



**Information Technology  
Solutions Life Cycle Methodology  
(ITSLCM)**

**Version 2007.1**

Office of Information Technology  
Program Management Office

06/02/2008

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### Revision History

Version	Date (PMC Approved)	Author	Section(s) Changed	Description/Comments
V2007.1	12/31/2006	OIT PMO	NA	Initial release
V2007.1	01/16/2007	OIT PMO	All	Feedback from PMC review. Assembly of packet in book form. Final release
V2007.1	02/07/2007	OIT PMO	All	Approved by PMC and signed by PMC Chair
V2007.1	02/08/2007	OIT PMO	All	Approved and signed by Acting Chief Information Officer
V2007.1	04/04/2007	PMC Process Development Team	1.1 (page 3)	Added bullet announcing the April 7, 2007 OIT CMO signing of the Order requiring adherence to the ITSLCM.
V2007.1	05/30/2007	PMC Process Development Team	All sections except appendix	Added announcement of the OIT CMO signing of the Order requiring adherence to the ITSLCM.  Changed all occurrences of Program Manager to Program Coordinator, as per PMC directive.
V2007.1	09/12/2007	PMC Process Development Team	Cover Section 1; Section 3; Section 4	Changed date on cover. Replaced Overview, PMLC, and SDLC due to updates.
V2007.1	10/02/2007	PMC Process Development Team	Cover, Section 2, Section 3	Removed references to the Test Strategy Document
V2007.1	01/31/2008	PMC Process Development Team	Cover, Sections 1 – 4, and Appendix A	Updated ITSLCM Overview, Project ITSLCM Tailoring and Compliance Plan Guidance, PMLC, SDLC (Waterfall), and Glossary of Terms.

<b>Version</b>	<b>Date (PMC Approved)</b>	<b>Author</b>	<b>Section(s) Changed</b>	<b>Description/Comments</b>
V2007.1	04/24/2008	EPMD Process Improvement Services Team	Cover, Sections 1 – 4, and Appendix A	Updated ITSLCM Overview, Project ITSLCM Tailoring and Compliance Plan Guidance, PMLC, SDLC (Waterfall), and Glossary of Terms based on April 2008 PI Release.
V2007.1	04/24/2008	EPMD Process Improvement Services Team	Cover, Sections 1 – 4, and Appendix A	Updated Project ITSLCM Tailoring and Compliance Plan Guidance, PMLC, SDLC (Waterfall), and Glossary of Terms based on changes to position titles.

Note: Detailed processes and templates are available on the OIT's Process Assets Library portal site.

The Office of Information Technology's Process Management Committee (PMC) members reviewed and approved this ITSLCM Version 2007.1.

**Cheryl Ringel**

PMC Chair

Approval Date: Signed February 7, 2007

**Jon Baake**

Acting Chief Information Officer

Approval Date: Signed February 8, 2007

## Table of Contents

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**Overview** The Information Technology Solutions Life Cycle Methodology (ITSLCM) document is a consolidated text with each section a standalone document, having its own revision history, table of contents, and page numbering system.

### **SECTION 1 – Information Technology Solutions Life Cycle Methodology (ITSLCM) Overview**

- Chapter 1: Overview
- Chapter 2: How to Use the ITSLCM
- Chapter 3: Project Management Life Cycle
- Chapter 4: Solutions Delivery Life Cycles
- Chapter 5: Solutions Operations and Maintenance
- Chapter 6: Solutions Disposition

### **SECTION 2 – Project ITSLCM Tailoring and Compliance Plan Guidance**

- Chapter 1: Overview
- Chapter 2: Artifacts List and Tailoring Guidance
- Chapter 3: Tailoring Matrix

### **SECTION 3 – Project Management Life Cycle (PMLC)**

- Chapter 1: Overview
- Chapter 2: Project Initiation Phase
- Chapter 3: Project Planning Phase
- Chapter 4: Project Execution, Monitoring and Control Phase
- Chapter 5: Project Close-Out Phase

### **SECTION 4 – Solutions Delivery Life Cycle (SDLC) (Waterfall)**

- Chapter 1: Overview
- Chapter 2: Requirements Phase
- Chapter 3: Design Phase
- Chapter 4: Construction Phase
- Chapter 5: Test Phase
- Chapter 6: Deployment Phase

### **APPENDIX A – Information Technology Solutions Life Cycle Methodology (ITSLCM) Glossary of Terms**

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**Office of Information Technology**

**Section 1**

**Information Technology  
Solutions Life Cycle Methodology  
(ITSLCM)**

**Overview**

**Version 2007.1**

Last Updated Date: 01/31/2008

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Version	Date (PMC Approved)	Author	Section(s) Changed	Description/Comments
V2007.1	12/31/2006	OIT PMO	NA	Initial release
V2007.1	01/16/2007	OIT PMO	All	Changes were made as per the PMC review – Final release
V2007.1	02/07/2007	OIT PMO	NA	Approved by PMC and signed by PMC Chair
V2007.1	02/08/2007	OIT PMO	NA	Approved and signed by Acting Chief Information Officer
V2007.1	04/04/2007	PMC Process Development Team	1.1 (page 3)	Added bullet announcing the April 7, 2007 OIT CMO signing of the Order requiring adherence to the ITSLCM.
V2007.1	01/31/2008	PMC Process Development Team	Chapter 5	Added detail to Operations section to reconcile with implemented ITIL processes.

Note: Detailed processes and templates are available on the OIT's Process Assets Library portal site.

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**Cheryl Ringel**

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PMC Chair

Approval Date: **Signed February 7, 2007**

**Jon Baake**

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Acting Chief Information Officer

Approval Date: **Signed February 8, 2007**



## Table of Contents

<b>CHAPTER 1 – Overview .....</b>	<b>1</b>
1.1 Background.....	1
1.2 Purpose .....	4
1.3 Scope .....	4
1.4 Audience.....	4
1.5 Common Terminology.....	4
1.6 ITSLCM Maintenance .....	5
<b>CHAPTER 2 – How to Use the ITSLCM.....</b>	<b>7</b>
<b>CHAPTER 3 – Project Management Life Cycle .....</b>	<b>9</b>
<b>CHAPTER 4 – Solutions Delivery Life Cycle.....</b>	<b>11</b>
4.1 SDLC (Waterfall).....	11
<b>CHAPTER 5 – Solutions Operations and Maintenance.....</b>	<b>13</b>
5.1 Modernization/Enhancement/Maintenance.....	13
5.2 Operations .....	13
<b>CHAPTER 6 – Solutions Disposition .....</b>	<b>17</b>

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## Overview

The Pension Benefit Guaranty Corporation (PBGC) Office of Information Technology (OIT) Information Technology Solutions Life Cycle Methodology (ITSLCM) was developed to provide a consistent approach to acquiring, developing, enhancing, and maintaining solutions.

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### 1.1 BACKGROUND

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The following information provides the background and history as to why the ITSLCM became a corporate policy.

- On July 16, 1996, President Clinton signed into law the Clinger-Cohen Bill (Information Technology Management Reform Act – ITMRA). The primary purpose of this executive order was to streamline information technology acquisitions and to emphasize life cycle management as a capital investment. The ITMRA policies include:
  - Significantly improve the management of agencies information systems, including the acquisition of IT, by implementing the relevant provisions of the Paperwork Reduction Act of 1995, ITMRA and the Government Performance and Results Act of 1993.
  - Refocus IT management to support directly their strategic missions, implementing an investment review process that drives budget formulation and execution for information systems.
  - Establish clear accountability for information resources management activities by creating agency CIOs with the visibility and management responsibilities necessary to advise the agency head on design, development, and implementation of those systems.
  - Cooperate in the use of IT to improve the productivity of Federal programs.
  - Improve the management and use of IT within and among agencies.
- In an audit report from the Office of Inspector General's Financial Statement Audit dated March 3, 1999, the independent audit report by PricewaterhouseCoopers stated: "The lack of a formal SDLC methodology has historically impacted, and may continue to impact: data conversion efforts, security administration, user acceptance testing, reports definition, and consistency of systems development initiatives."
- On March 30, 2001, the PBGC's SDLC methodology was first issued to meet the above requirements. It was required for all new system development efforts going

- forward, and for major enhancements to existing system development projects beginning May 2001.
- In March 2002, the SDLC was renamed to the Systems Life Cycle Methodology (SLCM) to reflect an overall systems life cycle approach, rather than just focusing on development efforts. It expanded the scope to include all acquisition, development, and enhancement efforts related to information systems; it provided a mechanism to link corporate standards and initiatives to projects, based on Federal legislation requiring strategic planning and performance measuring; and, it provided access to the SLCM through the PBGC's intranet.
  - On July 2, 2003, the SLCM was redefined to align with the Business Planning Framework. The Business Planning Framework was established in late 2002 and defined the relationship between Strategic Planning and Corporate Initiatives that meet the agency's goals and objectives.
  - The Office of Inspector General's Fiscal Year 2004 Financial Statement Audit by PricewaterhouseCoopers stated: "Approval Process for accepting internally developed software should be improved."
  - In addition to the above directives, PBGC has an Internal Controls Committee (ICC) that has established entity wide controls. The following entity wide controls apply to the establishment and maintenance of the SLCM:
    - Entity Wide Control - IT15 – "A System Life Cycle Methodology has been implemented."
      - ◇ **Business Risk** – There is a risk that divisions maintain, change and develop software and related systems in an ad-hoc, non-uniform manner which would lead to risks of an uncontrolled environment, and inconsistent or nonexistent documentation.
      - ◇ **Control** – Establish and maintain a corporate SLCM policy and framework (SP 800-64) that provides a structural and disciplined approach to IT solutions delivery. Ensure that the SLCM clearly identifies what artifacts are to be produced, who reviews and signs-off produced artifacts, contains detailed processes, procedures and templates, references other controlling policies/ processes/ standards such as EA standards compliance, Change Management process compliance, Configuration Management process compliance and Process and Product Quality Assurance process compliance. Ensure an SLCM tailoring document is established for each major project as an agreement on how projects will comply with SLCM during solutions delivery. Ensure quarterly and on demand training is delivered to SLCM users and staff involved in following the SLCM.
    - Entity Wide Control – IT19 – "Distribution and implementation of new or revised software is controlled."

- ◇ **Business Risk** – Inadequately controlling software distribution and implementation increases the risk that data could be improperly processed due to: implementation of unapproved malicious software, use of outdated versions of software, and inconsistent implementation dates resulting in inconsistent processing of similar data at different locations.
- ◇ **Control** – Standardized procedures are used to distribute new software (if it is to be used by more than 5 users) for implementation. Implementation orders, including effective date, are provided to affected users where they are maintained on file.
- Entity Wide Control – IT23 – “System software changes are authorized, tested, and approved before implementation.”
  - ◇ **Business Risk** – All changes should be made under a controlled environment to protect system software integrity.
  - ◇ **Control** – Policies and procedures exist and are up-to-date for identifying, selecting, installing, and modifying system software and include reliability / security analysis. Procedures exist for identifying and documenting system software problems and should include a problem log, the individual assigned to problem analysis, and problem resolution. New system software versions / products and modifications to existing system software have proper authorization and are supported by a change request document. New system software versions / products and modifications to existing system software are tested and approved before implementation. Procedures exist for controlling emergency changes.
- In the spring of 2005, the PBGC undertook in a project to update the SLCM with standard industry models such as the Software Engineering Institute’s (SEI) Capability Maturity Model ® Integration (CMMI®), and the Project Management Institute’s Project Management Body of Knowledge (PMBOK®). The PBGC took a phased approach to improving the SLCM by focusing on certain aspects of the SLCM in each release allowing for continuous improvements over a period of time. During this time, OIT senior management identified the Requirements Development and Management processes as the initial areas to address.
- On October 7, 2005, the Chief Technology Officer (CTO) signed the SLCM Corporate policy.
- In March 2006, SLCM v2006.1 was released and training was conducted throughout PBGC for both Federal employees and contractors. The SLCM v2006.1 release included a detailed Requirements Development (RD) process, a Requirements Management (REQM) process, and their supporting sub-processes (Business Process Model process, Peer Review process, Submit Artifacts for Approval process).

