.1	Thru 1.7.7.6 - Same Elements as AID/W Deployment (as applicable)	
	173	1.9	▢ O&M / Steady State	
	174	1.9.1	▢ Steady State Management	
	175	1.9.1.1	Post Implementation Review	Approx 6 months after project completion
	176	1.9.1.2	Annual Reviews	
	177	1.9.2	Steady State Engineering	
	178	1.9.3	Steady State Environments (Operations, Maintenance, Tools & Spares)	
	179	1.9.4	Steady State Help Desk / Support	
180	1.9.5	Steady State Training (for new users, if applicable)		
181	1.9.6	▢ Primary Product Maintenance		
182	1.9.6.1	▢ Semi-Annual Release		
183	1.9.6.1.1	Semi-Annual Release Management		
184	1.9.6.1.2	Semi-Annual Release Engineering		
185	1.9.6.1.3	Semi-Annual Release Acquisition / Construction		
186	1.9.6.1.4	Semi-Annual Release Integration		
187	1.9.6.1.5	Semi-Annual Release Testing		
188	1.9.6.2	Bug Fixes		
189	1.9.7	▢ Steady State Verification & Acceptance		
190	1.9.7.1	Semi-Annual Release V&A		
191	1.9.7.2	Bug Fixes		
192	1.9.7.3	C&A Maintenance		
193	1.9.8	▢ Steady State Deployments		
194	1.9.8.1	Semi-Annual Releases		
195	1.9.8.2	Bug Fixes		

Figure 54 – IT Project WBS Template (cont'd)

## APPENDIX K: EARNED VALUE MANAGEMENT GUIDE

# Earned Value Management Guide

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US Agency for International Development  
2009 – Version 2.0



**DOCUMENT CHANGE HISTORY**

Version	Date	Author	Change Request #	Change Description
1.0	06/16/2006	Booz Allen	N/A	Initial Document
1.1	09/30/2008	Booz Allen	N/A	Updated to address GAO Report
2.0	01/09/2009	Booz Allen	N/A	Re-write to add clarity

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- 1. INTRODUCTION**
- 2. EVM FRAMEWORK**
- 3. ROLES AND RESPONSIBILITIES**
- 4. PROJECT PLANNING AND EARNED VALUE MANAGEMENT SYSTEM SET-UP**
- 5. ELEMENTS OF A PROJECT BASELINE**
- 6. BASELINE APPROVAL**
- 7. SUSTAINING THE EVMS DURING PROJECT EXECUTION**
- 8. LIST OF APPENDICES**
  - 8.1 Appendix A – ANSI Criteria and Framework Requirements**
  - 8.2 Appendix B – IBR Guide**
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  - 8.4 Appendix D – Status Report Sample (Tier 3 Projects)**
  - 8.5 Appendix E – Status Report Sample (Tier 1 & 2 Projects)**

### Introduction

USAID's Earned Value Management System (EVMS) employs Earned Value Management (EVM) to provide visibility into IT projects and to provide an objective "early warning system" for cost and schedule performance. The EVMS enables project managers, senior managers, executive sponsors, and stakeholders to assess the status of the Agency's IT projects. The EVMS provides timely, valid, and auditable project cost and schedule status information using data gathered through Earned Value Management (EVM). USAID uses EVM in conjunction with a full spectrum of project controls to improve project execution and provide senior managers the insight they need to make informed decisions.

The EVMS complies with the Office of Management and Budget (OMB) mandate that Federal agencies use EVM processes that follow the American National Standards Institute/Electronic Industries Association (ANSI/EIA) 748 Standard for the Development/Modernization/Enhancement (DME) phases of information technology (IT) investments. Under OMB's mandate, these standard EVM processes must be part of the project management life cycle control system for assessing performance to planned cost, schedule, and performance baselines.

The specific requirements for implementing ANSI/EIA Standard 748-compliant EVM Systems stem directly from OMB's guiding principle in the Capital Planning and Investment Control (CPIC) process for managing capital IT investments. Specifically, OMB requires<sup>1</sup>:

- The use of a performance-based acquisition management system and an EVM system that meet ANSI/EIA Standard 748 requirements for the development and acquisition of major IT investments. When justifying funding for a project, the use of an EVMS must be demonstrated for those parts of the investment that require (DME) efforts (e.g., prototypes and testing in the planning phase and development efforts in the acquisition phase). The OMB Capital Asset Plan and Business Case – also referred to as the OMB Exhibit 300 – outlines required information that is to be reported to OMB, including the use of an EVMS and EVM metrics in reporting the performance of the investment. Annually, OMB reviews and scores an investment's OMB Exhibit 300 and uses the scores in determining the Agency's funding for IT investments.

The EVMS is in compliance with USAID's Earned Value Management policy ([ADS 577](#)). Appendix A outlines the ANSI 748-A requirements, the key attributes for each criterion, and the objective measurement that will be used to verify compliance.

Recent literature in the field of EVM has indicated that the use of an ANSI/EIA Standard 748-compliant EVM system for all DME activities may not be cost effective or beneficial to managing the engagement.

For example, the Project Management Institute (PMI) does not recommend implementing fully compliant EVMS for low cost, low risk, and low priority projects. PMI recommends that EVM, as well as project management, be tailored to fit the specific project situation to be effective and efficient. PMI describes projects along two fundamental dimensions: significance and uncertainty, where significance relates to the impact of project success and failure, and uncertainty relates to the likelihood of success or failure. As project significance and uncertainty increase, the rigor with which EVM is applied should increase. Conversely, lower levels of project significance and uncertainty imply less rigor in applying EVM.

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<sup>1</sup> Specific and relevant policy, legislation, and memorandums are provided in the appendix.

Quentin Fleming, a prominent spokesperson of the EVM community and well-respected author<sup>2</sup> in EVM thought leadership, recommends employing ten steps to implement a simplified version of EVM—“EVM Light,” as Fleming calls it. Fleming’s approach argues that tailoring the requirements of EVM are appropriate in certain situations:

“Somehow a way must be found to capture the important fundamentals of earned value management without overly prescribing requirements which often discourage individuals wanting to adopt a technique to better manage their projects. And as the ANSI/EIA-748 Standard becomes more commonplace, now taking the form of a Federal Acquisition Regulation (FAR) clause issued in routine procurements, a way must be found to scale back the formal requirements to meet the needs of most projects, extending to even small software projects.” – Q. Fleming

Finally, the Department of Defense (DoD), the original champion of EVM in the Federal Government, has continued to apply EVM in a discretionary manner and also recommends that the decision to use fully compliant EVM systems should be examined and based on a cost-benefit analysis.

Therefore, as the appropriateness of the ANSI/EIA Standard 748 on all projects is being reviewed, USAID is proposing to develop an Agency-specific EVM Framework in order to meet the requirements of OMB.

The purpose of the Earned Value Management Guide is to identify which projects are required to perform EVM, and to outline the specific EVM processes, products, and tools to be used on the USAID’s portfolio of projects.

### **EVM Framework**

USAID recognizes the need to implement EVM with a disciplined strategy that addresses the distinctive character of USAID’s IT investments. Therefore, USAID has created an EVM Framework in order to best tailor EVMS requirements that are most appropriate for the respective investment.

USAID’s EVM Framework proposes that EVM is most effective and efficient when it is customized to match the needs of the project. The degree of EVM applied to a project should be directly proportional to the project’s characteristics – the higher the priority, risk, complexity, and the larger the project size, the greater the rigor of the EVM requirements that should be implemented. (*USAID EVM Framework 02-08-2008 Final.doc* is available on the CIO Chief Engineer (CE) Web site).

The EVM Framework establishes the degree of EVM rigor appropriate for the investment by classifying each investment in USAID’s IT portfolio into one of three specific tiers. For example, a project which is a critical priority for the Agency’s mission and has a high DME phase cost would qualify for Tier III, and thus would be required to adhere to the greatest rigor of EVM.

### **Determining the Appropriate Implementation of EVM**

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<sup>2</sup> Mr. Fleming is the author of eight published textbooks that have sold over 80,000 copies worldwide, most prominently the “Earned Value Project Management (Third Edition)”, published by PMI in 2005. He is considered an expert in a variety of management-related subjects such as earned value project management, planning and scheduling, and the management of contracting or subcontracting. Fleming was one of the eight-person “core” team that updated the Year 2000 Guide to the Project Management Body of Knowledge (PMBOK) for the Project Management Institute (PMI), specifically responsible for the Guide’s earned value content.

This section discusses the methodology for determining the level of EVM rigor appropriate to a particular investment and the EVM requirements associated with each level of rigor.

Figure 55 below illustrates the relationship between the degree of project priority, complexity, and risk, and the level of appropriate EVM rigor.

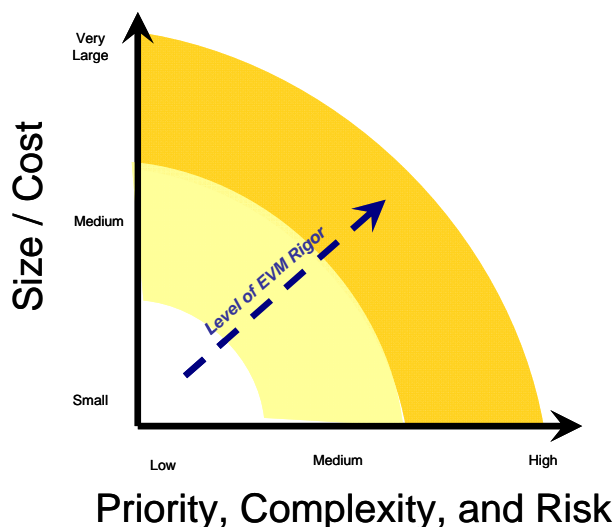


Figure 55. Efficiently Implementing Earned Value Management

### Tiers of EVM Rigor

The EVM Framework is composed of three tiers of EVM rigor. The requirements of the tiers are based on best practices of project management and the thirty two criteria of the ANSI/EIA Standard 748.

- **Tier I** – limited EVM or no requirement for adherence to ANSI/EIA Standard 748.
- **Tier II** - requires adherence to ten of the thirty-two ANSI/EIA Standard 748 criteria<sup>3</sup>. This tier provides the minimal requirements for implementing basic project controls and reporting EVM metrics. Tier II is not appropriate as an end-state, but rather as a starting point when initially implementing EVM discipline. Where possible, investments classified as Tier II should scale EVM requirements upward and aggressively strive to transition to Tier III level of EVM rigor. There are currently eight criteria which are not required for minimum Tier II compliance but should be given priority for implementation when transitioning a project from Tier II to Tier III levels of EVM rigor. Specifically, the recommended criteria are: 2g, 2i, 2j, 4b, 4d, 4e, 5b, and 5e.
- **Tier III** - requires adherence to all 32 ANSI/EIA

Appendix A defines the specific ANSI/EIA Standard 748 criterion that must be met by each respective tier of EVM rigor.

### Classifying an Investment's EVM Tier

In order to make the most appropriate classification, USAID must determine the primary characteristics or

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<sup>3</sup> The ten criteria to be met for Tier II compliance are based on recommendations made by Quentin Fleming and Joel Koppelman in the white paper, "Earned Value for the Masses...A Practical Approach."

factors that should qualify an investment for a specific tier of EVM rigor.

OMB requires implementing EVM on all “major” IT investments, and thus the order of an investment’s priority and DME phase cost are the two most important characteristics in determining the appropriate categorization of EVM tiers. However, best practices indicate that other factors should also be considered when making the investment’s EVM Tier classification. For example, there are certain projects which might not qualify purely on the basis of their priority or cost - but may genuinely benefit from implementing EVM project discipline.

Therefore, a model was created to incorporate other factors, such as project complexity, risks, contract type, and dependencies. The model considers the significance of each of these factors by applying a relative weighting and groups them into a blended score – Critical Attribute Score. This approach allowed for investments to be evaluated for categorization by a broader scope of factors than just priority and cost. Additionally, since these factors were grouped into a weighted relative score, the results of categorization were not offset by a single factor.

Any given IT investment project can qualify for the highest tier of EVM rigor if it positively satisfies any of the three major investment characteristics. For example, a project of high priority but <\$1 million in DME Phase costs and a critical attribute score < 60 (lowest) would qualify for Tier III. The following table describes what constitutes each of three tiers and what the qualifying characteristics of each tier:

Characteristic of Investment	Tier I	Tier II	Tier III
	<i>Limited EVM requirement; no adherence to ANSI-748 requirement</i>	<i>Tailored EVM Implementation; adherence to 10 of the 32 ANSI-748 criteria</i>	<i>High Rigor of EVM Implementation; compliance with 26 of the 32 ANSI-748 criteria</i>
<b>Priority</b>	Low Priority	Medium Priority (And DME Phase Cost < \$10M And CAS < 60)	Critical Priority
	and	or	or
<b>DME Phase Cost<sup>4</sup> (multi-year)</b>	< \$1M	Between \$1M and \$10M (And Medium or Low Priority And CAS < 60 )	> \$10M
	and	or	or
<b>Critical Attribute Score (CAS)*</b>	< 30	Between 30 and 60 (And Medium or Low Priority And DME Phase Cost < \$10M)	> 60

\*Note: Critical Attribute Score is based on a summation of the weighted factors: Project Complexity,

<sup>4</sup> The basis for the DME Phase Cost thresholds was derived directly from the USAID CPIC policy as demonstrated in ADS 577, Table 1, “Investment Category Documentation and Review Requirements.”



Project Risks, Project Dependencies, Length of DME Phase, and Contract Type, Staffing and Resource Management and Schedule Tolerance.

The next section describes specifically the considerations of each investment characteristic and defines the specific components and weightings of the Critical Attribute Score. This section will provide the overall basis for each EVM Tier classification.

## Basis of EVM Tier Classifications

As shown in the table above, there are three major investment characteristics or relative scores that are critical in assessing the appropriate level of rigor for implementing EVM. These characteristics should be evaluated when determining an investment's classification of EVM tier<sup>5</sup>.

Note: Any given investment project can qualify for the highest tier of EVM rigor if it positively satisfies any of the three major investment characteristics. For example, a project of high priority but <\$1 million in DME Phase costs and a critical attribute score < 60 (lowest) would qualify for Tier III.

The descriptions of each investment's characteristics follow:

1. **Priority** – the priority of the investment in supporting the Agency's mission and the level of visibility given to it by senior management and executives.
2. **Cost of DME Phase** – the size or relative cost of the DME phase cost for each investment.
3. **Critical Attribute Score** – the investment's scope and critical attributes that must be considered when determining the extent to which an investment using EVM must be monitored and controlled. There are seven Critical Attribute Factors that comprise the project's overall Critical Attribute Score:

Components of the Critical Attribute Score and Relative Weight			
Critical Attribute Factor	Definition	Relative Weight	Rationale
Project Complexity	Considers the complexity of the project's scope, amount of customization, creation of previously unavailable capabilities, and general project uncertainty.	25%	Implementing EVM on highly complex projects provides the most value because EVM methodology requires project management discipline and provides robust high-level and detailed performance measurement. Inversely, EVM metrics take similar resources to produce, but add less value on less complex projects.

<sup>5</sup> As mentioned in the Introduction, Operational or Steady-State investments are not required to report EVM or comply with ANSI/EIA Standard 748, and thus will not be considered in the EVM Framework or as the basis for classification into an EVM rigor tier.

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Project Risks	Considers the potential impact of the project's risks and the probability of observing those risks.	20%	Greater management scrutiny and visibility should be applied to high risk projects.
Project Dependencies	Considers the project's external dependencies and criticality of completion and/or deadlines.	20%	Projects that are interdependent with an external project's performance should be subjected to closer monitoring.
Length of DME Phase	Considers the length of the proposed investment and, in turn, the number of EVM reporting periods.	20%	Applying EVM to determine performance trends provides early warning signs to management, particularly as the DME phase lengthens.
Contract Type	Considers which responsible entity has assumed the majority of the project's cost risk.	5%	Different contract types often distribute project risk between the contracting agency (Government) and the contractor.
Staffing and Resource Management	Considers the number of full-time equivalents (FTEs), team coordination, and management authority.	5%	The number of full-time contractors and Government resources required and engaged increases the complexity of coordination and implementation for a project. Also, the co-location of resources should be considered, as well as the project sponsor's or manager's authority and control over resources.
Schedule Tolerance	Considers the delivery time and/or deadline requirements.	5%	The extent to which schedule delays can be tolerated or if a pre-designated date has been agreed upon and communicated to project stakeholders.
<i>Sum of CAF Weights =</i>		<i>100%</i>	

The overall Critical Attribute Score is calculated by adding the weighted scores of each Critical Attribute Factor for each investment. For example, if the Critical Attribute Score is greater than or equal to 60, the investment qualifies for Tier III and the highest level of EVM rigor is required<sup>6</sup>. The table below shows criteria for assigning a weighted score for each Critical Attribute Factor:

Weighted Scores for Critical Attribute Factors (CAF)						
Critical Attribute Factor	High Rating (value = 100)	Hi Score	Medium Rating (value = 50)	Med Score	Low Rating (value = 0)	Low Score
Project Complexity (25%)	Highly complex scope, leading edge technology, high customization, etc.	25	Moderately complex (e.g., minimal customization of COTS software)	13	Routine project scope	0
Project Risks (20%)	High risk and high probability of risk impact	20	Moderate probability/impact of risks	10	Primarily low probability/impact of risks	0
Project Dependencies (20%)	Impact to other projects is high or dependency relationship with two or more projects	20	Medium	10	Impact to other projects is low or dependency relationship with less than two projects	0
Length of DME Phase (20%)	Length of DME Phase > 4 years	20	Length of DME Phase between 2 and 4 years	10	Length of DME Phase < 2 years	0

<sup>6</sup> The weights for each CAF and the critical attribute score threshold for determining level of rigor should be reviewed annually and is subject to change.

Contract Type (5%)	Predominantly Time & Materials or Cost Reimbursement contracts (i.e. Government shares contract risk)	5	N/A	N/A	Predominantly Firm Fixed Priced contracts (i.e. contractor assumes majority of contract risk)	0
Staffing and Resource Management (5%)	High (i.e. number of FTEs is > 50, or project staff not co-located, or project's governance different from staff reporting structure)	5	Medium	3	Low (i.e. number of FTEs is < 10, and project staff is co-located, and project's governance is aligned with staff reporting structure)	0
Schedule Tolerance (5%)	Highly compressed or aggressive schedule	5	Medium	3	Conservative delivery timeline or schedule based on previous experience, historical results	0
	<i>MAX POSSIBLE SCORE</i> =	100			<i>MIN POSSIBLE SCORE</i> =	0

## On-going Assignment of Investments to EVM Tiers of Rigor

The particular EVM Tier of rigor will likely change as a project's circumstances evolve. For example:

- A change in scope may increase or decrease the complexity and interdependency of a project, thereby changing the level of rigor to which the project should be held accountable.
- Moving from a DME phase to a purely steady state phase eliminates the requirement for compliance with ANSI/EIA Standard 748 criteria.
- Elevation to high priority or high visibility oversight will elevate the project's EVM level of rigor to the highest level.

Reassessment of assigned tiers of EVM rigor will take place annually when major projects undergo review of their business cases. Additionally, qualifications for each tier may be reviewed as necessary at the discretion of the OCIO.

## Roles and Responsibilities

This section describes the roles and responsibilities necessary for implementation of Performance Based Management (PBM), as outlined in this document. PBM links investment planning with the systematic use of select feedback to manage projects and processes. Projects cannot be managed unless they are measured.

Role	Responsibilities
Project Manager	<ul style="list-style-type: none"> <li>▪ Plan and execute the project</li> <li>▪ Authorize Control Account Managers (CAMs) to plan, execute, and report on components of the project</li> <li>▪ Establish and lead the Risk Management Process</li> <li>▪ Communicate regularly and proactively with internal and external stakeholders</li> <li>▪ Conduct an IBR to establish a project baseline</li> <li>▪ Report status against the approved baseline</li> </ul>
Control Account Managers (CAMs)	<ul style="list-style-type: none"> <li>▪ Develop a cost and schedule baseline for the scope of work in each Control Account. Create Control Account Plans (CAPs), and establish earned value methods for work packages</li> <li>▪ Present plan for executing the scope of work managed, including cost, schedule, risks, assumptions and interdependencies during the IBR</li> <li>▪ Execute the scope of work in the assigned Control Accounts</li> <li>▪ Report status to the Project Manager (PM)</li> <li>▪ Know who and what is being charged to their Control Accounts</li> <li>▪ Formulate and take corrective action</li> <li>▪ Produce Variance Analysis Reports (VARs) for variances that exceed established thresholds</li> <li>▪ Develop and implements corrective action plans as needed</li> <li>▪ Alert management of potential problems</li> <li>▪ Maintain a current Estimate at Completion (EAC)</li> </ul>
Project Management Office/Project Controls	<ul style="list-style-type: none"> <li>▪ Provide project controls support to the assigned projects</li> <li>▪ Assist the Project/Program Manager with financial management through use of the EVM analysis and corrective action planning</li> <li>▪ Ensure EVM procedures are followed and create project specific EVM procedures as necessary</li> <li>▪ Coordinate Integrated Baseline Review (IBR) and other EVM reviews</li> <li>▪ Work with Program Manager and CAMs to ensure integrity of the PWBS (CWBS) and program schedule</li> <li>▪ Coordinate creation of the PWBS (CWBS) Dictionary and Work Authorization</li> <li>▪ Work with Program Manager and CAMs to establish the PMB</li> <li>▪ Establish and maintains the Management Reserve Log, Undistributed Budget Log, and PMB Log</li> <li>▪ Validate and ensures the integrity of the data received from the CAMs</li> </ul>

EVM Team	<ul style="list-style-type: none"> <li>▪ EVM and Schedule Analysts</li> <li>▪ Perform program-specific EVM training</li> <li>▪ Coordinate and implements project/program scope changes into Portfolio Level EVM tool</li> <li>▪ Monitor and ensure integrity of the Estimate to Completion (ETC) and Estimate at Completion (EAC).</li> <li>▪ Identify Control Accounts requiring variance explanations and develop Variance Analysis</li> <li>▪ Evaluate VARs and escalate critical ones to the attention of the Program Manager and Executive Sponsors</li> <li>▪ Maintain historical files of reports and other pertinent data on a monthly basis, at minimum</li> </ul>
Chief Information Officer (CIO)/Senior Managers/ Executive Sponsors/Business Transformation Executive Committee (BTEC)	<ul style="list-style-type: none"> <li>▪ Review and approve or reject initial project baselines and change requests</li> <li>▪ Monitor project status and make decisions</li> <li>▪ Hold Project Managers accountable for project performance</li> <li>▪ Control management reserve</li> </ul>
Configuration Control Board (CCB)	<ul style="list-style-type: none"> <li>▪ Accept or reject proposed changes to the project</li> </ul>

## Project Planning and Earned Value Management System Set-up

The process for developing the PMB is outlined in the following sections.

### Refine WBS and Develop Schedule Baseline

The initial high-level Project Work Breakdown Structure (WBS) is developed during project planning and divides a project into smaller, more manageable parts. The WBS is defined as a “deliverable-oriented hierarchical decomposition of the work to be executed by the project team,”<sup>7</sup> and must be consistent with the USAID OCIO Standard WBS, which is available on the CIO CE Web site. The lowest level of the WBS is represented by the work packages that are scheduled, cost estimated, monitored, and controlled.

For some projects, the level of detail in the standard USAID WBS is sufficient. When a project is complex or large enough to warrant WBS elements below the USAID OCIO standard WBS, the CAM refines the high-level WBS to meet the following minimum requirements:

- Is structured to contain all work elements (scope)
- Is structured to support cost estimation
- Is structured to levels that satisfy status reporting, including schedule, costs, resources, and

performance, and if required, earned value metrics

- Is structured to levels that identify all work activity in the way that it is planned to be performed
- Is accompanied by a WBS dictionary

Based on the refined WBS, the CAM develops a project schedule of activities that can be managed and monitored. The following are the guidelines for developing a schedule:

**Develop an activity list.** An activity is a component of work performed during the course of a project. An activity list is a comprehensive list of all work or effort within the scope of the project. Sources of information for this list include the WBS, subject matter experts (SMEs), planning documents and the scope statement. An activity list is different from a WBS in that an activity list is activity-based whereas a WBS is deliverable-based. The activity list identifies “how”, and the WBS identifies “what.” The activity list enumerates the actions that must take place to achieve the objectives identified in the WBS. The activity list should include attributes of the activities, including who needs to perform them, constraints, assumptions, and imposed dates. All required project activities such as providing input, reviewing drafts, and participating in meetings or workshops must also be included.

**Develop a milestone list.** A milestone list includes deliverables or other major milestones and must be designated as *mandatory* (with a Statement of Work [SOW], system life cycle [SLC], or other reference) or *discretionary* (no such reference). Contractor deliverables are mandatory and specified in the contract. Milestones are zero-duration activities. A well-constructed schedule identifies intermediate milestones between the project’s major deliverables such as the entry and exit criteria for project phases.

**Sequence activities by identifying dependencies (internal and external).** The majority of activities should have dependencies (predecessors and successors). A dependency is a relationship between two activities, in which one activity’s start or finish depends on the start or finish of another activity. The typical relationship types are finish-to-start, start-to-start, and finish-to-finish.

**Minimize the use of lag time.** Lag is the interval of time that occurs between a predecessor and successor activity or milestone. It is the amount of time typically associated with no-effort between activities. For example, there is lag between the development of training materials and the training itself, during which activities such as approving training materials, finalizing software configuration, and obtaining user acceptance testing results that must occur between finishing the development of training materials and conducting the training. Lag times are only used to represent a period of time that is outside the control of the project.

**Estimate the duration of activities.** Use historical data such as past project schedules, lessons learned, known constraints, and expert judgment to estimate the duration of activities. To the extent possible, elicit comment from the people performing the work to estimate the duration of activities. Ensure the calendar associated with the project schedule includes non-work days such as holidays and weekends to accurately reflect available work days for activities.

**Determine the critical path.** Once all the dependencies have been identified, the critical path(s) can be determined. The critical path is typically the sequence of activities that determines the duration of the project. Generally, it is the longest path through the project. There may be more than one critical path in the project schedule.

**Assign resources to the activities.** Resources are named USAID staff or contractors who will execute the project. For activities six months or more in the future, the labor categories of required resources are acceptable if a specific name has not yet been identified.

**Apply resource leveling.** This step is performed to ensure that schedule dates are realistic given the resources available. If a resource is over- or under-assigned based on workload (e.g. scheduled for 80

hours on a five-day activity, or 200% allocated), manual or automated resource leveling will apply adjustments for a realistic view of the activities, resources, and duration of a project. Manual resource leveling can be an adjustment to staffing, activity duration, or activity sequencing; automated resource leveling can be done by a scheduling tool, to prolong the duration of activities to accommodate resource constraints.

Completion of these steps produces a detailed, resource-loaded schedule. Once completed, the CAM reviews the project schedule to ensure that it reflects all applicable planning documents (e.g., Project Management Plan, System Lifecycle documentation, contractor's proposal if a contractor is integral to the project activities, etc.) and to ensure that the proposed activities are reasonable for the time planned. The following questions guide this review:

- Are all project deliverables (if applicable) represented in the schedule?
- Does the proposed timeline support dependent activities?
- Is the approach to the work, codified in the schedule, workable at USAID (i.e., is there sufficient time for socializing and approving requirements, appropriate reviews, etc.)
- Are activities appropriately linked? If activities are based on date constraints rather than links, or are forced in order to meet specific dates, the schedule status will not provide useful results.
- Are resources appropriately allocated (i.e., not over or under utilized)?
- Are activities short enough in duration and/or are milestones sufficiently close together that the status process will provide insight into project progress?
- Is the schedule formatted to make it easy to understand, employing useful filters, views, and structure?
- Does the schedule contain activities and resources to mitigate the risks that have been identified?

After the schedule review, the PM works with project controls to make any necessary adjustments. The PM will ultimately approve the schedule after it has been reviewed and approved by the Project Team lead (if applicable). If the schedule is not approved, additional analysis and activity rework will be required.

## Develop Cost Baseline

The CAM began the process of developing a cost baseline through the development of the project schedule activities and durations and the assignment of resources. In addition to USAID labor and contractor costs, any material and other direct costs (ODC) must be added to the estimate. The CAM is responsible for providing these additional costs to the Project Controls/Scheduler for the cost baseline development.

The structure of the cost estimate must align with the WBS. The cost baseline must be time-phased, meaning that dollars are spread by WBS element, by month.

The cost estimate must be within the constraints of the distributed budget approved in the planning process. If the cost estimate exceeds the approved distributed budget, the CAM must modify it by working with the Project Team Lead (if applicable) or Project Manager.