- In the summer of 2006, the Project Management processes were developed and the Project Management Life Cycle (PMLC) was created. While the PMLC was being developed, it was determined that the existing SLCM needed improvements. The OIT senior management decided to update/modernize the SLCM in conjunction with incorporating the project management processes. At this time, the SLCM was re-designed to separate the project management and solutions delivery processes to create a more flexible and tailorable structure. During the SLCM modernization activity, the SLCM was renamed the Information Technology Solutions Life Cycle Methodology (ITSLCM).
- In February 2007, the OIT Process Management Committee (PMC) and the acting Chief Information Officer (CIO) approved the ITSLCM v2007.1 for release.
- On April 4, 2007, the OIT Chief Management Officer (CMO) signed the Order, which requires that all PBGC federal and contract employees adhere to the ITSLCM for delivering and managing the delivery of new and existing IT solutions. This Order replaces the SLCM Corporate Policy, dated October 7, 2005.

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## 1.2 PURPOSE

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The purpose of this document is to define the ITSLCM. The ITSLCM defines the corporate methodology for acquiring, developing, enhancing, and maintaining information systems and information technology at PBGC.

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## 1.3 SCOPE

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The ITSLCM applies to all new and existing Information Systems (IS) and Information Technology (IT) across all PBGC departments and offices. PBGC requires that all information system acquisition, development, enhancement, and maintenance projects (including infrastructure) adhere to the ITSLCM.

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## 1.4 AUDIENCE

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The ITSLCM is intended for all persons associated with IS and IT projects across the corporation, including but not limited to the Federal Project Managers, Business Representatives, and Contractor personnel. The ITSLCM applies to all new and existing IS and IT efforts across all PBGC departments and offices.

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## 1.5 COMMON TERMINOLOGY

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Refer to the ITSLCM Glossary of Terms located in the Appendix A of this document.

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## 1.6 ITSLCM MAINTENANCE

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The PMC maintains and publishes the ITSLCM assets (policies, processes, templates, models) to the OIT PAL. Improvements to the ITSLCM assets must be submitted to and approved by the PMC.

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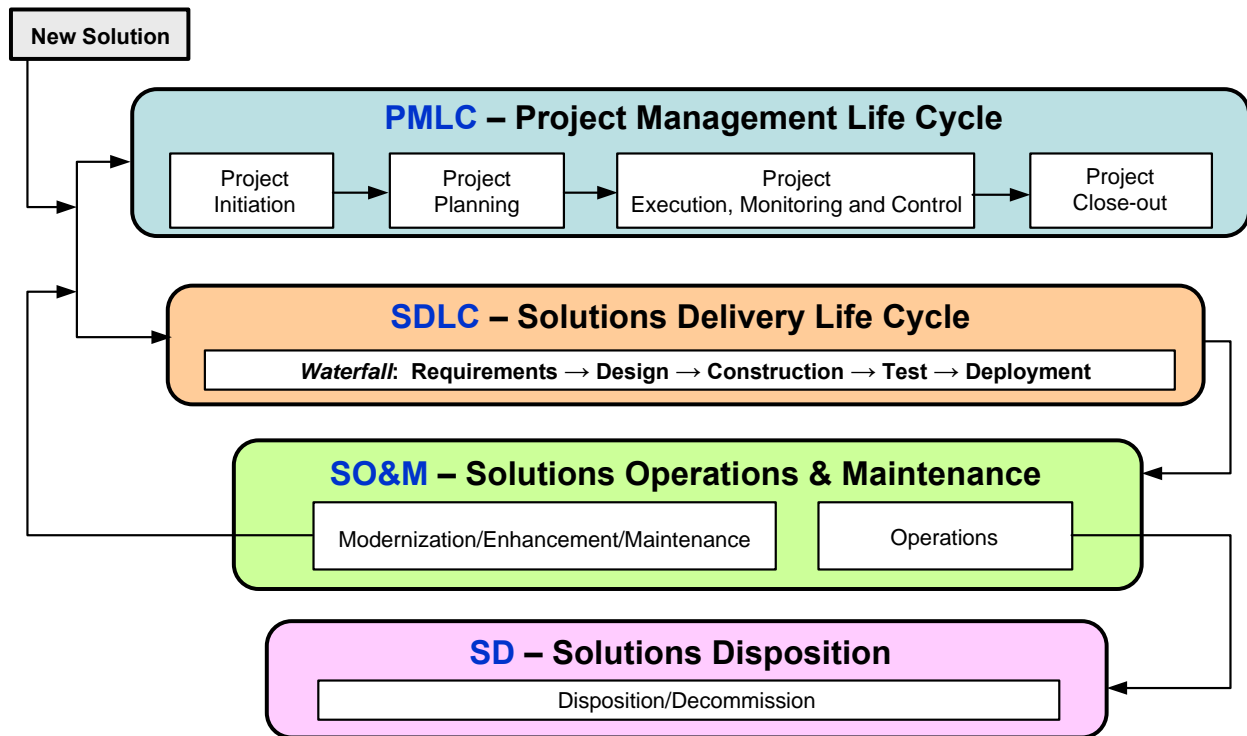


## CHAPTER 2

### How to Use the ITSLCM

#### Overview

The ITSLCM is a component of the overall IT Investments Framework including Enterprise Architecture, Security, and Capital Planning. The ITSLCM provides increased emphasis on, and understanding of, the Corporate IT project portfolio; it fosters greater accountability for information systems and technology projects through decision points that heighten project visibility and artifact reviews by subject matter experts. The ITSLCM is a framework for managing, developing, maintaining, and decommissioning solutions.



**Figure 2-1** ITSLCM Flow Diagram

The ITSLCM consists of project management, solutions delivery, solutions operations and maintenance, and solutions decommissioning processes. Currently the ITSLCM consists of the following:

- Project Management Life Cycle (PMLC)
- Solutions Delivery Life Cycle (SDLC) (Waterfall)
- Solutions Operations and Maintenance (SO&M)
- Solutions Disposition

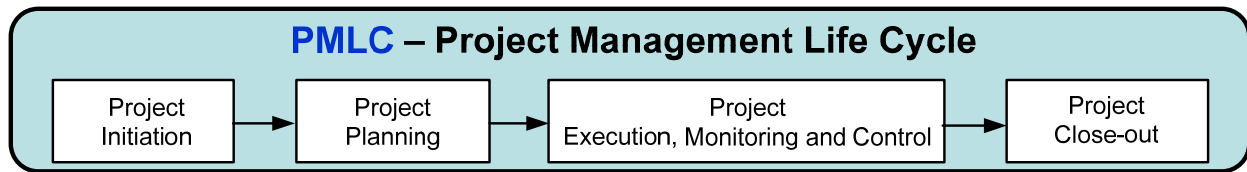
A solution is created, maintained and decommissioned by using different components of the ITSLCM. When a new solution is identified, the PMLC and SDLC (Waterfall) are to be followed. The solution is assigned to a Project Manager, researched, and a level of effort is completed for the solution. A business case is presented and funding is provided. Next the tailoring of the ITSLCM is completed, a project team is established and the solution is developed following the SDLC (Waterfall) and PMLC together. Once the solution is tested, the solution is handed off to IT Operations and deployed into production.

Once the solution is in production, the solution is maintained following the Solutions Operations and Maintenance processes. When defects are found, they are resolved following the Operations processes. When enhancement, maintenance and/or modernization requests are submitted, they must be approved prior to working on the request. The support team references the Project ITSLCM Tailoring and Compliance Plan Guidance document to determine if the full SDLC (Waterfall) and PMLC have to be followed, or if a smaller subset of the processes can be followed to implement the request. If the request also requires the decommissioning of part or all of the existing solution, the Disposition process is followed to decommission the solution.

IT Solutions Delivery Projects at PBGC come in different project sizes and types, and may require different ITSLCM artifacts. For information and guidance on tailoring the ITSLCM, refer to the Project ITSLCM Tailoring and Compliance Plan Guidance document. Please refer to Section 2 for complete details on the Project ITSLCM Tailoring and Compliance Plan Guidance.

**Overview**

The Project Management Life Cycle (PMLC) is the project management component of the ITSLCM and defines the Information Systems and Information Technology Project Management processes. The PMLC defines the processes for managing the project and incorporates best practices from the PMBOK® project management knowledge areas (excluding procurement) and three specific process areas of CMMI® (Project Planning, Project Monitoring and Control, and Risk Management).



**Figure 3-1** PMLC Flow Diagram

The PMLC is intended to guide Project Managers from project initiation through the project close-out phases, detailing specific project management processes to be performed within each phase and defining the activities that comprise each process.

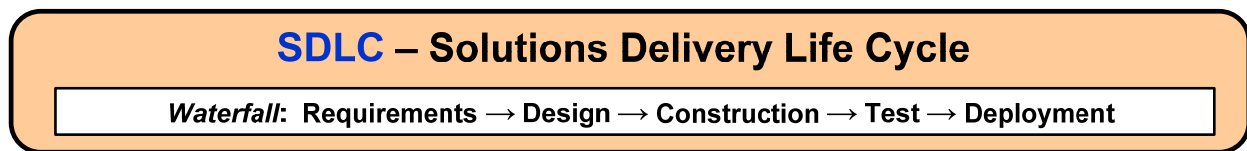
The project management processes have been documented as a separate methodology to allow for consistent implementation of project management practices regardless of the type of technical solution being implemented (solutions development, solutions operations and maintenance, or disposition). Please refer to Section 3 for complete details on the Project Management Life Cycle (PMLC).

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## Overview

The Solutions Delivery Life Cycle (SDLC) defines the structured approach to developing, maintaining and/or enhancing solutions across the PBGC. While the PMLC defines how to manage the project, the SDLCs define how to deliver the solution.

The intent of the ITSLCM is to provide flexibility during solution development and maintenance. Currently the SDLC (Waterfall) is the only defined life cycle, but additional SDLC methodologies are being considered.



**Figure 4-1** SDLC (Waterfall) Flow Diagram

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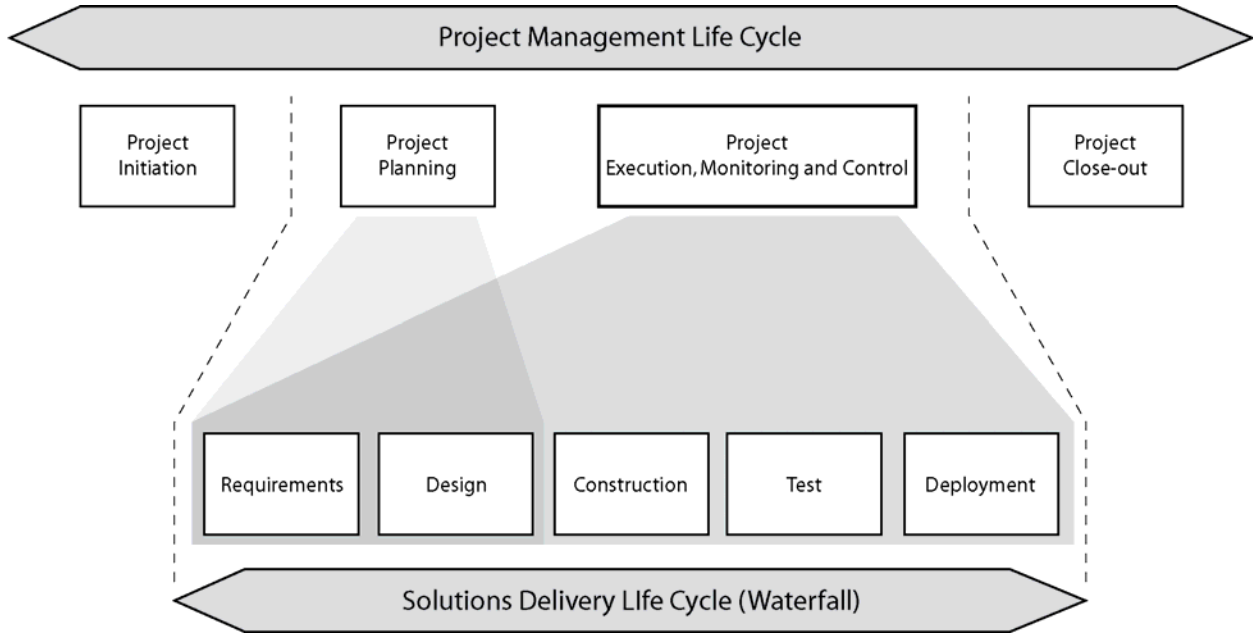
## 4.1 SDLC (WATERFALL)

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The SDLC (Waterfall) consists of five phases:

- Requirements
- Design
- Construction
- Test
- Deployment

The SDLC (Waterfall) is designed to be implemented in conjunction with the PMLC as depicted below.

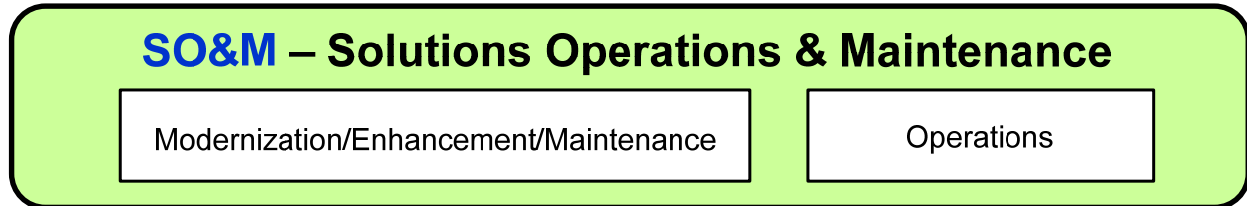


**Figure 4-2** PMLC and SDLC (Waterfall) Diagram

Some of the activities related to the Requirements and Design phases of the SDLC (Waterfall) may be completed concurrent with the Project Planning phase of the PMLC. While most activities in the Project Planning phase of the PMLC can be completed prior to the completion of the Requirements phase of the SDLC (Waterfall), some Project Planning artifacts may not be finalized until the SDLC (Waterfall) Design phase is near completion. Please refer to Section 4 for complete details on the Solutions Delivery Life Cycle (SDLC) (Waterfall).

## Overview

Upon successful deployment of a solution to production (Headquarters and COOP) and hand-off to operations in accordance with the Solutions Delivery Life Cycle, the solution is considered to be transitioned to the Solutions Operations and Maintenance (SO&M) work pattern. The emphasis of SO&M is to ensure that the solution is available for use by the intended user community and continues to perform according to the last set of approved requirements and design. Routine hardware and software maintenance upgrades are performed to ensure effective solution operations. Routine training continues as needed to acquaint new users to the solution, to provide refresher training to current users, or to introduce users to new features and functions. Activities are performed in SO&M until a decision is made to retire, dispose, or decommission the solution.



**Figure 5-1** Solutions Operations & Maintenance Diagram

There are two major activities or components that occur while a solution is in SO&M:

- Modernization/Enhancement/Maintenance
- Operations

For definitions on Modernization/Enhancement/Maintenance, refer to the ITSLCM Tailoring and Compliance Plan Guidance document.

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## 5.1 MODERNIZATION/ENHANCEMENT/MAINTENANCE

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While the solution is operational in production, a request or decision may be made to modernize, enhance or maintain the solution, requiring the solutions to be changed from its current state. Upon receipt of such a decision, a project is implemented and will follow the processes defined in the ITSLCM PMLC and SDLC components to manage and execute the change, deploy the change into production, and transition it into SO&M. For guidance on determining the type and size of the project and tailoring the artifacts required for PMLC and SDLC, refer to the ITSLCM Project Tailoring and Compliance Plan Guidance document.

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## 5.2 OPERATIONS

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While the solution is operational in production, routine activities are performed to ensure that the solution is available to the users and is functioning as intended. These activities include

problem management, incident management, change management, configuration management, capacity management, availability management, service level management, financial management, and security re-certifications and accreditations and are collectively referred to as IT Service Management. PBGC has developed standard processes to effectively and efficiently manage the quality of IT Service Management. These processes incorporate the best practices of the Information Technology Infrastructure Library (ITIL®) and are stored in the PAL.

OIT has implemented the following PMC approved processes:

- Incident Management
- Problem Management
- Change Management
- Configuration Management

### **Incident Management**

The Incident Management process reacts to a disruption in service and restores normal service operation as quickly as possible. The objectives of Incident Management are to:

- Restore normal service operations as quickly as possible.
- Minimize the adverse impact on IT and business operations by timely resolution of incidents.
- Ensure best achievable levels of service and availability.
- Improve customer satisfaction.

### **Problem Management**

The Problem Management process is used to diagnose the root cause of incidents and problems, and identify a permanent solution to prevent recurrence of future incidents similar or related to these disruptions. The objectives of Problem Management are to:

- Minimize the adverse impact on IT and business operations proactively.
- Timely diagnosis of the cause of disruptions in service and identification of permanent solutions that will prevent recurrence of these disruptions.
- Reduce incident volumes (i.e. disruptions in service).
- Improve organizational learning.
- Ensure best achievable levels of service and availability.
- Improve customer satisfaction.



## **Change Management**

The Change Management process ensures standard methods are used for efficient, prompt and correct handling of changes to system, software and infrastructure components. The objectives of Change Management are to:

- Ensure use of standard processes to effect change.
- Maximize the benefits that will result from implementing a change to an IT configuration item.
- Minimize the adverse impact on IT and business operations by efficient and prompt handling of changes.
- Increase communications and visibility of planned and implemented changes.

## **Configuration Management**

The Configuration Management process provides a logical model of all technical components (configuration items) that comprise the IT infrastructure (hardware, system software, application software, documentation) by identifying, controlling and verifying all versions of these configuration items in existence. The objectives of Configuration Management are to:

- Maintain a logical model of the IT Infrastructure, including all configuration items and relationships among them.
- Identify, control and verify all configuration items.
- Accurately maintain and report the current status of all configuration items.
- Ensure that all changes to configuration items originate from the most current version.
- Minimize the adverse impact on IT solution and service delivery by ensuring version control of all configuration items.

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## Overview

The Solutions Disposition (also referred to as Decommission) work pattern represents the end of the solutions life cycle. It provides for a planned approach to terminate an IT investment or solution while ensuring that vital information is preserved for future restoration and/or reactivation, if necessary. An IT investment or solution, when placed in this part of the life cycle, has been declared as end of life, surplus and/or obsolete, and is scheduled to be shut down and removed from PBGC's IT environment.



**Figure 6-1** Solutions Disposition Diagram

The emphasis of the work to be performed is to:

- Ensure that there is written authorization of a decision to dispose or decommission the IT investment or solution.
- Identify the impacts of the removal of the IT Investment or solution from all environments.
- Communicate impacts to stakeholders (such as End Users, Enterprise Architecture, and Security teams).
- Configuration items (e.g. code, data, and documentation) are packaged and archived in an orderly manner in accordance with National Archives and Records Administration (NARA) and records management policies.
- Leased equipment is returned to the appropriate vendor and licensing agreements are terminated.
- Assets are appropriately logged in the asset management system.
- Future funding for managing the IT investment is cancelled or re-directed.

Authorization to dispose or decommission an IT investment or solution must be established in the form of a memorandum from the owner of the IT investment or solution with authorization signatures from the owner and the owner's Department Director and the Chief Information Officer. Upon receipt of the signed memorandum, a designated Federal Project Manager or Lead is assigned to perform all activities including planning, developing, managing, and executing the disposition guide.

**Note:** A disposition or decommissioning process with process flow, narratives and templates is expected to be established in the near future. Until this is established, teams are encouraged to develop a decommissioning or disposition guide and follow the Change Management process.



Information Technology  
Solutions Life Cycle Methodology  
(ITSLCM)

Section 2

Project  
ITSLCM Tailoring and Compliance Plan  
Guidance

Last Updated Date: 05/28/2008

### Revision History

Version	Date (PMC Approved)	Author	Section(s) Changed	Description/Comments
V2007.1	12/31/2006	OIT PMO	NA	Initial release
V2007.1	01/16/2007	OIT PMO	All	Changes were made as per the PMC review – Final release.
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V2007.1	02/08/2007	OIT PMO	NA	Approved and signed by Acting Chief Information Officer.
V2007.1	05/30/2007	PMC Process Development Team	1.3 (page 3), 2.1 (page 8)	Changed all occurrences of Program Manager to Program Coordinator, as per PMC directive.
V2007.1	10/02/2007	PMC Process Development Team	2.1 (page 14) 3.1 (page 32)	Removed references to the Test Strategy Document.
V2007.1	01/25/2008	PMC Process Development Team	2.1 (page 14) 3.1 (page 32) Many others- all references.	Removed references to the Test Strategy Document. Updated references to QA Rep, PPQA, IE Rep, IO Rep and IA Rep based on recent organization changes.
V2007.1	01/25/2008	PMC Process Development Team	All	Reassigned PMO Rep/Coordinator responsibilities and removed references to same.
V2007.1	01/31/2008	PMC Process Development Team	All	Minor edits.
V2007.1	02/27/2008	PMC Process Development Team	3.2	Changed the number on the Training Plan in the Tailoring Matrix from W11 to W12.
V2007.1	02/27/2008	PMC Process Development Team	Overview, 2.1, and 3.2	Replaced 'ITIRC' references with 'CPIT'.