## Labor Costs

Labor costs are central to the cost baseline. Labor costs are estimated by pricing the staff in the



resource-loaded project schedule.

The resource costs are calculated by applying a labor rate to the hours planned in the schedule; the additional material and ODCs are also loaded into the Earned Value (EV) tool. An average labor rate for USAID and contractor staff can be used in the EV tool calculation, at the discretion of the Project Manager and as outlined in the Project Management Plan (PMP). The composite rate for USAID staff must be consistent with the rate used for Office of Management and Budget Capital Asset Investment and Controls reporting. Contractor composite rates must be developed based on the contract vehicle and projected labor mix. The Project Controls/Scheduler loads the schedule and additional costs into the EV tool.

The Project Controls/Scheduler provides the following items to the CAM for the cost baseline analysis:

- Baseline Schedule
- Control Account Plan (CAP) Report – A report showing the time-phased budget for the project period of performance for each control account
- Additional EV Reports - Reports showing the earned value metrics for each control account and work package, including milestones associated with each work package.

The CAM reviews the cost baseline using the following related considerations:

- Does the Planned Value (PV) by month seem reasonable?
- Is the baseline overly front- or back-loaded?
- Are peaks and valleys where expected?
- Are all authorized funds included in the baseline?
- Is the resource loading methodology reasonable?
- Is there reasonable use of Performance Measurement Techniques (PMTs)?

The Project Controls/Scheduler works with the CAM to ensure correct baseline costs are captured in the EV tool.

### **Other Direct Costs**

In addition to the USAID labor and contractor costs, any material and other direct costs (ODC) are added to the estimate. The CAM is responsible for providing these additional costs to the Project Controls/Scheduler for the cost baseline development.

### **Management Reserve**

A management reserve (MR) is typically identified in the plan to mitigate cost and schedule risk. The MR is sometimes thought of as a reserve for “unknown unknowns.” The MR is held in addition to and separate from the distributed budget. Experience indicates that some, but not all, of the project’s risks will be realized, so the PM allots an MR amount to cover the risks for which mitigation will require the utilization of resources. The MR is an amount of the total allocated budget withheld for management control purposes rather than designated for the accomplishment of a specific task or set of tasks. The CIO establishes the MR amount. The CIO is responsible for providing the MR amount to the PM for the cost baseline development. The MR is not part of the performance measurement baseline.

Depending on the amount of information available, the PM can use a variety of methodologies to project the amount of MR. Examples are as follows:

- Document project risks. Assign a probability and impact to each risk to calculate the amount of reserve you expect to need. Add rigor by using Monte Carlo simulation. This is a technique that involves iteratively evaluating a deterministic model using sets of random numbers as inputs.
- Develop multiple schedule estimates - (best case, most likely, worst case). Resource load the schedule at the activity level. Calculate the budget for each scenario.
- Compare project cost estimate for historical projects, and add reserve in areas where other projects encountered trouble.

### Indirect Cost

Indirect costs are those incurred for a common or joint purpose benefiting more than one cost objective. In contrast to the other elements of the EVMS, which are tracked uniformly whether performed by USAID direct hires or contractors, indirect costs pose unique challenges to the Government, and are therefore tracked differently depending on the performer:

Contractor Indirect Costs: Because contractors are required to have approved accounting systems for cost-type contracts, or approved rate structures for awards made from Government-wide acquisition contracts, contractors have the structure in place to track and analyze indirect costs.

USAID Direct Hire Indirect Costs: The OCIO-level EVM Consolidation Team works with the CPIC team to determine the loaded rate for USAID direct hires who plan and charge hours to the projects in the Earned Value Portfolio.

### Establish the PMB

This section applies to projects with an Earned Value Management Requirement, as defined by Tier 2 and Tier 3 of the EVM Framework

**Establish Control Accounts.** A control account is where work is planned, earned value is rolled up, and actual costs are captured.

**Establish Work and Planning Packages.** A work package is defined as a “deliverable or project work component at the lowest level of each branch of the work breakdown structure.” The Project Controls/Scheduler works with the CAM to divide the control accounts defined in sub-step 4.2.3.1 into work packages. The work package is the level where work is planned and costs are estimated.

A planning package is a WBS component below the control account with known work content but without detailed schedule activities. Planning packages are acceptable when approved by the Project Manager, and for projects that cannot be planned until certain information, like updated requirements, is available.

The Project Controls/Scheduler works with the CAM to ensure that work packages are established appropriately, as governed by EV standards and requirements of the EV tool. The schedule is then reviewed and approved by the Project Team Lead (if applicable) and ultimately, the Project Manager.

**Assign Performance Measurement Techniques (PMT)** to each work package. The CAM assigns a Performance Measurement Techniques (PMT) to each work package. The CAM must use objective criteria to determine achievement of project milestones and accomplishments. These techniques assigned to work packages include 50/50, 0/100 (or another start/finish allocation approved by the Project

Manager), Milestone, Percent Complete, Level of Effort (LOE), and Planning Package. Cost baseline proposals should maximize use of objective PMTs such as 50/50, 0/100, and Milestone, and minimize use of subjective techniques such as Percent Complete and LOE. Objective techniques should be used by default. Subjective techniques should only be used in the following rare circumstances:

- Project management and Governance may be tracked by the LOE method. An industry benchmark is that LOE tasks not exceed 10% of the project budget.
- Tasks last longer than two months that do not have intermediate deliverables. For example, a work group plans four months to write the preliminary design document. In this case, using the percent complete performance measure is preferable to requiring “artificial” deliverables that would break the task into two month segments.

PMT	No. of Reporting Periods	Task Characteristics	Description
0/100 Percent	1	Task are completed within one reporting period	Nothing is earned when activity starts, but 100% of budget is earned when completed
50/50 Percent	2	Tasks are split between two reporting periods	50% is earned when activity starts, and the balance is earned on completion
Milestone (Weighted)	≥3	There are multiple supporting tasks with one or more milestones per reporting period	Earned value is based on the completion, or partial completion, of discretely budgeted milestones
% Complete	≥3	Tasks can not be broken; one or more milestones per period	Value is determined by the CAM or other designated individuals Allows the manager to provide a cumulative estimate of percentage complete Estimates are often subjective and deficient To be acceptable, this method must have quantifiable backup data Typically used in work packages that exceed two accounting periods in duration and have no discernable deliverables, milestones, or gates
LOE	Duration Varies	Tasks are generally supportive in nature	Monthly budget value is earned with the passage of time and is always equal to the monthly planned amount Usually there is no measurable output to these accounts Typically used on “support-type” efforts; project/program management is typically in LOE accounts

## Elements of a Project Baseline

This section describes the elements of the baseline standards for completeness of the project planning.

The project must first be planned, budgeted, and scheduled (forming the PMB) in order for earned value management to be performed. The following sub-sections highlight documents and activities that are established and performed in the development of the cost and schedule baseline.

## Work Breakdown Structure (WBS)

Tier 1	✓	Tier 2	✓	Tier 3	✓
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The Work Breakdown Structure (WBS) for the project supports three key objectives by providing:

- Consistent yet flexible project definition: The WBS must contain the entire project scope and be updated with any approved changes to the project.
- Framework for integrating total project cost, schedule, and technical requirements and reporting
- A structure applicable to the contractors' technical approach. The project's WBS integrates of all approved Government and contractor scope.

The WBS provides the framework for planning, cost collection, responsibility assignment, work authorization, and reporting. It is a deliverable-oriented grouping of project elements that organizes and defines the total work scope of the project. Each descending level represents an increasingly detailed definition of the project work, and is used to link tasks and resources in a logical manner.

The WBS is a key element of the project planning, and provides structure to the schedule and EVM Control Accounts. It must be traceable to the SOW and to the project schedule.

All Tiers of projects must have a WBS. A Tier 1 WBS must be detailed to at least level 2. A Tier 2 WBS must be detailed to level 3. A Tier 3 WBS must be detailed to at least level 4.

## WBS Dictionary

Tier 1		Tier 2	✓	Tier 3	✓
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The WBS Dictionary defines the scope for each WBS element down to the reporting level. The reporting level for the project will be at the Control Account level (Level 4). The WBS Dictionary must have the ability to relate WBS elements to the contractor's Statement of Work (SOW) and deliverables list. Each contractor will submit a WBS Dictionary for the CWBS to reflect the current specifications of the project.

A WBS Dictionary is required for Tier 2 and Tier projects. A WBS Dictionary is optional for Tier 1 projects.

## Control Account (CA)

Tier 1	✓	Tier 2	✓	Tier 3	✓
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The Control Account is the lowest level at which formal functional responsibility for a WBS element exists. It is the primary management control point for planning and controlling contractual effort, including being the focal point for collecting costs. All aspects of the system, including budgets, schedules, work assignments, cost collection, progress assessment, problem identification, and corrective actions come together at this point. The Control Account level will be set based on the project-specific reporting requirements, the complexity, and overall budget of the project. As such, the Control Account can be between the 3<sup>rd</sup> and the 4<sup>th</sup> level of the WBS. The PM will determine the appropriate level for their respective project(s). For adequate management analysis, discrete and LOE effort cannot be combined within the same Control Account.

Control Accounts are required for Tier 1, Tier 2 and Tier 3 Projects. The WBS level of Control Accounts

varies by Tier:

- Tier 1 (Small) Project: WBS Level 2 at a minimum
- Tier 2 (Medium) Project: Most Control Accounts should be at WBS Level 3
- Tier 3 (Large) Project: WBS Level 3 at a minimum, and some Control Accounts may be more appropriate at Level 4

### Control Account Manager (CAM)

Tier 1	✓	Tier 2	✓	Tier 3	✓
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The Control Account Manager (CAM) has responsibility for delivering the results and work products defined in each Control Account. CAMs on the project will be a mix of contractors and management.

Control Account managers need to be assigned for all tiers of projects. For smaller projects, the Project Manager is the CAM.

### Work Package (WP)

Tier 1	✓	Tier 2	✓	Tier 3	✓
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A work package (WP) describes the work to be performed, has a clearly defined timeframe for accomplishment, contains a time-phased budget for planned accomplishment, and serves as a vehicle for monitoring and reporting work progress and accomplishment. A Control Account is made up of one or more work packages. In the project, work will be executed at the work package level, but cost and schedule performance will be reported and analyzed at the Control Account level.

Work Packages are required for Tier 1, Tier 2 and Tier 3 Projects. The WBS level of work packages varies by Tier:

- Tier 1 (Small) Project: WBS Level 3 at a minimum
- Tier 2 (Medium) Project: Most Work Packages should be at WBS Level 4
- Tier 3 (Large) Project: WBS Level 4 at a minimum, and some Work Packages may be more appropriate at Level 5

### Planning Package (PP)

Tier 1	✓	Tier 2	✓	Tier 3	✓
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A planning package (PP) describes a logical grouping of work that is scheduled and has planned costs but is not planned at the detailed level. Planning packages are used to plan unfunded work so that an accurate PMB and Budget at Completion (BAC) can be established. They are also used as a high-level “place-holder” for authorized work that has not yet been planned at the detailed level. Through the project’s rolling wave process, planning packages will be converted to work packages at major decision points in the project life cycle.

Planning packages can be established at any level of the WBS. Summary Level Planning packages are

established at level 1 of the WBS, and detailed planning packages are at level 2 and below.

All tiers of projects can have planning packages. Tier 1 projects are likely to have only summary level planning packages. Tier 2 and 3 projects should have detailed planning packages when the detail is known.

### Organizational Breakdown Structure (OBS)

Tier 1	✓	Tier 2	✓	Tier 3	✓
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The Organizational Breakdown Structure (OBS) is the organization chart of the project team that provides the framework for assigning responsibility for completing a specific scope of work. All authorized work must be assigned to organizational elements in the OBS. There will be one OBS for the project known as the Project OBS. The project OBS will include contractors and Government support staff. The purpose of the OBS is to define Control Accounts in conjunction with the WBS. If multiple performers contribute to a single WBS element, multiple Control Accounts are necessary.

An OBS is required for all tiers of projects.

### Responsibility Assignment Matrix (RAM)

Tier 1	✓	Tier 2	✓	Tier 3	✓
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The Responsibility Assignment Matrix (RAM) is used to depict the integration of WBS elements with OBS elements. The RAM is maintained for the duration of the project and is updated as required. A dollarized RAM is one that indicates the value of the WBS elements assigned to the respective organizational area and used to reconcile Control Account budgets to the Performance Measurement Baseline (PMB). The dollarized RAM is also maintained for the duration of the project and is updated as required.

A RAM is required for all tiers of projects.

### Integrated Master Schedule (IMS)

Tier 1	✓	Tier 2	✓	Tier 3	✓
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The Integrated Master Schedule (IMS) contains all of the detailed discrete work packages and planning packages necessary to accomplish the goals and objectives of the project. The work packages will show the critical milestones and activities supporting those milestones. The IMS will include vendor-developed schedules from contractors, as well as the schedule from the Government staff. The baseline will be established to include work packages for the work under contract and planning packages for work not yet under contract. Through rolling wave planning, the planning packages will be updated with more details to become work packages when contracts are awarded and at major decision points in the project life cycle.

An IMS is required for all tiers of projects.

### Control Account Plan (CAP)

Tier 1	✓	Tier 2	✓	Tier 3	✓
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Taking an integrated network schedule for a project and accurately depicting its cost is a key EVM

concept. This “dollarized” schedule represents the program’s monthly spend profile, which constitutes the PV. Guidelines for the budget are as follows:

- The program budget will be integrated with the Statement of Work (SOW), the Program WBS, and the approved schedule.
- The program budget represents an estimate for costs associated with a particular authorization to proceed or SOW and takes the form of resources allocated to scheduled activities.
- The PV is the time-phased budget spread of resources required to accomplish a particular statement of work. It is segregated by cost element within control accounts.
- Out-year control account effort, which cannot be identified as discrete control accounts or work packages, will be identified as one or more planning packages or summary level planning packages.
- The sum of any work packages and planning packages within a control account must equal the total control account budget (i.e., the Budget at Completion (BAC)).
- The sum of all control account BACs plus Undistributed Budget and summary level planning packages equals the PMB.

All work is measured against the PMB. A CAP is required for all tiers of projects.

## Reporting Thresholds

Tier 1	✓	Tier 2	✓	Tier 3	✓
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Schedule and cost variances will be measured against the thresholds for monthly, cumulative, and at-complete reporting shown in the table below. The table defines the threshold of variance that requires analysis and a corrective action plan.

Thresholds for EVM Reporting	
Metric	Threshold
Monthly SV	10% of PV
Cumulative SV	10% of PV
Monthly CV	10% of EV
Cumulative CV	10% of EV
At-Complete	10% of BAC

Reporting thresholds apply to all tiers of projects.

## Work Authorization Document

Tier 1		Tier 2		Tier 3	✓
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The WAD is required for authorizing work to each CAM. It contains the scope of work to be performed, the associated budget and schedule, and the valid charge number. A signed and completed WAD is considered formal authorization to perform the work described. The WAD is essentially a contract between the PM and CAM. It carries the task definition, the dates on which the task is to be started and

completed, the total task budget, defined delivery milestones, and the WBS element that will be used to summarize costs for the task. A good practice is that the WAD also include the elements of cost. Revisions to WADs are subject to change control procedures.

WADs are only required for Tier 3 projects.

### Baseline Approval

All projects implementing EVM must obtain baseline approval. Tier 1 Projects conduct a project review, using the Project Review Board process. Tier 2 and 3 projects must conduct an Integrated Baseline Review (IBR). An IBR is a collaborative process by which the Government validates that a contractor's proposed schedule and cost information is valid, reasonable, and compliant with the contract. The IBR is also held to ensure mutual understanding of the technical scope of the project, and the risks inherent in the contractor's performance plan and management control system.

The PMB is the basis for review during the IBR process. The PMB is a time-phased budget plan with performance metrics against which contractor performance is measured, thus the contractor's project schedule and cost baseline are representative of this performance baseline. An IBR is typically performed before the contractor's cost and schedule baseline are integrated with other components of the project plan. It differs from the IMS in that it only addresses that work for which the contractor is solely responsible for delivering. In addition, the level of detail is typically greater than that found in the IMS. Once accepted, the PMB is represented in the IMS at a higher level and according to the IMS' work package structure. The PM must ensure integration between the planning artifacts.

The PM is responsible for conducting the IBR in a timely and successful manner. The initial IBR is typically conducted within 60-90 days of the award of a new contract, depending upon complexity, risk, and scope determination and at critical project decision points. Subsequent IBRs should be conducted between major phases of the project; as required due to a major change to an existing contract; or if there is a major change to the project scope or underlying assumptions that would trigger a re-baseline. IBRs may also be conducted on an ad hoc basis (with reasonable notice) should problems become apparent through the regular status review process.

The documents used to conduct an IBR include:

- WBS
- WBS Dictionary
- CAP
- IMS
- Earned Value Methods
- Earned Value Measurement Criteria

Other documentation that is used for reference during an IBR include: Request for Proposal, contractor's Technical/Management/Cost Proposal, Requirements Traceability matrix, Staffing Plan, Organizational Chart, Acceptance Criteria for Deliverables or Work Products, Risk Management Plan and risk list, Communications Management Plan, Subcontract Management Plan, and the project Concept of Operations.



The Project Team Lead(s) assesses the PMB and identifies risk areas by confirming compliance with the following:

- The technical scope of work is fully included and consistent with authorizing documents
- Key schedule milestones are identified
- Supporting schedules reflect a logical flow to accomplish the technical work scope
- Resources (budgets, facilities, personnel, skills, etc.) are adequate and available for the assigned tasks
- Tasks are planned and can be measured objectively, relative to technical progress
- Underlying PMB rationales are reasonable
- Managers have appropriately implemented required management processes

Potential risks are identified and documented as a result of the review process and captured, assessed, and monitored according to the project's risk management plan.

After completing the IBR, the PM should assess whether they have achieved the purpose of the IBR:

- Have they gained a mutual understanding of the project PMB?
- Have they attained agreement on a plan of action to handle the identified risks?
- Can the identified scope be performed within the schedule and budget provided in the PMB?

The PM ensures that all identified risks are captured and tracked according to the project's risk management plan. The results of the IBR must be posted to the OCIO project document repository.

For details guidance in preparing and conducting an IBR, please reference the USAID Integrated Baseline Review Guidance.

## **Sustaining the EVMS during Project Execution**

Although performance based management primarily focuses on the project's planning stages, the effort must be sustained through project execution to reap the benefits. Analysis and reporting of project status and forecasts must be done on a monthly basis. As the project evolves, the PM uses the performance measurement baseline and the change control procedures to avoid scope creep and to fully plan and incorporate approved changes.

## **Calculate Performance and Status the Schedule**

Each month, each CAM will review all active and upcoming tasks and milestones in their schedule. All tasks that were scheduled to start or finish before the status date require actual start and/or actual finish dates. If the activity did not start or finish as planned, a new date needs to be assigned. Any delays should be captured accurately by increasing the duration of existing tasks, adding additional steps, or adding new interdependencies.

The CAMs review the updated project schedule for finish dates of critical milestones. If the dates have slipped, the need to take action and consider the following alternatives:

- "Crash" the remaining work. Shift resources to the slipped tasks to decrease the duration.
- "Fast Track" the remaining work. Perform activities in parallel that had been planned as

sequential.

- Start sharing the later dates for the critical milestones to set expectations
- Take other corrective action to make up for the delay based on the schedule status, the EVMS is updated to assign credit (EV) to open work packages.

## Integrate Earned Value Data

The EVM Team will consolidate the earned value data for the projects through the status updates of the IMS at the end of the reporting period. Table 4-2 outlines the details of the earned value status activities.

Monthly Earned Value Status Activities		
Due Date Each Month	Activity	Responsibility (Primary/Secondary)
15 <sup>th</sup>	Provide project EVMS data to eRoom	Project Manager/PMO
20 <sup>th</sup>	Provide Consolidated Reports and Analysis for PM Narrative	EVM Team/CAM
30 <sup>th</sup>	Distribute Consolidated Reports to Project Sponsors and ITSS	EVM Team

## Obtain Actual Costs from the System of Record

The source of Contractor Actual Costs (AC) is the contractor's EVMS Report. Periodically, this report is validated cumulatively against the invoices for the project to ensure accurate and timely reporting. The contractor's AC must include all direct and indirect costs attributable to the project.

The source of Direct Hire AC is the project staff's hours worked multiplied by the loaded composite rate, consistent with the OMB 300 reporting process. The loaded rate includes all direct and indirect costs allocated to the project.

All organizations on the project collect costs by WBS element to enable a direct comparison of budgeted costs, work performed, and actual costs.

## Reporting Format

On a monthly basis, Tier 3 projects provide the EVM data, and the EVM Team consolidates it to produce project and portfolio status reports containing the following information:

- S-Curve displaying cumulative PV, EV, AC and EAC at the portfolio level and for each project
- The statistical forecast for completion cost is updated on a monthly basis. When the statistical forecast is no longer valid, the CAMs perform new "bottom-up" or engineering build-up estimates of the project costs. This information is presented monthly in the EAC.
- Line Graph showing SV and CV over time
- CPI and SPI indicators relative to the thresholds
- Narrative of project and portfolio status including accomplishments, variance analysis, and

corrective action

- Variance analysis and corrective action report for variances greater than  $\pm 10\%$  at the control account level

The status reports use the WBS as the primary reporting structure. A sample status report for Tier 3 projects is available in Appendix D.

Tier 1 and 2 projects use the status format in Appendix E.

## Management Analysis of Status Reports

Every month, the EVM Team reviews the EVM metrics with the each PM, develops a variance analysis to detect where the project is not meeting planned goals, and prepares a report that recommends corrective action. The EVM Team helps the PMs identify their efforts to mitigate risk areas, and tasks that are already falling behind schedule and/or over cost.

The status report with variance analysis and corrective action plans are distributed to the Project Sponsor and ITSS, who perform risk assessment, ask specific questions of the PMs, and gauge the health of the projects.

A portfolio analysis report is distributed to the CIO e-Gov Team and to OMB to monitor their IT portfolio. The EVM metrics and portfolio analysis charts, along with other analytic information, provide these managers with an accurate view of their IT projects' viability, so that they can make informed project funding decisions.

## Changes to the Baseline

The change control process at USAID involves identifying, documenting, approving, or rejecting and controlling changes to the project's baselines. This procedure defines the change control processes and requirements for the identification and development of Baseline Change Requests (BCRs), the evaluation of change impacts, and the roles and responsibilities for change approvals. The Configuration Control Board (CCB) reviews, evaluates, approves, delays, or rejects proposed changes to the project plan and supporting documents as well as cost and schedule impacts of technical changes. The change control process applies to those products and services that if changed, would have a direct impact on the project's results and to the project management artifacts which define the project's cost, schedule, and quality objectives.

Once a performance measurement baseline is created, it must be placed under configuration control because changes to the WBS and/or requirements are likely to affect the scope of a project, which includes the schedule (critical path), budget, and quality of work. To control and minimize undesired impacts of those changes, the change control process is monitored whenever a change to the baselined cost, schedule, requirements, or project activities is requested throughout the life cycle of the project.

The Configuration Management process ensures that proposed changes to the project's baseline follow an orderly process of evaluation and implementation so that traceability and accountability are supported and documented. All change requests are documented by the project team using a Change Request Form, and for changes impacting the baseline, the BCR Form is completed. The BCR Form can be found in Appendix C of this document. While any member of the project team can request changes or report defects, the appropriate approval authority (i.e., CCB or other) approves changes before they are implemented.

It is important for management to understand the status of approved baseline revisions, changes to past performance measurements, and the baseline assumptions for project performance measurements. Baseline changes and project plan revisions are reviewed and assessed on a timely basis to provide current and meaningful project performance measurements and reports. When the performance measurement baseline has significantly deviated from the baseline plan, and the performance metrics are not useful or meaningful, it may be appropriate to replan the project with a schedule or cost plan that exceeds the approved Project Baseline.

Baseline changes are submitted to the PM or designee for approval prior to implementation and are accompanied by adequate justification. Approved changes are incorporated on all affected Work Authorization documents, and budget and schedule documents.

Changes that affect data reported for prior time periods are not approved, except to correct accounting errors, or for normal accounting adjustments.

### Routine Changes to the Baseline

Routine changes to the baseline include the following:

**Distribution of Undistributed Budget (UB).** Distribution of undistributed budget (UB) is authorized by the PM. UB is budget applicable to a project that has not yet been identified to WBS elements at or below the lowest level of reporting. It may be established at the time of Integrated Baseline Review or when changes are approved. The PM controls the UB. A separate UB is identified in the CBB and UB log for each authorized contract change/modification.

**Changes.** Approved changes are initially incorporated as UB after the change is received. They can be either defined or authorized unpriced work. Authorized, unpriced work that is being performed needs to be incorporated into the PMB and included in status reports.

**Distribution of Management Reserve (MR).** Distribution of management reserve (MR) is at the CIO's discretion and is based on a justified request for budget to perform an unidentified scope of work that is within the contract SOW or project plan. MR is an amount of the total target cost withheld for management control purposes rather than designated to accomplish specific tasks. It is established and controlled by the CIO.

**Transfer of Scope and Budget.** Transfer of scope and budget may be the result of make/buy decisions, a shift in available resources, assignment of scope from summary planning packages, or other considerations. Budget for this effort is negotiated with the appropriate CAMs and may result in a change to MR. Budget and scope are always transferred together. Funds are first transferred from the Management Reserve, which is outside the PMB, through UB, then allocated to a control account.

**Internal Replanning of a Control Account.** Internal replanning of a control account may be necessary due to resource constraints, technical and/or schedule concerns, further definition of effort, or other considerations. When these changes are accomplished within the established WAD parameters for budget and schedule (start and completion dates); do not impact a project milestone(s); are within the existing scope of work, and there are no changes to in process work packages, a formal revision request is not required. The procedure to perform internal replanning of a control account under these conditions is as follows:

- The CAM initiates a written message to project controls indicating what internal replanning action is required and the reason for the action.

- Project controls will review the written message and if the proposed change is not consistent with the ground rules for internal re-planning, disapprove the action by a return written message.
- Subsequent to review by project controls, the CAM, with the assistance of the analyst, will incorporate the change into the control account plan.
- Copies of the affected control account plan documents are retained for purposes of maintaining an audit trail.

### Redirection of Resources

During the execution of a project, resources may be reallocated between control accounts to mitigate a risk, resolve a problem/issue, or to realize an opportunity to improve project performance. The redirection of resources also includes the re-planning of Summary Level Planning Packages into Control Accounts. The reallocation of resources is within the schedule and cost constraints of the project baselines. The reallocation of resources includes:

The use of the Management Reserve to authorize in-scope effort that was not planned in the performance management baseline (PMB). Examples include the following:

- Risk mitigation actions
- Effort that was overlooked or omitted from the PMB
- Effort that will improve project performance
- Detailed planning of Summary Level Planning Packages into Control Accounts.

**Note:** The Management Reserve should not be used to cover control account overruns.

The Project Manager reviews and assesses reallocation of resources between control accounts and assesses the dependencies on the revised control accounts.

### Major Changes to the Baseline

Major changes to the baseline are separated into two categories: Major Internal Replanning/Rebaselining and Over Target Baseline/Major Reprogramming. The first category involves baseline changes that alter the technical approach or detailed project plan without implications to the project's EAC. The second category involves changes to the baseline that have cost implications.

#### Major Internal Replanning/Rebaselining

Major Internal Replanning/Rebaselining may be required when the result of cost, schedule, or technical issues have caused the original plan to become unrealistic even while the target cost remains unchanged. The usual process is to set PV equal to EV with any remaining budget transferred to MR. Distribution is then made from MR to the control accounts that have remaining effort. Retroactive changes to PV, EV, and AC are not allowed. Required adjustments to PV or EV are made in the current month. The ground rules established prior to the rebaselining determine which variances, if any, will be retained.

A Baseline Change Request (BCR) Form along with detailed attachments is completed by the Project Team to capture the description of the changes and the reasons for the change. By completing this form, decision makers will see the changes to the approved baseline cost, schedule, and scope. Furthermore, the change request package provides explanation of why the current baseline no longer provides useful performance metrics, identifies the root causes that led to the need for a rebaseline, and provides mitigation plans to prevent recurrence of such problems. For detailed instructions in completing the BCR Form, please refer to Appendix C.

### **Over Target Baseline (OTB)/Formal Reprogramming**

Over Target Baseline (OTB)/Formal Reprogramming may arise when performance deviates from the plan to such an extent that the original plan no longer serves as a reasonable project management device. In this case, formal reprogramming to a budget that exceeds approved funding may be necessary. The primary consideration for reprogramming should be an analysis of the remaining work and remaining budget. The fact that a project is overrun to date and is projecting an overrun at completion is not the most important factor in the decision. Changing a baseline merely to compensate for variances already experienced is inappropriate.