<b>Version</b>	<b>Date (PMC Approved)</b>	<b>Author</b>	<b>Section(s) Changed</b>	<b>Description/Comments</b>
V2007.1	03/10/2008	PMC Process Development Team	3.2	Replaced “Project Schedule” with “Cost Loaded Project Schedule” (pg. 32 under artifact PM8).
V20007.1	03/20/2008	PMC Process Development Team	Overview, Pg.10, PM2	Replaced ‘CPIT’ with ‘CPIT Group’.
V2007.1	05/28/2008	PMC Process Development Team	Pg 3, Sec 1.3; Pg 4; Pg 8, Sec 2.1; Pg 10, 12, 13 PMLC Artifact Table; Pg 25, 27 SDLC Artifact Table	Replace references to ‘User Support’ with ‘Service Desk Representative’.
V2007.1	05/28/2008	PMC Process Development Team	Pg 3, Sec 1.3; Pg 4; Pg 8, Sec 2.1; Pg 10, 12, 15 PMLC Artifact Table; Pg 23 SDLC Artifact Table	Expanded acronym ‘RM’ to ‘Release Manager’.

Note: Detailed processes and templates are available on the OIT’s Process Assets Library portal site.

The Office of Information Technology’s Process Management Committee (PMC) members reviewed and approved this ITSLCM Version 2007.1.

**Cheryl Ringel**

PMC Chair

Approval Date: **Signed February 7, 2007**

**Jon Baake**

Acting Chief Information Officer

Approval Date: **Signed February 8, 2007**



## Table of Contents

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<b>CHAPTER 1 – Overview .....</b>	<b>1</b>
1.1 Purpose .....	3
1.2 Scope .....	3
1.3 Roles and Responsibilities.....	3
1.4 Tailoring the Process .....	5
<b>CHAPTER 2 – Artifacts List and Tailoring Guidance .....</b>	<b>7</b>
2.1 Artifact Descriptions and Review/Sign-Off Recommendations .....	7
<b>CHAPTER 3 – Tailoring Matrix .....</b>	<b>29</b>
3.1 Tailoring Matrix Description .....	29
3.2 Tailoring Matrix .....	31



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**Overview** The Information Technology Solutions Life Cycle Methodology (ITSLCM) framework provides standard guiding principles and processes for responsibly and successfully managing Information Technology (IT) Investments.

Managing IT Investments includes introducing new IT solutions, modernizing/enhancing/maintaining existing IT solutions, keeping the IT solution operational for providing IT services to customers, and finally disposing/decommissioning solutions that are no longer in use.

An IT Solutions Delivery Project is defined as a temporary undertaking to create a unique product or service with a defined start date and end date, and meets specific objectives that when attained signify completion (PMI® PMBOK). The ITSLCM outlines the tasks, deliverables, key milestones and reviews that must be met to ensure project success. For example, the nature of IT Solutions Delivery Projects could range anywhere from dealing with custom, Commercial Off-The-Shelf (COTS), COTS-custom combination, to infrastructure upgrades and could be any combination of the Project Types and Project Sizes listed below.

### **Program Groupings**

IT Solutions Delivery Projects can be logically grouped for managing purposes into four Program Groupings:

- Financial Management Solutions - IT Solutions targeted to solve financial management business problems - such as Consolidated Financial Services (CFS), Premium Accounting System (PAS), Trust Interface System (TIS), My Plan Administration Account (MyPAA), etc.
- Participant Services Solutions - IT Solutions targeted to solve participant processing and service to the participants business problems - such as Participant Record Information Systems Management (PRISM), Spectrum, Customer Relationship Management (CRM), etc.
- Corporate Solutions - IT Solutions targeted to solve corporate processing, increase corporate efficiency, cross-cutting multiple departments and chiefs - such as, Case Administration System (CAS)/Case Management System (CMS), Analytics/DataMart, Risk Management & Early Warning, Common Services, etc.
- Infrastructure Solutions - IT Solutions targeted to solve infrastructure problems aimed to engineer/re-engineer infrastructure components that ultimately increases/enables/stabilizes IT Operations – such as Database upgrades, server upgrades/replacements, telecommunications upgrades/replacements, Microsoft product upgrades, etc.

**IT Delivery Project Types:**

- **New IT Solutions** - Create/deliver a new IT solution to the production environment, for the first time, to meet a business need or solve a business problem. These requests typically are evaluated by the Capital Planning for Information Technology (CPIT) Group and Enterprise Architecture (EA) to ensure alignment with corporate goals and fulfillment of a business gap.
- **Modernizing** existing IT Solutions - Modernize/Re-engineer IT solutions that already exist in production, with the intent to replace with a modernized/re-engineered/new-technology solution, potentially impacting existing business processes and operations. These requests typically result from an IT solution that reaches end-of-life or becomes obsolete, where maintenance/enhancements result in low Return on Investment (ROI), or performing maintenance/enhancements are no longer feasible/viable/scalable to meet the business needs. Projects of this type typically entail disposing of or decommissioning the existing IT solution being replaced.
- **Enhancing** existing IT Solutions – A Change or group of changes to IT solutions that already exist in production, to provide for new, changed or deleted functionality, features or capabilities. These requests typically result from changes in federal mandates, changed business processes, major version upgrades, or enhanced business needs, but there is no intent to replace an existing IT solution.
- **Maintaining** existing IT Solutions – A Change or group of changes to IT solutions that already exist in production, to enable them to operate according to the most recent set of approved requirements, and does not change functionality, features or capabilities. These requests typically result from defect/bug fixes, minor adjustments due to infrastructure changes, vendor patches/service pack releases, and minor version upgrades, but are not emergency/urgent, allowing for planned activities.

Urgent/Emergency changes to IT solutions are to be captured as part of the Change Management process and will not be categorized as an IT Solutions Delivery Project.

**IT Solutions Delivery Project Sizes:**

- Extra Small (X-Small) – less than \$25,000
- Small - \$25,000 to less than \$100,000
- Medium - \$100,000 to less than \$500,000
- Large – Greater than or equal to \$500,000

The Project ITSCLM Tailoring and Compliance Plan Guidance document is a companion to creating and establishing a project-specific Project ITSCLM Tailoring and Compliance Plan given the nature, type and sizes of IT Solutions Delivery Projects.

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## 1.1 PURPOSE

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The purpose of this document is to provide documented guidance to IT Solutions Delivery Project Managers in tailoring their projects to the ITSCLM. This guidance document is to be used to create the project specific Project ITSCLM Tailoring and Compliance Plan. It is also recommended that the reviewers and approvers of the Project ITSCLM Tailoring and Compliance Plan be consulted in making tailoring decisions.

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## 1.2 SCOPE

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The scope of this document is limited to all Information Technology and Information System projects, regardless of type or size. The scope of this document is also limited to the PMLC and SDLC (Waterfall) components of the ITSCLM. It does not apply to IT Operations and IT Solution Disposition components of the ITSCLM.

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## 1.3 ROLES AND RESPONSIBILITIES

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The primary audience for this document is the designated Federal Project Manager (Federal PM) responsible for delivering IT solutions. The purpose of this document is to aid the Federal PM in tailoring the ITSCLM to the specific type and size of their project. If a project team of contractors supports the Federal PM, the contractor project team is considered to be a part of the primary audience.

The secondary audience for this document is for those who provide guidance and support to the Federal PM (and their project team) in tailoring the ITSCLM to meet the needs of the project and their own organizational compliance needs. The required roles for establishing (Review and Sign-off) a Project ITSCLM Tailoring and Compliance Plan are the Federal PM, Division Manager, Business Representative (Business Rep), Enterprise Architecture Representative (EA Rep), Release Manager (RM), Infrastructure IT Operations Department Representative (ITIO Rep), Service Desk Representative (Service Desk Rep) and Process and Product Quality Assurance Representative (PPQA Rep). Other project team members may be identified on a project-by-project basis to participate in review only or review and sign-off (for example, the Contractor Project Manager or the Contracting Officer Technical Representative (COTR)), at the discretion of the Federal PM or negotiated with the Division Manager; Business Rep, EA Rep; and/or PPQA Rep.

<b>Tailoring Roles and Responsibilities</b>		
<b>Role</b>	<b>Project ITS_LCM Tailoring and Compliance Plan</b>	<b>Responsibility</b>
Federal PM	Producer/Sign-off	Utilizes the guidance provided in this document to categorize project type and project size from the Level of Effort (LOE) document and Project Charter. Creates an initial Project ITS_LCM Tailoring and Compliance Plan for their project. Consults with Review/Sign-off members. Articulates, negotiates and documents results of tailoring in the Project ITS_LCM Tailoring and Compliance Plan, including deviations from standard guidance. Schedules and conducts Review and Sign-off session for the Project ITS_LCM Tailoring and Compliance Plan. Responsible for ensuring that the project is delivered in accordance with the ITS_LCM (and all associated processes) and the Project ITS_LCM Tailoring and Compliance Plan.
Division Manager	Review/Sign-off	Guides Federal PM on using the latest version of the Project ITS_LCM Tailoring and Compliance Plan template and ITS_LCM Tailoring and Compliance Guidance document. Provides guidance to Federal PM in tailoring the ITS_LCM to the specific project by using guidance provided in this document and uses their discretion given the nature of the project. Ensures that the agreed upon results of the tailoring does not lead to non-compliance with ITS_LCM and is the results of the tailoring process are documented in the Project ITS_LCM Tailoring and Compliance Plan.
Business Rep	Review/Sign-off	Provides input to the Federal PM on determining the value of artifacts to be delivered for the Project. The Business Representative may have influence over funding for the project and represents the Sponsor's best interest.
EA Rep	Review/Sign-off	Understands the Project Scope, Type and Size to provide guidance to Federal PM to ensure artifacts supporting compliance with Enterprise Architecture and Blueprint are included in the Project ITS_LCM Tailoring and Compliance Plan. Applies reasonableness to final determination of artifacts.
PPQA Rep	Review/Sign-off	Understands the Project Scope, Type and Size to provide guidance to Federal PM to ensure that project artifacts are compliant with the ITS_LCM and any tailoring that has been documented within the Project ITS_LCM Tailoring and Compliance Plan.
Release Manager /ITIO Reps/ Service Desk Reps	Review Only	Understands the Project Scope, Type and Size to provide guidance to Federal PM to ensure artifacts supporting the infrastructure and maintenance of the solution are included in the Project ITS_LCM Tailoring and Compliance Plan. Applies reasonableness to final determination of artifacts.
Other Participant Role as required	Review/Sign-off	As defined at the discretion of the Federal Project Manager or negotiated with Division Manager, EA Rep, and/or Business Rep.
Other Participant Role as required	Review Only	As defined at the discretion of the Federal Project Manager or negotiated with Division Manager, EA Rep, and/or Business Rep.

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## 1.4 TAILORING THE PROCESS

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The process for tailoring is provided as a mechanism for considering the uniqueness of projects and making common sense decisions on required artifacts/deliverables that contribute to the success of the projects, including successful audit reviews. If a tailoring document does not exist for a project, it is assumed that ALL deliverables in the PMLC and SDLC (Waterfall) will be delivered for that project and are subject to such in an audit review. The Project ITSLCM Tailoring and Compliance Plan is a required (Core) artifact and should cover the scope as defined and approved in the Project Charter.