Prior to requesting the procuring agency to recognize an OTB, the following conditions must be taken into consideration:

- The available contract budget for the remaining work is grossly insufficient
- At least six months of substantial work remain after reprogramming
- Guidelines are in place to implement the change, including the extent of the reprogramming, the WBS elements affected, the base month for the reprogramming, ground rules, performance measurement during the implementation of the reprogramming effort, and establishment of the MR

If these conditions are satisfied, and the appropriate CCB has been consulted prior to the reprogramming, the change to the budget and schedule are recorded as though a change in scope had been received.

When a project is replanned to exceed the approved baseline, this is often referred to as “formal reprogramming” or “Over Target Baseline (OTB).” The appropriate CCB should approve the implementation of an OTB. It will be imperative that all decisions by the CCB and the ITSS along with the baseline change justification package be documented.

The process for developing a rebaseline is the same as the process for developing the initial baseline. Refer to sections 3-5 of this document.

### **Corrective Actions/Data Correction**

Project performance is recorded monthly for earned value and actual cost. Adjustments for estimated actual cost are made each month. Changes to prior period measurements are limited to correction of errors and require approval by the PM. Changes to prior period numbers must be made in current period reports and noted in the variance explanation.

### **The Approval Process**

The approval process begins with the receipt of the requested changes by either the PM or Project

Control. The request is checked for conformance to established processes and impact to other schedules and the estimated dollar change is calculated.

## Initiate a Baseline Change Request

Changes to the PMB must be incorporated in a documented, disciplined, and timely manner. All changes will be submitted into the change control process via a Baseline Change Request (BCR) form. See Appendix C for the BCR form. The Configuration Control Board (CCB) identified in the project management plan reviews and approves all changes proposed to be incorporated to the PMB. If necessary, the CCB may be supported or advised by the EVM Team to analyze the technical content of the proposed BCR and to validate the effects to cost and schedule of the impacted work packages. Changes may be initiated by a Control Account Manager, Project Management, or member of EVM Team. Each BCR form is supported by a “package” of marked up documents illustrating the affected schedules, budget, or technical scope areas. The BCR form should clearly demonstrate an analysis of the cost and schedule implications, and also document the justification for the change request. Once the initial BCR form is completed, Project Controls enters the proposed change request into the BCR log.

## Approve/Disapprove Change Request

After receiving a completed BCR package, the CCB evaluates the impact of the requested changes. Then, the request form and its supporting documentation are reviewed for conformance to the established processes, impact to other schedules, and the estimated dollar change. When schedule, scope, and budget issues are resolved, the CCB approves or disapproves the BCR. Concurrence to implement the proposed BCR is documented on the BCR Form with the respective signatures of the approval authorities (CCB member, CAM, and PM).

## Incorporating an Approved Baseline Change

Once a revision has been approved, the affected logs are updated. The approved change may result in revisions to one or more work packages on the CAP and/or the addition of new tasks to the Project Schedule. The revisions are annotated in the CAP sheets and the next month’s status report. The superseded CAP, along with iterations of the budget plan, is retained by Project Controls to provide baseline traceability to the work package level.

Changes are incorporated into the baseline after the CAPs and higher-level schedules have been revised to reflect the change. Once a revision has been approved and the WAD has been updated (if required), it is recorded in the Change Control Log. Documentation is posted in the eRoom site.

## Deliver and Archive Modified Documents in Repository

Project Controls maintains the repository for the PMB. These documents include but are not limited to all of the following:

Potential Impacted EVM Documentation		
Management Reserve (MR) log	Statement of Work (SOW)	Organizational Breakdown Structure (OBS)
Baseline Change Request (BCR) forms and BCR log	Work Breakdown Structure (WBS) and WBS Dictionary	Responsibility Assignment Matrix (RAM)

Status Reports

Project Master Schedule

Control Account Plans (CAPs)

All significant changes are properly documented and reflected in the monthly reports. Access to all pertinent EVM records is provided as required for oversight and surveillance.

## **List of Appendices**

**Appendix A – ANSI Criteria and Framework Requirements**

**Appendix B – IBR Guide**

**Appendix C – Baseline Change Request form**

**Appendix D – Status Report Sample (Tier 3 Projects)**

**Appendix E – Status Report Sample (Tier 1 & 2 Projects)**



## **Appendix A – ANSI Criteria and Framework Requirements**

Earned Value Management Guide Appendix A Integrated Baseline Review Guide

ANSI Criterion	Requirements	Tier 1	Tier 2	Tier 3
1a	Work Breakdown Structure (WBS)	✓ Defined to second level or below	✓ Defined to third level	✓ Defined to third level or below
1a	WBS Dictionary		✓	✓
1b	Organizational Breakdown Structure (OBS)	✓	✓	✓
1e	Responsibility Assignment Matrix (RAM)	✓	✓	✓
2b	Deliverables/Milestones	✓	✓	✓
1c, 2a	Integrated Master Schedule (IMS) with responsibility assigned	✓	✓	✓ Plus resources loaded
2c, 2f, 2j, 3a, 3b, 3c, 3e, 3f	Control Accounts	✓	✓	✓
22d, 2e	Summary Level Planning Packages	✓	✓ Plus detailed planning packages	✓ Plus detailed planning packages
2d, 2e	Work Packages	✓	✓	✓
2c	Resources/BOE	✓	✓	✓
2g	Performance Measurement Baseline (PMB)	✓	✓	✓
*	Project Review	✓	✓	✓
4a, 4b, 4d, 4e, 4f	Status Reports with narrative, variance analysis and estimate at complete	✓	✓ Plus reconcile to invoice	✓ Plus reconcile to invoice
2c, 5a, 5b, 5c, 5d, 5e	Project CCB	✓	✓	✓
1c	Work Authorization Document (WAD)		✓	✓
4c, 2h, 3d	Indirect Cost Accounting		✓	✓
2i	Management Reserve **			

\* Not an ANSI Criterion; \*\* Held at the CIO level, not by the project

## **Appendix B - Integrated Baseline Review Guide**



# Integrated Baseline Review

*A Project's Guide to Planning, Executing and Documenting*

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**US Agency for International Development**

October 24, 2008 – Version 2.0

## Introduction

The purpose of an Integrated Baseline Review (IBR) is to provide project management teams with an understanding of the project plan and its risks and issues. This understanding allows early intervention and the application of resources to address project challenges and to ensure that the Project Manager (PM) has a solid plan before the project begins execution. The IBR process:

Lays a solid foundation for mutual understanding of project risks

Provides an invaluable opportunity to compare PMs' expectations, and to address differences before problems arise

Increases confidence in the Performance Measurement Baseline (total time-phased budget against which performance is measured), which provides a powerful, proactive, project management capability to obtain timely and reliable cost and schedule projections.

The goals of the IBR process are to:

To ensure the technical content of work packages and control accounts are consistent with the scope of work defined in the Contract Work Breakdown Structure (CWBS) and the Contract Statement of Work (SOW).

To assess that there is a logical, integrated/interdependent sequence or network of tasks that supports the contract schedule.

To assess the adequacy and appropriateness of allocated control account resources, both in terms of ability to complete work content and time-phasing.

To understand the earned value methods to be used for measuring accomplishment and that

Objective and meaningful performance data is provided in terms of technical accomplishment.

To establish a forum through which the Government Project Manager and the PM's staff take ownership of the cost/schedule management process and balance/integrate this process with and into the performance evaluation of the technical requirements of the contract as part of the Government's overall risk management effort.

### Lessons Learned: IBR Tips

**Obtain training:** Keep the training as short as possible, but provide everyone an opportunity to get on the same page.

**Think team:** Everyone succeeds or fails together.

**Get the problems out early:** Problems discovered later in the process have less time for resolution.

**Get help:** The use of external personnel for training and facilitation brings in added knowledge and people without an agenda or project history.

**Focus on the information,** not the review: Keep the review as simple and focused on the plan as possible. Avoid presentations.

Not only is the IBR process a critical tool for project management and oversight, it is required by OMB

and USAID Policy for projects which perform Earned Value Management.

4. OMB Policy Letter M-05-23, "Improving Information Technology Planning and Execution," dated August 4, 2005. Available: <http://www.whitehouse.gov/omb/memoranda/fy2005/m05-23.pdf>
5. b) USAID Policy 577.3.6.5 Integrated Baseline Review
6. c) System Description Document, Section 4.05 Integrated Baseline Review

In summary, the successful integrated baseline review should confirm the existence of a documented, controlled baseline for project operations. This baseline should become the foundation for the evaluation of all technical, schedule, or resource changes to the project. The baseline should be directly traceable to the contract, the configuration management process, and the master project schedule. Effective application of this process provides an essential ingredient for the successful completion of projects, especially those involving software development.

This document serves as a guide to project teams performing an IBR, outlining preparation, inputs, the process, and the outputs. The document contains tips and lessons learned from other projects, templates, checklists and samples. This is a living document, so project teams that perform an IBR are encouraged to provide their lessons learned and recommended updates to the IBR Guide to the Earned Value Management Team.

## A.1 When to Perform an IBR

An IBR is required by USAID and OMB Policy when a project sets an initial baseline, and when a project needs to rebaseline its cost or schedule. Additionally, the project can conduct an IBR when there are substantial changes to the project plan, or to gain insight into performance problems. An IBR is recommended:

- Upon contract award (task orders, delivery orders, options, etc.)
- When performance metrics indicate significant risks or issues
- When project scope is redirected or modified significantly
- When an initial IBR identifies significant issues and the need for subsequent IBRs
- Upon system lifecycle phase change

## A.2 Roles and Responsibilities

The IBR represents a total team effort: Government and contractor, internal project, and independent, management and technical, to reduce risk on the project. As with any effort, however, it responds to good organization. The following role descriptions can help the PM assign the appropriate individuals to the IBR Team and help the IBR team make a meaningful contribution.

The following table identifies recommended roles and responsibilities for the IBR Team:

### Lessons Learned: What to avoid

Over attendance – Allowing attendance by large numbers of people the cost of the IBR while reducing the effectiveness of the process. The discussions should be semi-private between the CAM and the USAID focal point with a minimum set of supporting staff. Moderating the attendance allows the discussion to focus, reduces disruption, decreases cost, and allows many discussions to occur at the same time.

Role	Responsibilities
Project Manager	Plan and perform the IBR Provide technical direction and leadership emphasizing the importance of thorough cost, schedule and technical integration of contract work. Choose an adequate number of qualified personnel to serve as team members early in the process and assign responsibilities to the team Ensure team members are adequately trained and prepared for the IBR. Specify evaluation criteria for risk areas and document risk issues and issues identified during an IBR Monitor progress on required actions until issues are resolved Collect all documentation from IBR team members and organize daily team meetings.
IBR Team (Management Team, Technical SME's Independent Reviewer)	Attend all IBR training and the IBR workshop (if applicable) prior to the start of the IBR. Review contract documentation prior to baseline discussions with contractor personnel. Be familiar with scope, schedule, budget, and resources Review the identified risks in the risk database Prepare a list of tentative questions to serve as a framework for the discussion Review the Evaluator Checklist prior to the IBR Keep Team Leadership informed of the status of his/her area of the review.
Control Account Managers (CAMs)	Provide baseline documentation to the team prior to the start of the IBR to educate the team on the earned value management system processes in this area. Present plan for executing the scope of work managed, including cost, schedule, risks, assumptions and interdependencies Respond to questions fro the PM and IBR Team
Process Facilitators	Project Controls Support - provides IBR training, analyzes materials, coordinates agenda, provides briefing books IBR Coordinator – manages the logistics of the IBR, such as agenda, reserving the room, scheduling the training, and distributing materials with enough time for review, takes notes and tracks action items during the IBR IBR Facilitator – Facilitates the IBR session, managing the agenda, ensuring that action items are documented appropriately and asking clarification questions if necessary

### A.3 Planning and preparation

The IBR planning follows the same model as project planning. It consists of the following steps:

Define assumptions – All participants must agree on (or at least understand) the intended IBR focus, the methods for conducting the discussions, and the success criteria for completion of the review.

Assign responsibilities – Identify the players in the IBR and their roles. Consider all roles including lead contractor, government oversight, integration, testing, or training contractors, security, Certification and Accreditation Process support.

Develop the schedule – The schedule evolves over time, but some initial target dates provide focus.

Assess team training needs and set up appropriate training.

Develop the plan – The IBR plan consists of all the documents describing the IBR and its process. This plan will change, but the sooner it begins the better.

For best results, the IBR requires “up-front” involvement of the project team and technical staff to ensure commitment and consistency in expectations. The planning should also address the amount, type, and source of training needed for the team members. Adequate preparation is essential to ensuring a successful IBR.

For the IBR to flow smoothly all team members need a basic set of skills and knowledge. These may pre-exist or be developed through the training and preparation process. Without this preparation the team cannot focus on the quality of the planning, but must spend their time gaining this knowledge. To succeed an IBR team member should enter the IBR with:

- Knowledge of the contract.
- Clear understanding of the scope of effort they will review.
- Insight into the contractor’s management system and processes.
- Basic knowledge of earned value.
- Ability to judge the viability of performance measures.
- Appropriate expectations relative to the discussions.
- An open mind and team attitude.
- Desire to prevent project problems.

IBR training should occur approximately two weeks prior to the IBR. The two week time frame assure the team remembers the result of the training and allows time for changes in the IBR plans, if necessary, prior to starting the review.

**Lessons Learned: What to avoid**

Late Access to the control account plans – Inability of the USAID team to examine the control account plans before the IBR meeting can result in wasted time during the discussions. Inability to complete the baseline before the IBR indicates process problems and degrades the efficiency of the IBR.

The amount of training appropriate for an IBR team directly depends on the team’s familiarity with IBRs, the contractor management system, and earned value. For the IBR to flow smoothly and successfully all team members must have a working familiarity with the concepts of earned value management, the contractor’s management system, and the processes and practices of an IBR.

The USAID Project Manager should request the IBR materials from all presenters, and should receive the information at least a week before the IBR. The following table identifies the artifacts that should be delivered, then reviewed during the IBR, a brief description of the content, and a synopsis of why the IBR team should review it. Since time and resources are tight, the Project Manager should carefully consider what to request from the project teams, and have a plan for reviewing all of the information received.

Artifacts Reviewed at the IBR	What is It?	Why Review it?
Contract Work Breakdown Structure (CWBS)	The contractor’s WBS, which forms the structure of the schedule, EVM Control Accounts and Work Packages, and Risk Tracking and fits within the project’s overall WBS	Is the scope appropriate? Is the project structured to enable the desired reporting?
Technical Approach	Technical Volume of the Proposal	Is the scope appropriate?
Integrated Master Schedule (with resources assigned)	Project schedule including activities, milestones, dependencies and resources	Is the schedule achievable?



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Organizational Breakdown Structure (OBS)	A structure showing the organization that will perform the work and identifies who has management responsibility for estimating, statusing, and delivering work products	Understand who is responsible for what work Identify USAID/Project Team counterparts
Responsibility Assignment Matrix (RAM)	The intersection of the Work Breakdown Structure and the Organizational Breakdown Structure	Confirm that a responsible party is assigned for all elements of the project's scope
Time Phased Budget	Project budget by work package, by period	Is cost reasonable and achievable?
Control Account Plan (CAP), including performance measurement techniques	Report showing time phased budget by control account, Control Account Manager, and Performance measures	Clearly defined work, traceable to the SOW, with reasonable performance measures
Major Assumptions, Key Milestones, and Key Decision Points	Elements of the Project Schedule	Ensure that the project is integrated, and complete, capturing the need for USAID input as well as project-lead activities
Risk List	Prioritized and Categorized List of the project risks identified and the mitigation and contingency plans developed	Ensure appropriate level of risk management, establish mutual understanding of the number and severity of risks
Baseline Maintenance / Change Control Processes	Project level change control process including CCB process	Gain understanding of and confidence in how the baseline will be maintained
Monthly Status/Updating processes and EVM Reporting	Status report templates with level of detail indicated	Ensure that the planned status reporting will meet the organization's needs

### A.4 Executing the IBR

**Initial planning meeting:** As soon as possible after the contract award, an IBR planning meeting should occur. Recommended participants include Project Managers, contractor and Government project managers, an IBR facilitator, and others as desired. The meeting normally takes one to two hours and may be done as part of another activity. Topics to include are the expectations from the IBR process, level of detail of the planning artifacts, and success criteria.

**Conducting the IBR:** The focus of the IBR is to develop a mutual understanding of the baseline content and risk. All other activities during the review must be focused on this objective. Anything which does not support the objective should be moved outside the review. See Attachment A for a recommended agenda.

The IBR will focus on the control accounts with detailed planning. USAID guidance requires the use of a standard Work Breakdown Structure (WBS) and defines the level of the WBS for the Control Accounts. Depending on where the project is in the System Life Cycle, a different section of Control Accounts can be reviewed at the detailed level. Discussion areas are as follows:

The technical content of the control accounts/work packages relative to the manager's

Authorized work scope to ensure that all of the authorized work is planned.

The integration of the work schedule within the control account with the IMP/IMS requirements.

This ensures that working level plans will support contractual requirements.

The application of resources (labor, materials, subcontractors, etc.) to the scheduled work.

Sufficient resources should be authorized to provide the manager the opportunity to accomplish the plan.

The identification, categorization, and quantification of any risk elements contained within the plan for the control account.

The identification, categorization, and quantification of any cost avoidance opportunities within the plan for the control account.

**Lessons Learned: What to avoid**

Presentations rather than discussions – Conducting the IBR as presentations results in repetitive theoretical presentation of process rather than a detailed examination of the planning. The presentation process, rather than a less formal interview format, misses real issues and limits the interaction between the team members.

**Typical Baseline Concerns Identified During an IBR:** IBRs have been performed at USAID and at other organizations for many years. The lessons learned of prior IBRs have identified some key deficiencies that are often present in project planning which can be uncovered and corrected during the IBR Process. The IBR Team can add value and increase the chances for project success by identifying issues such as these. See Attachment B for more detailed Evaluator Checklists.

Review Area	Common Issues	Examples/Illustrations
Scope	<ul style="list-style-type: none"> <li>Scope not accounted for</li> <li>Requirements do not flow down</li> <li>Lack of planning for high risk areas</li> <li>Software concerns</li> <li>Specification/SOW Issues</li> </ul>	<p>Part of the analysis needs to be a crosswalk from the SOW to the Proposal to the Baseline to ensure that all scope is captured in the project plan. Often the IBR team finds missing pieces, and its advantageous to discover them early.</p> <p>Because of the software release schedule projects sometimes plan to test one version of software, but deploy a later version. The IBR team should consider whether the risks involved are appropriately identified and mitigated.</p>
Budget	<ul style="list-style-type: none"> <li>Inadequate budgets</li> <li>Time phasing of budgets</li> <li>Unreasonable productivity factors</li> <li>Lack of rework budgets</li> <li>Unreported future cost impacts</li> </ul>	<p>Sometimes the IBR team finds that the budget has been "strait-lined" rather than planned to increase and decrease by period depending on the activities taking place.</p> <p>The budget needs to be in place to support the proposed quality management program, including hours for quality audits, responding to findings and rework.</p>

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Schedule	Schedules not linking Inadequate time scheduled Critical path concerns Items not included on schedule Material management	Project schedules that are build using constraints rather than logical linkages do not provide value as changes need to be incorporated. A thorough review of the schedule can ensure that it will be a useful tool for project management
Earned Value Management/Project Management	Limited manager knowledge Communication problems Wrong earned value type (PMT) Subcontractor management	Sometimes IBR teams find that the project manager or Earned Value specialist is answering all of the questions about performance tracking. It is critical that the control account manager, who is responsible for performance, understand and present the plan.
Risks and Issues	Not accurately identified Mitigation Planning Incomplete	The risks in the risk list should relate directly to the detailed project plan. Often risks are identified by someone who is not the appropriate risk owner. Review and discussion can greatly improve a project's risk and issues list.

The IBR needs sufficient documentation and approval to support project controls against the plan. The Outputs of the IBR Process are as follows.

- Mutually agreed upon cost and schedule baseline
- Potential modifications or changes to requirements
- Updated risk database
- Completed Evaluation Forms
- IBR Report with Baseline Approval. See Attachment C for a report template.
- IBR Lessons Learned. See Attachment D for a guide to collecting Lessons Learned

### Lessons Learned: What to avoid

Failure to examine control account details - Examination of summary level information rather than the control accounts limits the ability to determine the reasonableness and risk in the plans. The review must be at the lowest level of planning.

## Attachment A - MEETING AGENDA

*PROJECT NAME* IBR

Date and Time

**Meeting Purpose:** To gain insight into the Project’s risk areas and to gain consensus and approval of the project’s scope, budget, schedule, and major assumptions to move forward with executing the effort. An IBR is a customer review of a contract budget baseline that fosters communication and trust.

In this regard, a review of documentation/artifacts\* related to the Performance Measure Baseline will be presented by the performing contractor and reviewed by the customer / IBR facilitators during this time.

These artifacts required may are:

- Statement of Work (SOW) / Objectives
- Work Breakdown Structure (WBS)
- Organizational Breakdown Structure (OBS)
- Responsibility Assignment Matrix (RAM)
- Integrated Master Schedule
- Performance Measurement Baseline (i.e. the time-phased budget plan of resources for completing Control Accounts, Work Packages, Planning Packages, etc.)
- Projected cumulative funding requirements over time (including future planning packages / estimates)
- Contract Funds Status Report and latest Contract Performance Report
- Risks (i.e. technical, schedule, cost, resource, or management) and Risk Management Plan
- Major Assumptions, Key milestones and decision points
- Baseline Maintenance / Change Control Processes
- Monthly Status/Updating processes and EVM Reporting

IBR Evaluation Team		
Name	Organization	Role
	Contractor	IBR Facilitator
	USAID	Executive Sponsor
	USAID	CIO Management Representative(s)
	USAID	Project Manager
	USAID	Deputy Project Manager
	USAID	EVM Project Manager
	USAID	Subject Matter Expert(s)
	USAID/Contractor	EVM Project Manager
	Contractor	Budget/Business Analyst

TOPIC	Owner	DURATION
<ul style="list-style-type: none"> <li>• <b>Introduction</b> <ul style="list-style-type: none"> <li>○ Agenda</li> <li>○ Purpose and Benefits</li> <li>○ Roles and Responsibilities</li> <li>○ Ground rules of the IBR</li> </ul> </li> </ul>	IBR Facilitator	20 minutes
<ul style="list-style-type: none"> <li>• <b>Opening Comments</b></li> </ul>	Project Manager	10 minutes
<ul style="list-style-type: none"> <li>• <b>Review of Control Account 1</b> <ul style="list-style-type: none"> <li>○ Risks</li> <li>○ Work Package 1</li> <li>○ Work Package 2</li> <li>○ Work Package X</li> </ul> </li> </ul>	Contractor 1	XX minutes
<ul style="list-style-type: none"> <li>• <b>Review Control Account 2</b> <ul style="list-style-type: none"> <li>○ Risks</li> <li>○ Work Package 1</li> <li>○ Work Package 2</li> <li>○ Work Package X</li> </ul> </li> </ul>	Contractor 1	XX minutes
<ul style="list-style-type: none"> <li>• <b>Review Control Account 3</b> <ul style="list-style-type: none"> <li>○ Risks</li> <li>○ Work Package 1</li> <li>○ Work Package 2</li> <li>○ Work Package X</li> </ul> </li> </ul>	Contractor 2	XX minutes
<ul style="list-style-type: none"> <li>• <b>BREAK</b></li> </ul>		XX minutes
<ul style="list-style-type: none"> <li>• <b>Review Control Account 4</b> <ul style="list-style-type: none"> <li>○ Risks</li> <li>○ Work Package 1</li> <li>○ Work Package 2</li> <li>○ Work Package X</li> </ul> </li> </ul>	Contractor 3	XX minutes
<ul style="list-style-type: none"> <li>• <b>Review Control Account X</b> <ul style="list-style-type: none"> <li>○ Risks</li> <li>○ Work Package 1</li> <li>○ Work Package 2</li> <li>○ Work Package X</li> </ul> </li> </ul>	Contractor X	XX minutes
<ul style="list-style-type: none"> <li>• <b>Discussion of Baseline Maintenance, Statusing, and Change Control Process</b></li> </ul>	IBR Facilitator and EVM Manager	10 minutes
<ul style="list-style-type: none"> <li>• <b>Open Forum/Q&amp;A</b></li> </ul>	IBR Participants	XX minutes

<ul style="list-style-type: none"><li>• <b>Review Action Items and Next Steps</b></li></ul>	IBR Facilitator	20 Minutes
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## Attachment B - IBR Evaluator Checklists

The following checklists are meant to assist the IBR Team with their review of the materials and CAM interview process, and are not required documentation of the IBR process.

Initial Preparation Review Checklist			
No.	General Question	Yes/No	IBR Participant Comments
1	Have all necessary documents been submitted?		
2	Is there a requirements management process?		
3	Have risks been identified? (Risk List)		
4	Are mitigation strategies included in the project's activities? (Risk List)		
5	Is the work specified in the SOW traceable to the CWBS? (Task Order SOWs and CWBS)		
6	Are there cost and schedule estimates for all of the WBS elements? (CWBS, Cost Proposal, CAP)		
7	Is there a communication plan?		
8	Is there a contract baseline control plan? (EV Methodology)		
9	Is there an EAC process in place? (EV Methodology)		
10	Are the resources in place? Are key resources identified and in place? (OBS, RAM)		
11	Is all the negotiated work in the CWBS? (CWBS, Task Order SOWs)		
12	Are all discrete tasks using measurable earned value methods? (CAP)		

13	Is Rolling Wave Planning used for tasks that are not yet fully understood? (EV Methodology)		
14	Has budget been allocated at the WBS level where the work is performed? (CAP)		
15	Is there a PMB change control process? (EV Methodology)		



<b>Data Consistency Review Checklist</b>			
<b>No.</b>	<b>General Question</b>	<b>Yes/No</b>	<b>IBR Participant Comments</b>
1	Is data consistent across the SOW, CWBS, OBS, and CAs? (SOW, OBS, CAP)		
2	Has work detailed in the SOW been broken down to meaningful and traceable work packages? (CAP)		
3	Are there unrelated SOW sections with the same CWBS? (SOW, CWBS)		
4	Was a WBS Dictionary submitted, defining the total description of the work being performed in each account? (Alternate: is the WBS detailed enough to understand the description of work performed in each account?) (CWBS, CWBS Dictionary, if applicable)		
5	Have CAs been created at an appropriate reporting level? (CAP)		
6	Are assumptions well documented and consistent? (WBS, Cost Proposal)		
7	Do all WBS elements have a responsible OBS element assigned? (RAM)		

IMS Review Checklist			
No.	General Question	Yes/No	IBR Participant Comments
1	Is the project completely integrated vertically and horizontally?		
2	Can each CAM identify their activities and their logical ties?		
3	Can each CAM identify risks associated with their activities?		
4	How is the subcontractor's work being statused?		
5	Does the IMS reflect the current WBS?		
6	Does the IMS reflect the current SOW?		
7	Does the schedule have a well established Critical Path?		
8	Does the IMS contain all the contract deliverables and milestones?		
9	Are technical performance measures integrated into the schedule?		
10	Do tasks have cost values?		
11	Is the cost of each activity reasonable or valid?		
12	Has all work been identified in discrete work packages?		
13	Has the schedule been resource loaded?		
14	Does each task have a CAM?		
15	Is the sequence of all the tasks well established/predecessors & successors?		
16	Does the duration assigned to each activity make sense?		
17	Are the descriptions unique?		

18	Are the titles descriptive enough?		
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<b>Risk Review Checklist</b>			
<b>No.</b>	<b>General Question</b>	<b>Yes/No</b>	<b>IBR Participant Comments</b>
1	Have all the risks identified in the IBR process been documented?		
2	How are Risk Items documented and tracked?		
3	How are risk impact and probability calculated?		
4	Was a mitigation plan submitted?		
5	Are all risks clear and understood?		
6	Have all risk probability and impact been clearly identified?		

<b>IBR Presentation Review Checklist</b>			
<b>No.</b>	<b>General Question</b>	<b>Yes/No</b>	<b>IBR Participant Comments</b>
1	Is the work to be accomplished, as described by the CAM, reasonable?		
2	Does each CAM agree with the time phased budget that was authorized?		
3	Does each CAM understand the EV methodology?		
4	Is there evidence of effective coordination among CAMs?		