### Scope for Tailoring

There are two scopes for tailoring the PMLC and SDLC (Waterfall):

1. IT Project Basis – one release at a time – Single Project ITSLCM Tailoring and Compliance Plan for a specific release can be created which expires once the solution is transitioned to SO&M. This is used when delivering a new IT Solution where subsequent releases (Modernization/ Enhancement /Maintenance) are not clearly defined or determined or are not on a routine basis.
2. IT Solution Basis – multiple releases – Single Project ITSLCM Tailoring and Compliance Plan for a specific IT solution or a suite of IT Solutions can be created. This is used when releases for an IT Solution are clearly determined and planned out for 3 years in advance or an IT Solution that requires maintenance changes that are routine and predictable – example: Upgrade every six months driven by vendor schedule, or patch releases multiple times a year that correct a deficiency, etc. This is valid for covering all releases until one of the below conditions are met:
  - 3-year anniversary from the last signatory date on the Project ITSLCM Tailoring and Compliance Plan. Note: 3 years was selected since Business cases require budget and schedule planning three years in advance.
  - New version of the Project ITSLCM Tailoring and Compliance Plan template is released.
  - IT solution decided to be decommissioned or disposed.

Decision to re-establish a Project ITSLCM Tailoring and Compliance Plan are at the discretion of the Federal PM and Division Manager. The scope of tailoring should be documented in the scope section of the Project ITSLCM Tailoring and Compliance Plan.

### **Steps for Tailoring:**

1. Upon completion of the Project Charter, the Federal PM uses this document to classify the project “Type” and “Size” in accordance with the criteria defined in the “Overview” section of this document.
2. The Federal PM decides whether to create the Project ITSLCM Tailoring and Compliance Plan for their “IT Project” or “IT Solution” and develops the Scope section of the Plan.
3. The Federal PM reviews Section 1.3 - Roles and Responsibilities of this document to identify the names of members performing the roles and responsibilities in tailoring. Additionally, the Federal PM identifies other members, as necessary to contribute to tailoring.
4. The Federal PM creates the initial Project ITSLCM Tailoring and Compliance Plan by seeking input from the Project Team and the reviewers/sign-offs individuals. The Federal PM reviews Chapter 3 – Tailoring Matrix of this document to determine standard deliverable guidelines and documents the results, and deviation from standard guidance in the Project ITSLCM Tailoring and Compliance Plan. The Federal PM may reference Section 2.1 – Artifact Descriptions and Review/Sign-off Recommendations to review the definition of each artifact and review and sign-off guidance.
5. The Federal PM schedules and conducts sessions with the Review and/or Sign-off individuals to review, discuss and negotiate artifacts to be produced in support of the scope, type and size of their project. This is done in accordance with the “Submit Artifact for Approval” process in order to obtain approval.

The approved Project ITSLCM Tailoring and Compliance Plan becomes part of the Project Management Plan. The project team is responsible for updating the Project ITSLCM Tailoring and Compliance Plan, as necessary. Any modifications following signatures and final approval are to be tracked in accordance with the Project Execution, Monitoring and Control phase of the PMLC.



## CHAPTER 2

### Artifacts List and Tailoring Guidance

**Overview** The Project ITS\_LCM Tailoring and Compliance Guidance document is focused on tailoring the artifacts, also known as deliverables or documents, from the PMLC and SDLC (Waterfall) components of the ITS\_LCM. This chapter provides a list of artifacts, their description, and recommendations on who produces, reviews only, and approves/signs-off each of the artifacts. This chapter also provides a tailoring matrix categorized by the type and size of project against a standard list of artifacts and their availability.

Guidance provided in this chapter should be used as a baseline to document the results of tailoring in the Project ITS\_LCM Tailoring and Compliance Plan. While this document provides a standard cross-walk of the artifacts to the project type and size, there may be unique scenarios and challenges posed by the nature of IT projects that require a level of practical applicability and judgment by the Federal PM and those involved in reviewing and/or approving the Project ITS\_LCM Tailoring and Compliance Plan. Discussions should be facilitated by the Federal PM to allow the different perspectives to reach consensus and final results are documented in the Project ITS\_LCM Tailoring and Compliance Plan.

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## 2.1 ARTIFACT DESCRIPTIONS AND REVIEW/SIGN-OFF RECOMMENDATIONS

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This section contains a table that lists the ITS\_LCM artifacts, with definitions, to be delivered in accordance with the PMLC and SDLC (Waterfall) processes. This table also includes guidance on who should produce, review and approve each artifact, as well as provides sign-off criteria.

### Table Column Headings

Below is a description of the columns that are included within each table:

- # – This column lists a unique identifier that numerically represent an ITS\_LCM artifact (example, PMLC Artifact = PM# and SDLC (Waterfall) Artifact – W#)
- ITS\_LCM Artifact – This column lists the name of the ITS\_LCM artifact as defined by the PMLC and SDLC (Waterfall) processes. Delivery of the artifact automatically includes following the underlying processes to develop and deliver the artifacts.
- Artifact Definition – This column provides a description of the ITS\_LCM artifact, defines the purpose and type of information contained in the document.
- Recommended Producer - The Producer is the person or persons responsible for creating/producing the artifact. Typically, the Federal PM has the overall responsibility of producing artifacts, although they



may be supported by the project team (core and/or participating team members, including both Federal and Contractor staff). The bolded Recommended producer is the primary producer, while the others listed are the supporting producers.

- **Recommended Reviewers Only** – The Recommended Reviewers column is a list of recommended reviewer roles responsible for reviewing and providing feedback on the artifacts, but not responsible for approving or signing off on the artifacts. The members identified in this column are generally impacted by the IT Solution or have a role in successfully delivering the solution. (Caution – Actual names of the individuals playing the roles identified in this column are to be captured in the “Artifact Review and Sign-off Worksheet” for the project.) The recommended reviewer is the formal reviewer and not the peer reviewer. The peer review is conducted as part of the development of the artifact.
- **Recommended Approvers & Sign-off Criteria** – This column lists the recommended approver roles. This role is responsible for reviewing, providing feedback and approving the artifacts. The members identified in this column are members that are greatly impacted by the IT solution. CAUTION – Actual names of the individuals playing the roles identified in this column are to be captured in the “Artifact Review and Sign-off Worksheet” for the project. This column also provides guidance on the criteria for approving an artifact.

#### **List of Abbreviations for Producers/Reviewers/Approvers:**

- Business Representative – Business Rep
- Configuration and Change Management Representative – CCM Rep
- Chief Financial Officer – CFO
- Chief Information Officer – CIO
- Contracting Officer Technical Representative – COTR
- Deputy Chief Information Officer – DCIO
- Division Manager – DM
- Enterprise Architecture Representative – EA Rep
- Enterprise Information Security Representative – EIS Rep
- Federal Project Manager – Federal PM
- Internal Control Committee - ICC
- Release Manager - RM
- IT Infrastructure Operations Department Representative – ITIO Rep
- Process and Product Quality Assurance Representative – PPQA Rep
- Resources Management Representative – Resource Mgmt Rep

- Human Resources Department (HRD) Training Institute Representative – TI Rep
- Service Desk Representative – Service Desk Rep

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PMLC					
#	ITSLCM Artifact	Artifact Definition	Recommended Producer ( <b>Bold = Lead</b> ) (Non-Bold = Contributor)	Recommended Reviewer Only	Recommended Approvers and Sign-off Criteria
PM1	Level of Effort Document	The Level of Effort (LOE) is a planning and estimating document that documents a high-level estimate of hours and/or costs for both delivering a solution (new, modernization, enhancement or maintenance) and Operations in support of the solution in Solution Operations and Maintenance. The LOE must take all aspects of cost – hardware, software, labor from core and extended teams, EA compliance, PPQA services, licensing costs for all environments (CDE, ITC, Prod/COOP, Training, etc.) into consideration. It also compares other alternatives for solving the business problem/need. In case of unavailable funding, the LOE is an input to developing a strong business case document. Input for this document can be from: Project Team, Contract negotiated funding, EA needs, PPQA needs, IT Infrastructure Operations Department needs, impacted project teams, Operations from Service Desk, CCM, etc.	<b>Federal PM</b>	Impacted Federal PMs EA Rep Release Manager Service Desk Rep Division Manager EIS Rep CCM Rep Fed PM's Manager	Federal PM – ensure completeness of estimate, contract negotiated dollars, basis for estimate and estimation technique.  Business Rep – ensure funding can be supported by Sponsor and accuracy of Scope/business need.  Contractor PM (if exists) – ensure completeness of estimate, contract negotiated dollars, basis for estimate and estimation technique.
PM2	Business Case	The Business Case presentation document validates the business problem, links to the corporate strategic plan and outcomes, provides proof of feasibility and viability with acceptable level of risk, provides alternatives to solving the business problem, allowing the CPIT Group to select the best alternative to solve the business problem in the most cost effective manner. Input for	<b>Business Rep</b> Federal PM	Impacted Federal PMs EA Rep Release Manager ITIO Rep Service Desk Rep	None

PMLC					
#	ITSLCM Artifact	Artifact Definition	Recommended Producer ( <b>Bold = Lead</b> ) (Non-Bold = Contributor)	Recommended Reviewer Only	Recommended Approvers and Sign-off Criteria
		<p>this document can be from: Strategic Plan and LOE Document, including LOE contributors.</p> <p>The CPIT Group review business cases, provide guidance for improvement, evaluate against corporate mission, goals, and objectives, and determine appropriate level of funding against the scope.</p> <p>The Executive Management Committee (EMC) Lead/ Members make funding decisions.</p>		Division Manager EIS Rep Resource Mgmt Rep CCM Rep	
PM3	Project Charter	<p>The Project Charter is the document used to formally authorize the start of a project by the sponsor who provides the funding. The purpose of the project charter is to clearly document the following key pieces – IT solution scope, cost and schedule, demonstrate management support for the project, assign the Federal Project Manager, and to provide the Project Manager with the authority, accountability and responsibility to apply organizational resources to successfully and efficiently complete the project.</p>	<b>Federal PM</b> Business Rep	Business Rep Contractor PM (if exists) Impacted Federal PMs EA Rep Release Manager EIS Rep CCM Rep Division Manager Project Team (if exists)	Federal PM – ensure completeness and thoroughness of the document as the responsible producer. Sponsor (Provides Funds) – ensure the results of scope session are captured correctly such as scope, cost, schedule, key success indicators. Members Designated by the Sponsor or Steering Committee – ensure accurately identified scope, stakeholders, team members and staffing, steering committee, and expected outcomes.
PM4	Project ITSLCM	<p>A formal document that captures the results of tailoring the ITSLCM to the project type</p>	<b>Federal PM</b>	Project Team (if exists)	Federal PM – ensure completeness and thoroughness

PMLC					
#	ITSCLM Artifact	Artifact Definition	Recommended Producer ( <b>Bold = Lead</b> ) (Non-Bold = Contributor)	Recommended Reviewer Only	Recommended Approvers and Sign-off Criteria
	Tailoring and Compliance Plan	and size. The document sets the project scope – i.e. artifacts that must delivered in compliance with the ITSCLM. It contains the scope of tailoring, list of artifacts applicable to be delivered, list of roles - producer, review only and approvers.	Contractor PM (if exists)	Release Manager Service Desk Rep	<p>of the document as the responsible producer, including deviation from standard guidance.</p> <p>Business Rep – ensure artifacts necessary for the business unit are included.</p> <p>Division Manager – ensure document contains results of tailoring and ensures not in conflict with standard guidance.</p> <p>EA Rep – ensure artifacts necessary to support EA Blueprint compliance and EA standards are included.</p> <p>PPQA Rep – ensure that any tailoring selected for artifacts is consistent with the guidelines provided for the project type, size, and scope.</p>
PM5	Procurement Plan	A planning document that contains the contract / hardware / software / licensing costs, contract vehicle, a short schedule of procurement activities such as market research, SOW, cost estimates, publishing RFP/RFI/RFQ, receipt and review of proposals, contract award, debriefs and contract transition. This document is only required if procuring services or goods in support of the project that may not already be	<b>Federal PM (or COTR)</b>	Sponsor CIO & DCIO Procurement Department	None