<b>General System Review Checklist (applies to subsequent IBRs)</b>			
<b>No.</b>	<b>General Question</b>	<b>Yes/No</b>	<b>IBR Participant Comments</b>
1	Are actual costs recorded consistent with budgets and reporting assignments?		
2	Do actual costs roll up correctly to reporting WBS elements?		
3	Are CPRs and Variance reports delivered by the contractor?		
4	Are action plans from previous periods documented and implemented?		
5	Have approved changes been incorporated into the PMB?		
6	Have historical changes been documented and approved by the Change Control Board?		
7	Are all changes to the PMB logged in the Change Control Log?		
8	Do the lower level schedules of the contractor roll up correctly to their CAs?		
9	Does the OBS comprehensively allocate all work and costs found in the WBS?		

<b>PMB Review Checklist (applies to subsequent IBRs)</b>			
<b>No.</b>	<b>General Question</b>	<b>Yes/No</b>	<b>IBR Participant Comments</b>
1	Is documentation that validates the percent complete available?		
2	Have there been changes to the MR or UB?		
3	Has performance to date closely followed the planned performance?		
4	Have risks identified in the risk register been incorporated into the MR or PMB?		
5	Has the EAC/LRE been updated to reflect performance to date?		
6	Is there sufficient management reserve (MR) given the size and type of work?		
7	Do the lower level schedules of the contractor roll up correctly to their CAs?		
8	Is the resource plan adequate given the size and type of work?		
9	Is all work on target for completion within current EACs?		
10	Has feedback been received from each CAM about their CAs?		

## Appendix A, Attachment C - Report Template

### Integrated Baseline Review (IBR) Report for *Project*

**Introduction** *explain the project background and context for the IBR*

**IBR Process** *describe the steps that the IBR team went through to prepare and review the project baseline*

**IBR Team** *identify IBR participants and the roles of each*

IBR Evaluation Team		
Name	Organization	Role

**IBR Package** *List the project planning artifacts reviewed, including preliminary and final versions and reference the eRoom location where the artifacts are stored for reference*

The initial IBR package, reviewed during the IBR sessions, consisted of the following documents, which are posted to the project's eRoom site:

File Name	Description

**IBR Findings** *The complete list of IBR Findings, positive and negative, and an indication of whether they resulted in changes to the project plan, risks in the matrix, or action items*

Findings	Comments

**Risks Identified** *New risks identified during the IBR process, the assigned owner and any notes on mitigation or contingency planning discussed during the IBR*

Risk	Assigned To



**Conclusion** – *Statement that given the scope of the IBR, the team finds the schedule, cost, and planned resources are reasonable for the scope of work*

As a result of the review of the performance measurement baseline materials, CAM presentations, and IBR discussions, the IBR Team finds that the schedule, cost, and planned resources are reasonable for the scope of work.

- Technical scope of work is fully included and is consistent with the project planning documents;
- Key project schedule milestones are identified and supporting schedules reflect a logical flow to accomplish the work;
- Resources (budgets, facilities, personnel, skills, etc.) are available and are adequate for the assigned tasks;
- Tasks are planned and can be measured objectively relative to the technical progress;
- Rationales underlying the project are reasonable; and
- Management processes support successful execution of the project.

**Approval Signatures** – *Of the IBR Report, and approval for the baseline to be frozen*

IBR Evaluation Team				
Name	Organization	Role	Consensus	Date

\_\_\_\_\_ Project Manager Date

\_\_\_\_\_ Project Sponsor Date

IBR Report Attachment 1 Action Items

<u>Reference</u>	<u>Revision</u>	<u>Incorporated</u>	<u>Comments</u>

## Attachment D - Lessons Learned Guide

Recommended topics for feedback:

1. How was the communication?
  - Did you understand what was expected of you?
  - (If applicable) was the training helpful/sufficient?
  - Was your voice heard? Were your concerns addressed?
2. The IBR Process is designed to help the planning process, and result in better thought-out plans, and mutual understanding between the Government and contractor.
  - Was this result achieved?
  - Give examples of areas where it was or was not?
3. Were you satisfied with the IBR Report?
  - Did you agree with the findings?
  - Did the IBR report include issues that were important to you?
4. What improvements could be made to the process? What would you do differently if you were repeating the process?
5. Do you have any advice that you would pass along to other teams that will perform an IBR?

## **Appendix C – Baseline Change Request**


 <b>Baseline Change Request</b>						
PROJECT		CONTROL ACCOUNT ID		DATE	BCR NUMBER	
CONTROL ACCOUNT MANAGER		CONTROL ACCOUNT TITLE		PRIORITY	<input type="checkbox"/> Routine <input type="checkbox"/> Urgent	
Schedule Change Summary	Dates		Current		Proposed	SOURCE
	Start				<input type="checkbox"/> Customer <input type="checkbox"/> Internal	
	Finish					
Budget Change Summary	Elements of Cost		Current	Proposed	Delta	
	Labor				\$ -	
	Material				\$ -	
	Subcontract				\$ -	
	ODC				\$ -	
CONTROL ACCOUNT TOTALS ▼▲		CURRENT BAC	PROPOSED BAC	REQUESTED CHANGE TO BAC		
		\$ -	\$ -	\$ -		
Description of the Change [Explain WHAT change is being proposed.] (If necessary, use attachment of details)						
Justification for the Change [Explain WHY the change should be made.]						
Cost Impact [Explain any impact to the control account BCWS phasing or to the BAC.]						
Schedule Impact [Explain any impact to the current schedule or completion date for this or any other control account.]						
<b>ACTION</b>						
<input type="checkbox"/> Approved As Is <input type="checkbox"/> Approved with Noted Changes <input type="checkbox"/> Disapproved (See Explanation) <input type="checkbox"/> Further Analysis Required. Resubmit NLT _____ <input type="checkbox"/> Defer Until _____						
<b>NOTES AND EXPLANATIONS (FM/IPT LEAD OR PM, ONLY)</b>						
Signature Authority	Project Controls Analyst / Support Staff				Date	
	Control Account Manager / Project Manager				Date	
	Government Manager				Date	
	USAID ITSS / CIO's Representative				Date	

Figure 55 – Baseline Change Request

## **Appendix D – Status Report Sample**



## USAID Portfolio of IT Investments

Earned Value Performance Report

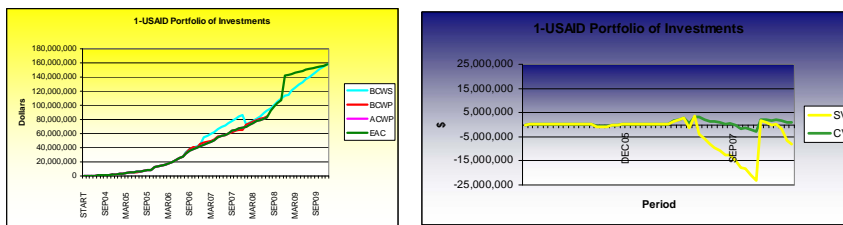
July 2008

Draft: 9/3/08

Figure 56 – USAID Portfolio of IT Investments

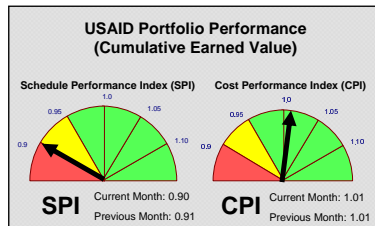
### USAID Summary Level – Portfolio of IT Investments

EVM Performance through July 2008



At the portfolio level, USAID's major IT investments are performing efficiently to cost (CPI = 1.01), but are at the OMB Variance threshold with respect to cost efficiency (SPI = 0.90) indices.

- The major driver of schedule variance is the GLAAS project, which is undergoing bottom-up project planning, has an Integrated Baseline Review in August 2008, and will seek permission to rebaseline the project baseline.
- The web Time and Attendance Project also had less progress than planned in July 08, due to delays in webT&A Product and Deployment.
- Costs for each project are on target for the work accomplished.



2

Figure 57 – USAID Summary Level - Portfolio of IT Investments

## USAID Summary Level – Portfolio of IT Investments

EVM Performance through July 2008 (continued)

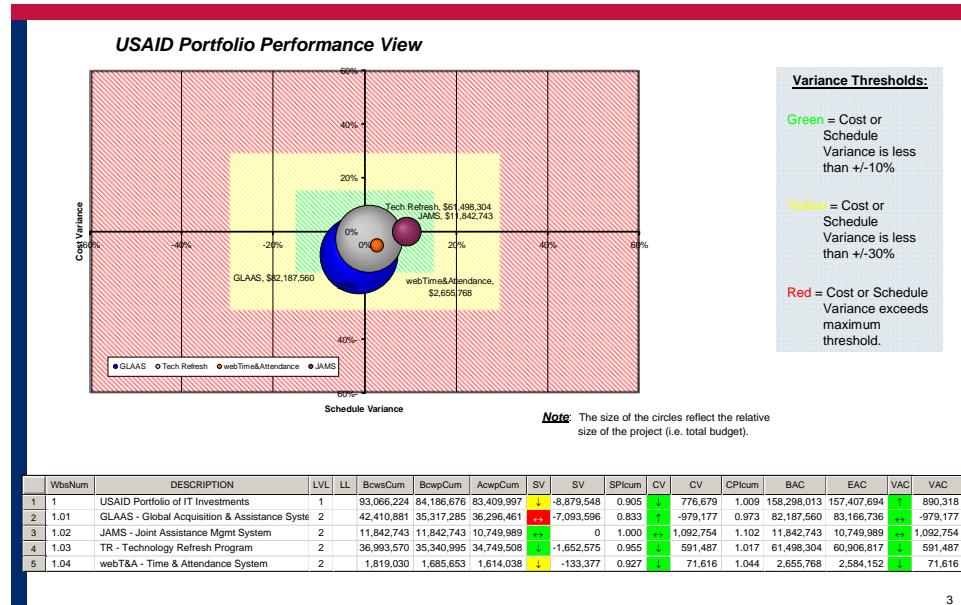


Figure 58 – USAID Summary Level - Portfolio of IT Investments (cont'd)

### 1.01 Global Acquisition and Assistance (GLAAS)

EVM Performance through July 2008

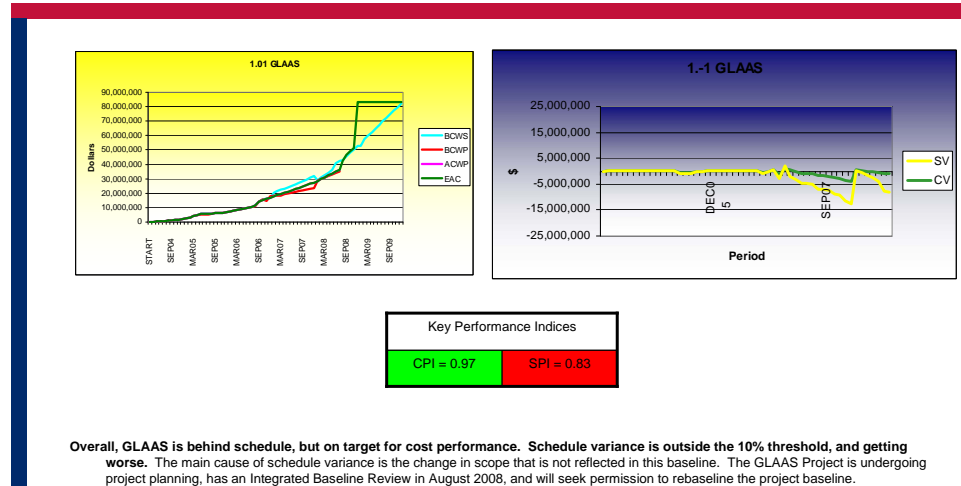


Figure 59 – 1.01 Global Acquisition and Assistance (GLAAS)



### 1.01 GLAAS – Cost Accounts

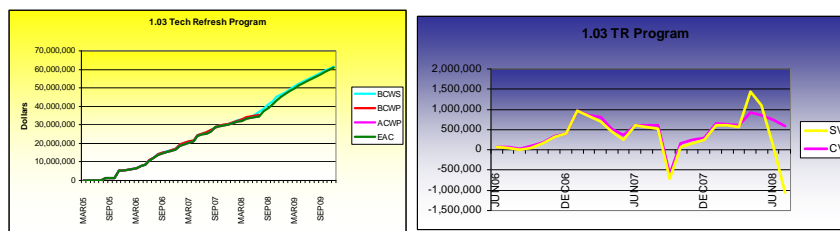
EVM Performance through July 2008 (continued)