PMLC					
#	ITSLCM Artifact	Artifact Definition	Recommended Producer ( <b>Bold = Lead</b> ) (Non-Bold = Contributor)	Recommended Reviewer Only	Recommended Approvers and Sign-off Criteria
		in a place.			
PM6	Statement of Work (SOW)	A document that clearly describes the work to be performed by contractors (including ITSLCM deliverables required) when procuring services. This document contains all standard OIT languages, policies, procedures, directives, and orders that may impact vendor proposals. This document is only required if a contract does not already exist.	<b>Federal PM (or COTR)</b> Procurement Rep	EA Rep Division Manager EIS Rep ITIO Rep Service Desk Rep CCM Rep  Procurement – ensures SOW meets federal acquisition regulation guidelines; alignment with procurement plan.	Sponsor – ensure goods or services are being procured in support of the set scope, cost and schedule.  Business Rep – ensure document accurately reflects business requirements, needs, and expectations.  CIO or DCIO – ensure document includes all OIT Management consideration such as impacts within OIT.
PM7	RFQ / RFP / RFI	Request for Quotation, Request for Proposal, and Request for Information is a procurement package (including SOW) targeted towards receipt of competitive vendor proposals to award a contract that provides best value to the government. Procurement Department should be consulted on applicability and FAR regulations.	<b>Procurement Rep</b> Federal PM (or COTR)	Procurement’s Discretion	None
PM8	Project Management Plan	The Project Management Plan (PMP) integrates and coordinates the results of all the planning activities. The term Project Management Plan is a comprehensive term that refers to all of the plans that are used to manage the project. The PMP includes:	<b>Federal PM</b> Contractor PM (if exists)	Business Rep Impacted Federal PMs Fed PM’s Manager	Federal PM – ensures document accuracy and completeness of all management plans and appendices.  Sponsor – approve baselined scope, cost and schedule,

PMLC					
#	ITSCLM Artifact	Artifact Definition	Recommended Producer ( <b>Bold = Lead</b> ) (Non-Bold = Contributor)	Recommended Reviewer Only	Recommended Approvers and Sign-off Criteria
		<ul style="list-style-type: none"> <li>• Roles and Responsibilities</li> <li>• Risk/Issue Management Plan</li> <li>• Project Scope Management Plan</li> <li>• Acceptance Management Plan</li> <li>• Quality Management Plan</li> <li>• Communication Management Plan</li> <li>• Project Coordination Management Plan</li> <li>• Schedule and Cost Management Plan</li> <li>• Issues and Risk Matrix (Appendix) - documents and tracks potential risks and occurring issues to closure.</li> <li>• Project Modification Log (Appendix) - used to track changes to the project's scope, cost and schedule.</li> <li>• Acceptance Log (Appendix) - used to track all approvals for the project.</li> <li>• Skills Assessment Plan (Appendix) - used to document the training needs of the project team members.</li> <li>• Staff Management Plan (Appendix) - documents each team members estimated start and end dates and estimated duration.</li> <li>• Communications Matrix (Appendix) - documents the communication needs for the project. This matrix identifies the stakeholders, the communications required, the methods of communication and the audiences.</li> </ul>		EA Rep Project Team (core and extended) EIS Rep	including variance from Project Charter. Members Designated by the Sponsor or Steering Committee – approve baselined scope, cost and schedule, including variance from Project Charter. Fed PM's Manager/Division Manager – ensure PBGC established and industry best practices for managing and delivering IT projects are being applied.



PMLC					
#	ITS LCM Artifact	Artifact Definition	Recommended Producer ( <b>Bold = Lead</b> ) (Non-Bold = Contributor)	Recommended Reviewer Only	Recommended Approvers and Sign-off Criteria
		<ul style="list-style-type: none"> <li>• Cost Loaded Project Schedule (Appendix) - a detailed plan of major project phases, milestones, activities, tasks and the resources &amp; cost allocated to each task</li> <li>• Organizational Chart (Appendix) - identifies the interrelationships of staff within the project in terms of authority and responsibility. (Template currently not available)</li> </ul>			
PM9	Artifact Review and Signoff worksheet	Document listing all artifacts to be delivered by the project cross-referenced against the names of the person(s) responsible for peer reviewing, reviewing and providing feedback, or signing-off for each project artifact. The Project ITS LCM Tailoring and Compliance Plan Guidance document is the source document to be used in completing this worksheet.	<b>Federal PM</b> Business Rep Project Team (if exists)	Release Manager Business Rep Members Designated by the Sponsor or Steering Committee	None
PM10	Project Modification Requests	Form used to document changes to project scope, cost, and schedule. This document is created only if there are changes to one of the triple constraint – scope, cost, or schedule.	<b>Federal PM</b> Project Team (if exists)	Business Rep Members Designated by the Sponsor or Steering Committee	Sponsor – approve the scope, cost or schedule change.  (The effected artifacts are re-submitted to the original approvers for re-approval.)
PM11	Corrective Action Plans	Corrective Action Plans are used to assess why a target milestone has not been met and to define a plan of action for getting the project back on track.	<b>Federal PM</b> Project Team (if exists)	Members Designated by the Sponsor or Steering Committee Division Manager	None

PMLC					
#	ITSLCM Artifact	Artifact Definition	Recommended Producer ( <b>Bold = Lead</b> ) (Non-Bold = Contributor)	Recommended Reviewer Only	Recommended Approvers and Sign-off Criteria
PM12	Meeting Minutes / Agendas	Document used to capture meeting agenda, attendees, meeting highlights, meeting outcomes, and meeting action items.	<b>Meeting Organizer / Facilitator</b> Project Team (if exists)	Meeting invitees and attendees	None
PM13	Project Status Reports / Performance Reports / Briefings / Presentations	Documents used to communicate project status to management and staff. Types of status reporting includes: <ul style="list-style-type: none"> <li>• Project Status Reports</li> <li>• Steering Committee Briefing/Project Sponsor Reports</li> <li>• EVM Reports</li> </ul>	<b>Federal PM, COTR, and Project Team (if exists)</b>	Federal PM and COTR's Discretion	None
PM14	Approval Form	Approval Form that documents all project deliverables that were completed as part of the project, and documents the date of approval for each deliverable.	<b>Federal PM</b> Project Team (if exists)	Members Designated by the Sponsor or Steering Committee	Federal PM – ensure completeness and thoroughness of the document as the responsible producer.  COTR – ensure adherence to contractual obligations.  Sponsor or Business Rep designated by the Sponsor – acceptance of all deliverables in accordance with the Project Charter and Project Management Plan.
PM15	Lessons Learned	Documents the outcome of a facilitated Lessons Learned session that captures project information, documents what worked and what needs improvement, documents recommendations for what should be continued to be followed and what should be	<b>Federal PM</b> Project Team	Sponsor Business Rep CIO or DCIO OIT Managers	None

PMLC					
#	ITSLCM Artifact	Artifact Definition	Recommended Producer ( <b>Bold = Lead</b> ) (Non-Bold = Contributor)	Recommended Reviewer Only	Recommended Approvers and Sign-off Criteria
		changed in future projects.			

SDLC (Waterfall)					
#	ITSLCM Artifact	Artifact Definition	Recommended Producer ( <b>Bold = Lead</b> ) (Non-Bold = Contributor)	Recommended Reviewer Only	Recommended Approvers and Sign-off Criteria
W1	Solution Environment Plan	<p>Document that describes the requirements of the environment that must be met to build the solution. The Solution Environment Plan includes information related to:</p> <ul style="list-style-type: none"> <li>• CDE/I Environment</li> <li>• CDE/T Environment</li> <li>• ITC Environment</li> <li>• Training Environment</li> <li>• Production Environment</li> <li>• COOP Environment</li> </ul>	<b>Project Team</b> (Environment Manager)	Federal PM's discretion	<p>Federal PM – ensure completeness and thoroughness of the document.</p> <p>Impacted Federal PMs – indicate agreement on integration environment.</p> <p>CDE Team Rep – ensure accuracy of CDE environment.</p> <p>ITC Team Rep – ensure accuracy of ITC environment.</p> <p>RM – ensure conformance to infrastructure related policy and practices and integrity of production and COOP environment.</p> <p>EA Rep – ensure EA Blueprint conformance.</p>
W2	Business Process Model(s)	<p>The Business Process Models consist of the “As-Is” Model and the “To-Be” model.</p> <p>The “As-Is” Model is a diagram of existing business processes (activities and decisions) as they relate to each other.</p>	<b>Business Rep</b> Project Team (Analyst)	Business Rep User Group Federal PM EA Rep PPQA Rep	None
		<p>The “To-Be” Model is the IDEF Model of improved and desired business processes (activities and decisions) as</p>	<b>Business Rep</b> Project Team (Analyst)	PPQA Rep	Business Rep – indicate agreement with the process. Federal PM – indicate agreement

<b>SDLC (Waterfall)</b>					
#	ITS LCM Artifact	Artifact Definition	Recommended Producer ( <b>Bold = Lead</b> ) (Non-Bold = Contributor)	Recommended Reviewer Only	Recommended Approvers and Sign-off Criteria
		they relate to each other.			<p>within scope of project.</p> <p>User Group Members – indicate agreement with the process.</p> <p>EA Rep – ensure alignment with corporate process models and EA Blueprint conformance.</p>
W3	Requirements Document	<p>The Requirements Document is a formal statement of the expected benefits, scope, assumptions and constraints, and interfaces. It includes the business, process requirements, data capture and storage, data relationships, data quality, aggregations, security, infrastructure, performance, capacity, audit trail, data retention, availability, reliability and requirements for the project.</p> <p>Requirements must be testable and in accordance with EA standards.</p>	<b>Project Team (Analyst)</b>		<p>Business Rep – indicate agreement with requirements.</p> <p>User Group Members – indicate agreement with requirements.</p> <p>Federal PM – ensure completeness and thoroughness of the document.</p> <p>Impacted Federal PMs – indicate agreement on integration requirements.</p> <p>EA Rep – ensure conformance with EA Blueprint and standards.</p> <p>ITIO Rep – indicate agreement with operational requirements and ensure alignment with infrastructure standards and COOP requirements.</p> <p>EIS Rep – indicate agreement on security controls requirements.</p> <p>*ICC Rep or CFO or CFO delegated Rep (for financial or mix-financial solutions only) -</p>

SDLC (Waterfall)					
#	ITS LCM Artifact	Artifact Definition	Recommended Producer ( <b>Bold = Lead</b> ) (Non-Bold = Contributor)	Recommended Reviewer Only	Recommended Approvers and Sign-off Criteria
					consult with ICC for agreement on management and internal controls requirements.
W4	Logical Data Model (LDM)	Logical Data Model (LDM) - A database model that has not yet been normalized. These models are built strictly on the data as it is related to business entities. LDMs typically include the entity types, the data attributes describing those entities, and the relationships between the entities.	<b>Project Team</b>	EA Rep	None (approved during the design review).
W5	Requirements Traceability Matrix (RTM)	Requirements Traceability Matrix (RTM) - The RTM documents the association between a requirement and its source requirement, its implementation, and its verification. The document includes the Business Process #, Requirements #, Approval Date, Priority, Requirements Changes (Action, Requirements Change Request #), Design Specifications, Test Case #, and Test Script #.	<b>Project Team (Analyst)</b>	Federal PM Business Rep	None
W6	Solution Impact Identification Document	The Solution Impact Identification Document identifies the impacts that the project will have on existing business processes, active production applications, and existing infrastructure requirements.	<b>Project Team (Integration/Impact Manager)</b>	Federal PM Impacted Federal PMs	None
W7	System Security	A plan that details the types of security required for a solution based on the type	<b>Business Rep (or Business Owner or</b>	Federal PM	Business Rep (or Business Owner or System Owner) –

SDLC (Waterfall)					
#	ITS LCM Artifact	Artifact Definition	Recommended Producer ( <b>Bold = Lead</b> ) (Non-Bold = Contributor)	Recommended Reviewer Only	Recommended Approvers and Sign-off Criteria
	Plan (SSP)	of information being processed and the degree of sensitivity. This plan also helps identify whether the PBGC Security Office requires that a system be certified and accredited.	<b>System Owner</b> Project Team (Analyst & Engineer)	EIS Rep	indicate agreement with security plan.
W8	Configuration Management Plan	This plan identifies methods and tools for identifying, controlling, verifying and auditing configuration items within development, testing, and production environments. Identifies the final location of all work products including software, documentation, plans, status reports, critical communications, action items, and meeting minutes.	<b>Project Team (Configuration Manager)</b>		Federal PM – ensure completeness and thoroughness of the document.  CCM Rep - conforms to Configuration Management policies, procedures and guidelines.
W9	Test Plan	This plan includes information describing the scope of testing, testing approach, resources, and schedule. It identifies the items and features to be tested, the types of testing to be performed, the personnel responsible for testing, the resources and scheduled required to complete testing, and the risk associated with the plan. The Test Plan is a collection of artifacts to include: <ul style="list-style-type: none"> <li>• Unit Test</li> <li>• System Test</li> <li>• Integration Test</li> <li>• User Acceptance Test</li> <li>• Certification and Accreditation</li> </ul>	<b>Project Team (Test Lead - except for C&amp;A test, and UA test)</b> EIS Rep (C&A Test)  Business Rep & User Group Members (User Acceptance Test)	Impacted Federal PMs EIS Rep (C&A Test)	Contract PM – accepts responsibility for the accuracy and completeness of the document and that the execution of this plan will support delivery/installation of a quality solution.  Federal PM - completeness and thoroughness of the document.

<b>SDLC (Waterfall)</b>					
#	ITS LCM Artifact	Artifact Definition	Recommended Producer ( <b>Bold = Lead</b> ) (Non-Bold = Contributor)	Recommended Reviewer Only	Recommended Approvers and Sign-off Criteria
W10	Test Scripts, Scenarios, Cases	Test Scripts, Documented Test Scenarios, and Test Cases that will be used for Test Execution activities. The Test scripts and test cases should have unique identifiers that will be used to maintain traceability via the RTM.	<b>Project Team</b> (Test Lead - except for C&A test, and UA test)  EIS Rep (C&A Test)  Business Rep & User Group Members (User Acceptance Test)	Federal PM  Impacted Federal PMs  EIS Rep	None
W11	Design Document	The Design Document is a collection of design artifacts that includes the following: <ul style="list-style-type: none"> <li>• Functional Design</li> <li>• Technical Design</li> <li>• Architecture Design</li> <li>• Security Design</li> <li>• Logical Data Model (Appendix)</li> <li>• Physical Data Model (Appendix)</li> </ul>	<b>Project Team</b> (Analyst, Architect, Engineer)	CCM Rep	Business Rep – indicate agreement with functional design.  User Group Members – indicate agreement with functional design.  Federal PM – ensure completeness and thoroughness of the document.  Impacted Federal PMs – indicate agreement on integration design.  EA Rep- ensure conformance with EA Blueprint and standards.  ITIO Rep – indicate agreement with operational design and ensure alignment with infrastructure standards and COOP design.  EIS Rep – indicate agreement on security controls design.



SDLC (Waterfall)					
#	ITS LCM Artifact	Artifact Definition	Recommended Producer ( <b>Bold = Lead</b> ) (Non-Bold = Contributor)	Recommended Reviewer Only	Recommended Approvers and Sign-off Criteria
					*ICC Rep or CFO or CFO delegated Rep (for financial or mix-financial solutions only) - consult with ICC for agreement on management and internal controls design.
W12	Training Plan	The Training Plan is a document that ensures product training is addressed. It includes what is being trained, how it is being trained, where the training will occur and who will do the training. Training plan should include consultation from the Training Institute. Note: Trainees include users, system administrators, operations personnel, infrastructure support members, Helpdesk staff, LAN/WAN administrators, Database Administrators, etc.	<b>Project Team (Trainer)</b>		Federal PM – ensure completeness and thoroughness of the document.  Business Representative – indicate agreement on trainees, timing, schedule, form of training best suited for users.  Training Institute Rep (if Training Institute will be used) – indicate agreement on training schedule and use of TI resources.
W13	Deployment Guide	The Deployment Guide describes the scope, approach, resources, and schedule of all deployment activities necessary to deploy and back out the solution in the following environments (reference solution Environment Plan):  <ul style="list-style-type: none"> <li>• Training Environment</li> <li>• ITC Environment</li> <li>• Production Environment</li> <li>• COOP Environment</li> </ul>	<b>Project Team (Deployment Lead)</b>	Federal PM's discretion  Business Rep  ITC Team Rep  Training Environment Rep Production/COOP  Deployment Team  Release Manager	None

SDLC (Waterfall)					
#	ITSLCM Artifact	Artifact Definition	Recommended Producer ( <b>Bold = Lead</b> ) (Non-Bold = Contributor)	Recommended Reviewer Only	Recommended Approvers and Sign-off Criteria
		It provides step-by-step instructions including special settings, reference to servers, configuration items, etc.			
W14	Training Materials	Training Materials and all of the tools required to conduct training. This includes instructor guides with instructor notes, student manuals with examples and exercises, and a comprehensive exam and/or performance case study.	<b>Project Team (Trainer)</b>	User Group Members	Federal PM – ensure completeness and thoroughness of the document  Business Representative – indicate agreement on trainees, timing, schedule, form of training best suited for users.
W15	Online Help / User Manual	An Online help file (typically integrated as part of the IT Solution) or a stand alone User Manual that provides instructions to users on accessing/performing functions and self-help provided by the IT solution. Either an Online Help or User Manual is developed, not both. A viewable and printable Online Help file is preferred over a stand alone user manual.	<b>Project Team (Technical Writer)</b>	User Group Members	Federal PM – ensure completeness and thoroughness of the Online Help/User Manual, make decisions regarding Online Help vs. User Manual, determine appropriate use of technology to develop this artifact.  Business Rep – indicate agreement on content, flow, usability for users, and link to applicable business process.
W16	IT Solution	This is the solution developed or obtained to meet the specified business and design requirements – this is not a document.	<b>Project Team</b>	None	None. All activities conducted during test preparation and testing denotes approval of the IT solution at various phases. Final acceptance of the IT solution occurs by User Acceptance Test Results Document, Approval Form document, Post-

SDLC (Waterfall)					
#	ITS LCM Artifact	Artifact Definition	Recommended Producer ( <b>Bold = Lead</b> ) (Non-Bold = Contributor)	Recommended Reviewer Only	Recommended Approvers and Sign-off Criteria
					Deployment Review Results document and successful transition to Solution Operations and Maintenance (SO&M).
W17	IT Operations and Support Manual	A comprehensive and key manual that enables successful transition from Solutions Delivery to Operations so that the delivered solution is available and supported for the intended users. The manual provides complete details on operating and maintaining the solution in production and COOP including helpdesk access request process, multi-tier Technical Assistance Request (TAR) process support, day-to-day administration on all tiers (front-end, middle-tier and back-end) by users, helpdesk, project team, infrastructure team, and costs associated with day-to-day operations and administration.	<b>Project Team</b>	CCM Rep	Federal PM – ensure completeness and thoroughness of the document.  Service Desk Rep – indicate acceptance of manual (processes, procedures, contents) and day-to-day responsibilities.  RM – indicate acceptance of manual (processes, procedures, contents) and day-to-day responsibilities.
W18	CDE – I Test Results Report	Document reporting the results and findings from testing. This document is intended to establish a level of confidence about how well the solution meets its requirements, identifies outstanding issues and defects, and defines the effect or consequences associated with a deployment decision for the solution.  This document must include the results	<b>Project Team (Test Lead)</b>	Federal PM  Impacted Federal PMs	Contract PM – indicate acceptance that all planned testing and required testing were conducted successfully contributing to successful deployment to ITC.

SDLC (Waterfall)					
#	ITSLCM Artifact	Artifact Definition	Recommended Producer ( <b>Bold = Lead</b> ) (Non-Bold = Contributor)	Recommended Reviewer Only	Recommended Approvers and Sign-off Criteria
		and findings from: <ul style="list-style-type: none"> <li>• Functional Testing</li> <li>• System Testing</li> <li>• Integration Testing</li> <li>• Performance Testing</li> <li>• Deployment Testing</li> <li>• User Testing</li> </ul>			
W19	Test Results Report	Document reporting the results and findings from testing. This document is intended to establish a level of confidence about how well the solution meets its requirements, identifies outstanding issues and defects, and defines the effect or consequences associated with a deployment decision for the solution.  This document must include the results and findings from: <ul style="list-style-type: none"> <li>• Functional Testing</li> <li>• System Testing</li> <li>• Integration Testing</li> <li>• User Acceptance Testing</li> <li>• Certification and Accreditation (stand-alone document produced by the EIS Team)</li> </ul>	<b>Project Team</b> <b>(Test Lead - except for C&amp;A test, and UA test)</b>  EIS Rep (C&A Test)  Business Rep & User Group Members (User Acceptance Test)	Federal PM  Impacted Federal PMs  EIS Rep (C&A Test)  Information Systems Owner	Contract PM – indicate acceptance that all planned testing and required testing were conducted successfully contributing to successful deployment (Except for C&A Test).  Business Rep – indicate acceptance that all planned testing and required testing were conducted successfully contributing to successful deployment.  *ICC Rep or CFO or CFO delegated Rep (for financial or mix-financial solutions only) - consult with ICC for agreement on management and internal controls user acceptance testing.