WbsNum	DESCRIPTION	LVL	LL	BcwpCum	BcpwCum	AcwpCum	SV	SV	SpiCum	CV	CV	CPIcum	BAC	EAC	VAC	VAC
1	1.01 GLAAS - Global Acquisition & Assistance System	2		42,410,881	35,317,285	36,296,461	-7,093,596	0.833	-979,177	0.973	82,187,560	83,166,736	-979,177			
2	1.01.00 GLAS Non-Labor	3	√	3,402,556	3,402,556	3,402,556	0	1.000	0	1.000	3,402,556	3,402,556	0			
3	1.01.01 GLAS Governance	3	√	173,775	173,775	173,775	0	1.000	0	1.000	173,775	173,775	0			
4	1.01.02 GLAS Management	3	√	7,278,941	7,278,941	7,278,941	0	1.000	0	1.000	7,278,941	7,278,941	0			
5	1.01.03 GLAS System Engineering	3	√	6,989,883	6,989,883	6,989,883	0	1.000	0	1.000	6,989,883	6,989,883	0			
6	1.01.04 GLAS PDI Components	3	√	984,091	984,091	984,091	0	1.000	0	1.000	984,091	984,091	0			
7	1.01.05 GLAS PDI system (Integration and Support)	3	√	1,933,760	1,933,760	1,933,760	0	1.000	0	1.000	1,933,760	1,933,760	0			
8	1.01.06 GLAS Developer's System Tests	3	√	1,756,649	1,756,649	1,756,649	0	1.000	0	1.000	1,756,649	1,756,649	0			
9	1.01.07 GLAS Verification and Acceptance	3	√	988,760	988,760	988,760	0	1.000	0	1.000	988,760	988,760	0			
10	1.01.08 GLAS Pilots and Finalizing	3	√	945,913	945,913	945,913	0	1.000	0	1.000	945,913	945,913	0			
11	1.01.09 GLAS Deployment	3	√	118,909	118,909	118,909	0	1.000	0	1.000	118,909	118,909	0			
12	1.01.10 GLAS Organizational Change Management	3	√	1,026,646	1,026,646	1,026,646	0	1.000	0	1.000	1,026,646	1,026,646	0			
13	1.01.11 GLAS Training	3	√	1,352,766	1,352,766	1,352,766	0	1.000	0	1.000	1,352,766	1,352,766	0			
14	1.01.12 GLAS Facilities	3	√	10,276	10,276	10,276	0	1.000	0	1.000	10,276	10,276	0			
15	1.01.13 GLAS Support Tools/Spares	3	√	45,643	45,643	45,643	0	1.000	0	1.000	45,643	45,643	0			
16	1.01.14 GLAS Impacted Systems Support	3	√	342,209	342,209	342,209	0	1.000	0	1.000	342,209	342,209	0			
17	1.01.15 GLAAS - Global Acquisition and Assistance Syste	3		15,060,105	7,966,509	8,945,686	-7,093,596	0.529	-979,177	0.891	54,836,784	55,815,960	-979,177			
18	1.01.15.01 GLAAS Management	4	√	3,781,802	3,483,613	3,429,400	-298,188	0.921	54,213	1.016	4,462,803	4,408,590	54,213			
19	1.01.15.02 GLAAS Production Pilot System Support (Erwit, T	4	√	413,919	305,902	465,566	-108,017	0.739	-159,654	0.657	413,997	573,661	-159,654			
20	1.01.15.03 GLAAS Release 2.1 Management	4	√	2,662,855	2,380,746	1,971,539	-282,109	0.894	409,207	1.208	2,666,391	2,257,185	409,207			
21	1.01.15.04 GLAAS Release 3.0 Management	4	√	5,259,413	874,104	1,861,040	-4,385,309	0.166	-986,936	0.470	5,259,413	6,246,349	-986,936			
22	1.01.15.05 GLAAS Deployment	4	√	2,839,555	870,288	1,119,061	-1,969,266	0.306	-248,772	0.778	2,841,306	3,090,078	-248,772			
23	1.01.15.06 GLAAS Impacted Systems	4	√	0	0	0	0	0.000	0	0.000	0	0	0			
24	1.01.15.07 GLAAS System Security	4	√	102,561	51,856	99,080	-50,706	0.506	-47,224	0.523	102,561	149,785	-47,224			
25	1.01.15.08 GLAAS Planning Packages	4	√	0	0	0	0	0.000	0	0.000	39,090,312	39,090,312	0			

Figure 60 – 1.01 GLASS – Cost Accounts

### 1.03 Technology Refresh Program

EVM Performance through July 2008



Key Performance Indices	
CPI = 1.02	SPI = 0.95

Technology Refresh cost and schedule performance is on target, although there are some variances at the control account level.

Figure 61 – 1.03 Technology Refresh Programs

### 1.03 Technology Refresh – Cost Accounts (page 1 of 2)

EVM Performance through July 2008 (continued)

WbsNum	DESCRIPTION	LVL	LL	BowsCum	BowpCum	AcwpCum	SV	SV	SpiCum	CV	CV	CPcum	BAC	EAC	VAC	VAC
1	1.03 TR - Technology Refresh Program	2		36,993,570	35,340,995	34,749,508		-1,652,575	0.955	-	591,487	1.017	61,498,304	60,906,817	-	591,487
2	1.03.00 TR Program Management	3	√	1,443,874	1,443,874	1,443,892		0	1.000	-	-18	1.000	2,086,996	2,087,015	-	-18
3	1.03.01 TR Printer Refresh	3	√	721,115	721,115	721,115		0	1.000	+	0	1.000	721,115	721,115	+	0
4	1.03.02 TR Desktop Phase I	3	√	3,511,462	3,511,462	3,504,420		0	1.000	+	7,042	1.002	3,511,462	3,504,420	+	7,042
5	1.03.03 TR Remedy	3	√	1,013,064	1,013,064	906,211		0	1.000	+	106,853	1.118	1,013,064	906,211	+	106,853
6	1.03.04 TR Mission Application Servers	3	√	1,171,913	1,171,913	1,171,913		0	1.000	+	0	1.000	1,171,913	1,171,913	+	0
7	1.03.05 TR HQ Switches	3	√	3,217,212	3,217,212	2,945,345		0	1.000	+	271,867	1.092	3,217,212	2,945,345	+	271,867
8	1.03.06 TR Software Distribution	3	√	1,845,971	1,845,971	1,900,642		0	1.000	+	-54,671	0.971	1,845,971	1,900,642	+	-54,671
9	1.03.07 TR Secure Remote Access	3	√	1,969,493	1,969,493	1,797,388		0	1.000	+	172,105	1.096	1,969,493	1,797,388	+	172,105
10	1.03.08 TR Point of Presence	3	√	5,070,778	5,050,015	5,011,032		-20,763	0.996	-	38,983	1.008	5,070,778	5,031,795	-	38,983
11	1.03.08.00 TR POP Non-Labor	4	√	1,581,065	1,581,065	1,626,600		0	1.000	-	-45,535	0.972	1,581,065	1,626,600	-	-45,535
12	1.03.08.02 TR POP Management	4	√	395,645	395,645	435,745		0	1.000	-	-40,100	0.908	395,645	435,745	-	-40,100
13	1.03.08.03 TR POP System Engineering	4	√	16,502	16,502	54,892		0	1.000	+	-38,390	0.301	16,502	54,892	+	-38,390
14	1.03.08.04 TR POP PDI Components	4	√	57,614	57,614	459,061		0	1.000	+	-401,447	0.126	57,614	459,061	+	-401,447
15	1.03.08.05 TR POP PDI System (Integration and Support)	4	√	7,501	7,501	0		0	1.000	-	7,501	0.000	7,501	0	-	7,501
16	1.03.08.06 TR POP Developer's System Tests	4	√	77,920	77,920	0		0	1.000	-	77,920	0.000	77,920	0	-	77,920
17	1.03.08.09 TR POP Deployment	4	√	519,070	498,307	19,273		-20,763	0.960	+	479,034	25.855	519,070	40,036	+	479,034
18	1.03.08.15 TR POP Historical (5/07 and prior)	4	√	2,415,461	2,415,461	2,415,461		0	1.000	+	0	1.000	2,415,461	2,415,461	+	0
19	1.03.09 TR Pre-Production Lab	3	√	1,317,071	1,317,071	1,300,737		0	1.000	+	16,334	1.013	1,317,071	1,300,737	+	16,334
20	1.03.09.00 TR PPL Non-Labor	4	√	203,138	203,138	149,011		0	1.000	+	54,127	1.363	203,138	149,011	+	54,127
21	1.03.09.02 TR PPL Management	4	√	82,179	82,179	153,768		0	1.000	+	-71,589	0.534	82,179	153,768	+	-71,589
22	1.03.09.03 TR PPL System Engineering	4	√	0	0	383,098		0	0.000	-	-383,098	0.000	0	383,098	-	-383,098
23	1.03.09.05 TR PPL PDI System (Integration and Support)	4	√	266,468	266,468	0		0	1.000	+	266,468	0.000	266,468	0	+	266,468
24	1.03.09.06 TR PPL Developer's System Tests	4	√	118,931	118,931	0		0	1.000	+	118,931	0.000	118,931	0	+	118,931
25	1.03.09.07 TR PPL Verification and Acceptance	4	√	31,495	31,495	0		0	1.000	+	31,495	0.000	31,495	0	+	31,495
26	1.03.09.08 TR PPL Pilots and Finalizing	4	√	0	0	0		0	0.000	0	0.000	0.000	0	0	0	0
27	1.03.09.15 TR PPL PPL Historical (1/07 and prior)	4	√	614,860	614,860	614,860		0	1.000	+	0	1.000	614,860	614,860	+	0
28	1.03.10 TR Developer's Network Implementation	3	√	568,520	568,520	667,512		0	1.000	+	-98,992	0.852	568,520	667,512	+	-98,992

Figure 62 – Technology Refresh – Cost Accounts (page 1 of 2)

### 1.03 Technology Refresh – Cost Accounts (page 2 of 2)

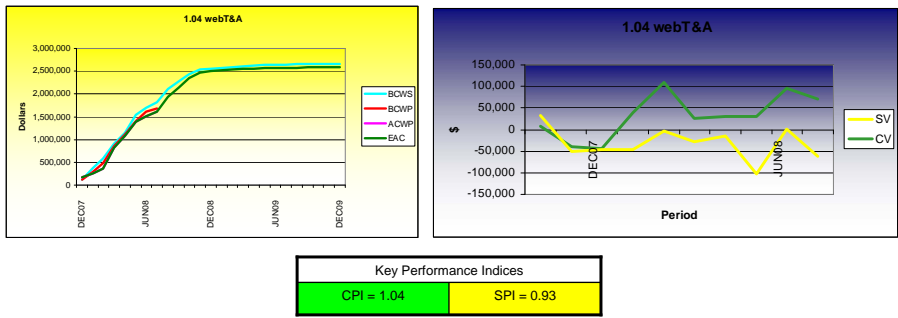
EVM Performance through July 2008 (continued)

WbsNum	DESCRIPTION	LVL	LL	BowsCum	BowpCum	AcwpCum	SV	SV	SpiCum	CV	CV	CPcum	BAC	EAC	VAC	VAC
29	1.03.10.00 TR DevNet Non-Labor	4	√	90,709	90,709	95,942		0	1.000	+	-5,233	0.945	90,709	95,942	+	-5,233
30	1.03.10.02 TR DevNet Management	4	√	0	0	1,401		0	0.000	-	-1,401	0.000	0	1,401	-	-1,401
31	1.03.10.03 TR DevNet System Engineering	4	√	13,652	13,652	141,283		0	1.000	+	-127,631	0.097	13,652	141,283	+	-127,631
32	1.03.10.04 TR DevNet PDI Components	4	√	9,341	9,341	39,425		0	1.000	+	-30,084	0.237	9,341	39,425	+	-30,084
33	1.03.10.05 TR DevNet PDI System (Integration and Support)	4	√	40,197	40,197	0		0	1.000	+	40,197	0.000	40,197	0	+	40,197
34	1.03.10.07 TR DevNet Verification and Acceptance	4	√	29,605	29,605	4,445		0	1.000	+	25,160	0.660	29,605	4,445	+	25,160
35	1.03.10.15 TR DevNet Dev Net Historical (6/06 and prior)	4	√	385,016	385,016	385,016		0	1.000	+	0	1.000	385,016	385,016	+	0
36	1.03.11 TR WAN	3	√	2,868,702	2,312,653	2,281,027		-556,048	0.806	-	31,626	1.014	14,669,472	14,637,846	-	31,626
37	1.03.12 TR Server AID/W	3	√	2,050,761	2,054,719	1,935,122		3,958	1.002	+	119,596	1.062	5,110,543	4,990,947	+	119,596
38	1.03.13 TR Server Missions	3	√	2,290,096	1,573,799	1,747,606		-716,297	0.687	-	173,807	0.901	5,750,453	5,924,260	+	-173,807
39	1.03.14 TR IPv6	3	√	575,150	486,122	486,122		-89,028	0.845	+	0	1.000	575,150	575,150	+	0
40	1.03.15 TR Enterprise Tools	3	√	1,248,270	1,248,270	1,256,688		0	1.000	-	-8,418	0.993	1,248,270	1,256,688	-	-8,418
41	1.03.16 TR Enterprise Disaster Recovery	3	√	572,344	572,344	394,395		0	1.000	+	177,949	1.451	1,520,000	1,342,051	+	177,949
42	1.03.17 TR PMO	3	√	5,331,957	5,263,378	5,278,341		-68,579	0.987	+	-14,963	0.997	6,426,096	6,441,059	+	-14,963
43	1.03.18 TR Desktop Phase II	3	√	20,617	0	0		-20,617	0.000	0	0.000	0.000	371,106	371,106	+	0
44	1.03.19 TR Desktop Phase III	3	√	61,250	0	0		-61,250	0.000	0	0.000	0.000	1,102,500	1,102,500	+	0
45	1.03.20 TR Analysis of Mission Telephone Platforms	3	√	5,000	0	0		-5,000	0.000	0	0.000	0.000	90,000	90,000	+	0
46	1.03.21 TR Telephony	3	√	118,951	0	0		-118,951	0.000	0	0.000	0.000	2,141,118	2,141,118	+	0

Figure 63 – Technology Refresh – Cost Accounts (page 2 of 2)

### 1.04 Time and Attendance (webTA)

EVM Performance through July 2008



Overall, webTA is within the 10% threshold for schedule performance and on target for cost performance

Figure 64 – 1.04 Time and Attendance (webTA)

### 1.04 Time and Attendance – Cost Accounts

EVM Performance through July 2008 (continued)

WbsNum	DESCRIPTION	LVL	LL	BcwsCum	BcwpCum	AcwpCum	SV	SV	SpCum	CV	CV	CPlcum	BAC	EAC	VAC	VAC
1	1.04 webT&A - Time & Attendance System	2		1,819,030	1,685,653	1,614,038	-133,377	0.927	-71,616	1.044	2,655,768	2,584,152	-71,616			
2	1.04.01 webT&A Management	3	√	291,402	298,069	263,585	6,667	1.023	34,484	1.131	436,336	401,852	34,484			
3	1.04.02 webT&A System Engineering	3	√	250,000	250,000	250,000	0	1.000	0	1.000	250,000	250,000	0			
4	1.04.03 webT&A Product	3	√	734,789	587,263	586,363	-147,526	0.799	900	1.002	752,229	751,329	900			
5	1.04.04 webT&A Organizational Change	3	√	16,000	16,000	16,000	0	1.000	0	1.000	28,800	28,800	0			
6	1.04.05 webT&A Environments	3	√	160,000	160,000	160,000	0	1.000	0	1.000	160,000	160,000	0			
7	1.04.05A webT&A System Integration	3	√	0	0	0	0	0.000	0	0.000	0	0	0			
8	1.04.06 webT&A Impacted Systems	3	√	0	0	0	0	0.000	0	0.000	0	0	0			
9	1.04.06A webT&A System Testing	3	√	0	0	0	0	0.000	0	0.000	0	0	0			
10	1.04.07 webT&A Deployment	3	√	191,664	150,045	150,045	-41,619	0.783	0	1.000	489,815	489,815	0			
11	1.04.07A webT&A Verification and Acceptance	3	√	0	0	0	0	0.000	0	0.000	0	0	0			
12	1.04.08 webT&A Operations & Maintenance / Steady St	3	√	175,174	224,276	188,044	49,102	1.280	36,231	1.193	538,587	502,356	36,231			

Figure 65 – 1.04 Time and Attendance – Cost Accounts