SDLC (Waterfall)					
#	ITSCLM Artifact	Artifact Definition	Recommended Producer ( <b>Bold = Lead</b> ) (Non-Bold = Contributor)	Recommended Reviewer Only	Recommended Approvers and Sign-off Criteria
W20	Training Assessment Report	A report that documents the overall success of training. It assesses student feedback, instructor observations, and compares the results against previous training sessions that were similar or with case studies, Training Institute evaluations and remarks, lessons learned, and best practices.	<b>Project Team (Trainer)</b>	Federal PM Business Rep Training Institute Rep (if Training Institute resources were used)	None
W21	Post Deployment Review Results	Documents results of deployment ranging from confirmation by the users that the solution was successfully deployed to the Production and COOP environments and critical functions are operating correctly. It captures whether/how technical glitches were encountered and resolved, use of back-out plan, and all activities conducted to stabilize the solution. This document must be completed no later than 30 calendar days from production and COOP deployment date and is a pre-requisite for transition to IT Operations and SO&M. Additionally, CM confirms that the change control record has been updated and that any integrated system has not been negatively affected by the deployment. The document is an input to a larger Lessons Learned document.	<b>Project Team (Deployment Lead)</b>	Federal PM CCM Rep	Federal PM - completeness and thoroughness of the document.  Business Representative – Confirmation and final acceptance from User Group Members that the solution operates as intended per approved requirements and that critical functions were verified.  Service Desk & RM – Confirmation that the solution did not negatively impact production or COOP and that there are no outstanding issues that must be resolved prior to Operations.

**Note:** For “Financial” or “Mixed-Financial” solutions, the Chief Financial Officer (CFO) approval on select artifacts is required. For “Non-Financial” solutions, Chief-level signatures are not anticipated, unless the Steering Committee decides otherwise. The Internal Controls Committee should be consulted to determine the CFO sign-off requirements.

**Overview** IT Solutions Delivery Projects at PBGC are categorized into four different project types and sizes, described in Chapter One, and therefore may require different ITS/SLCM artifacts. The following section provides specific tailoring guidance for each type and size of IT Solutions Delivery Project.

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### 3.1 TAILORING MATRIX DESCRIPTION

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The Tailoring Matrix contains the tailoring guidelines for the four project types (New, Modernization, Enhancement, and Maintenance) and the four project sizes (X-Small, Small, Medium and Large):

Tailoring is completed for artifacts associated with the PMLC and the SDLC (Waterfall). Artifacts are tailored according to the Project Type, and then further tailored by the Project Size.

#### **Tailoring Matrix Information**

The following information is used in the Tailoring Matrix:

- ITS/SLCM Artifact/Process – The name of the artifact or process identified in ITS/SLCM flow diagrams of PMLC and SDLC (Waterfall). Refer to the flow diagrams within the PMLC or the SDLC (Waterfall) for the specific phases in which these artifacts are identified/created. Caution - Artifacts may appear in more than one phase, such as an artifact that originates in one phase and is finalized in a subsequent phase.
- Project Type – New IT Solution, Modernization, Enhancement, or Maintenance.
- Project Size – Given the Project Type, the four Project Size columns indicate whether each of the artifacts are “Core” or “Discretionary,” or “Not Applicable”.
  - **Core** indicates that the artifacts are required with appropriate approval signatures.
  - **Discretionary** indicates that the artifact is recommended but not required and the Federal Project Manager may opt to not produce the artifact but must be in consensus with the Project ITS/SLCM Tailoring and Compliance Plan approvers.
  - **Not Applicable** indicates that the artifact may not be applicable to the type or size, and is not required.

The matrix also identifies which artifacts / processes have templates available and the location of the template. Each project is encouraged to use the templates provided, but their use may not be required, depending on the type and size of the project. When templates are not available, an organization is listed that can assist with the artifact or process.

**Note:** While the matrix provides general guidance, the reviewers and approvers of the Project ITSCLM Tailoring and Compliance Plan are in the best position to determine applicability given the unique nature of IT Projects. All tailoring results must be documented in the Project ITSCLM Tailoring and Compliance Plan for audit purposes.









		New				Modernization				Enhancement				Maintenance			
		X-Small	Small	Medium	Large	X-Small	Small	Medium	Large	X-Small	Small	Medium	Large	X-Small	Small	Medium	Large
W12	Training Plan	Core (Refer to Fed PM & TI for guidance)	Core (Refer to Fed PM & TI for guidance)	Core (Refer to Fed PM & TI for guidance)	Core (Refer to Fed PM & TI for guidance)	Core (Refer to Fed PM & TI for guidance)	Core (Refer to Fed PM & TI for guidance)	Core (Refer to Fed PM & TI for guidance)	Core (Refer to Fed PM & TI for guidance)	Core <sup>(4)</sup> (Refer to Fed PM & TI for guidance)	Core <sup>(4)</sup> (Refer to Fed PM & TI for guidance)	Core <sup>(4)</sup> (Refer to Fed PM & TI for guidance)	Core <sup>(4)</sup> (Refer to Fed PM & TI for guidance)	Not Applicable	Not Applicable	Discretionary <sup>(4)</sup> (Refer to Fed PM & TI for guidance)	Discretionary <sup>(4)</sup> (Refer to Fed PM & TI for guidance)
W13	Deployment Guide	Core (Refer to RM for guidance)	Core (Refer to RM for guidance)	Core (Refer to RM for guidance)	Core (Refer to RM for guidance)	Core (Refer to RM for guidance)	Core (Refer to RM for guidance)	Core (Refer to RM for guidance)	Core (Refer to RM for guidance)	Core <sup>(4)</sup> (Refer to RM for guidance)	Core <sup>(4)</sup> (Refer to RM for guidance)	Core <sup>(4)</sup> (Refer to RM for guidance)	Core <sup>(4)</sup> (Refer to RM for guidance)	Core <sup>(4)</sup> (Refer to RM for guidance)	Core <sup>(4)</sup> (Refer to RM for guidance)	Core <sup>(4)</sup> (Refer to RM for guidance)	Core <sup>(4)</sup> (Refer to RM for guidance)
W14	Training Materials	Core (Refer to TI for guidance)	Core (Refer to TI for guidance)	Core (Refer to TI for guidance)	Core (Refer to TI for guidance)	Core (Refer to TI for guidance)	Core (Refer to TI for guidance)	Core (Refer to TI for guidance)	Core (Refer to TI for guidance)	Core <sup>(4)</sup> (Refer to TI for guidance)	Core <sup>(4)</sup> (Refer to TI for guidance)	Core <sup>(4)</sup> (Refer to TI for guidance)	Core <sup>(4)</sup> (Refer to TI for guidance)	Not Applicable	Not Applicable	Discretionary <sup>(4)</sup> (Refer to TI for guidance)	Discretionary <sup>(4)</sup> (Refer to TI for guidance)
W15	Online Help /User Manual	Core (Refer to Fed PM & TI for guidance)	Core (Refer to Fed PM & TI for guidance)	Core (Refer to Fed PM & TI for guidance)	Core (Refer to Fed PM & TI for guidance)	Core (Refer to Fed PM & TI for guidance)	Core (Refer to Fed PM & TI for guidance)	Core (Refer to Fed PM & TI for guidance)	Core (Refer to Fed PM & TI for guidance)	Core <sup>(4)</sup> (Refer to Fed PM & TI for guidance)	Core <sup>(4)</sup> (Refer to Fed PM & TI for guidance)	Core <sup>(4)</sup> (Refer to Fed PM & TI for guidance)	Core <sup>(4)</sup> (Refer to Fed PM & TI for guidance)	Not Applicable	Not Applicable	Discretionary <sup>(4)</sup> (Refer to Fed PM & TI for guidance)	Discretionary <sup>(4)</sup> (Refer to TI for guidance)
W16	IT Solution (not a document)	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core
W17	IT Operations and Support Manual	Core (Refer to RM for guidance)	Core (Refer to RM for guidance)	Core (Refer to RM for guidance)	Core (Refer to RM for guidance)	Core (Refer to RM for guidance)	Core (Refer to RM for guidance)	Core (Refer to RM for guidance)	Core (Refer to RM for guidance)	Core <sup>(4)</sup> (Refer to RM for guidance)	Core <sup>(4)</sup> (Refer to RM for guidance)	Core <sup>(4)</sup> (Refer to RM for guidance)	Core <sup>(4)</sup> (Refer to RM for guidance)	Core <sup>(4)</sup> (Refer to RM for guidance)	Core <sup>(4)</sup> (Refer to RM for guidance)	Core <sup>(4)</sup> (Refer to RM for guidance)	Core <sup>(4)</sup> (Refer to RM for guidance)
W18	CDE-I Test Results Report	Core (Refer to PAL for guidance)	Core (Refer to PAL for guidance)	Core (Refer to PAL for guidance)	Core (Refer to PAL for guidance)	Core (Refer to PAL for guidance)	Core (Refer to PAL for guidance)	Core (Refer to PAL for guidance)	Core (Refer to PAL for guidance)	Core (Refer to PAL for guidance)	Core (Refer to PAL for guidance)	Core (Refer to PAL for guidance)	Core (Refer to PAL for guidance)	Core (Refer to PAL for guidance)	Core (Refer to PAL for guidance)	Core (Refer to PAL for guidance)	Core (Refer to PAL for guidance)
W19	Test Results Report	Core (Refer to PAL for guidance)	Core (Refer to PAL for guidance)	Core (Refer to PAL for guidance)	Core (Refer to PAL for guidance)	Core (Refer to PAL for guidance)	Core (Refer to PAL for guidance)	Core (Refer to PAL for guidance)	Core (Refer to PAL for guidance)	Core (Refer to PAL for guidance)	Core (Refer to PAL for guidance)	Core (Refer to PAL for guidance)	Core (Refer to PAL for guidance)	Core (Refer to PAL for guidance)	Core (Refer to PAL for guidance)	Core (Refer to PAL for guidance)	Core (Refer to PAL for guidance)
W20	Training Assessment Report	Discretionary (Refer to TI for guidance)	Discretionary (Refer to TI for guidance)	Discretionary (Refer to TI for guidance)	Discretionary (Refer to TI for guidance)	Discretionary (Refer to TI for guidance)	Discretionary (Refer to TI for guidance)	Discretionary (Refer to TI for guidance)	Discretionary (Refer to TI for guidance)	Discretionary (Refer to TI for guidance)	Discretionary (Refer to TI for guidance)	Discretionary (Refer to TI for guidance)	Discretionary (Refer to TI for guidance)	Not Applicable	Not Applicable	Discretionary (Refer to TI for guidance)	Discretionary (Refer to TI for guidance)
W21	Post Deployment Review Results	Core (Refer to Federal PM for guidance)	Core (Refer to Federal PM for guidance)	Core (Refer to Federal PM for guidance)	Core (Refer to Federal PM for guidance)	Core (Refer to Federal PM for guidance)	Core (Refer to Federal PM for guidance)	Core (Refer to Federal PM for guidance)	Core (Refer to Federal PM for guidance)	Core (Refer to Federal PM for guidance)	Core (Refer to Federal PM for guidance)	Core (Refer to Federal PM for guidance)	Core (Refer to Federal PM for guidance)	Core (Refer to Federal PM for guidance)	Core (Refer to Federal PM for guidance)	Core (Refer to Federal PM for guidance)	Core (Refer to Federal PM for guidance)

**Notes:**

Necessary if there is no funding and/or baseline funding is insufficient or unavailable.

If resources are needed, but no existing contract or current contract does not support scope of work.

It is best practice for projects to produce regularly scheduled project status reports on at least a monthly basis, be sure to check the contract for required frequencies of status reports.

Update the existing artifact by creating an addendum identifying the changes being made.



**Office of Information Technology**

**Information Technology  
Solutions Life Cycle Methodology  
(ITSLCM)**

**Section 3**

**Project Management Life Cycle (PMLC)**

**Version 2007.1**

Last Updated Date: 06/02/2008

### Revision History

Version	Date (PMC Approved)	Author	Section(s) Changed	Description/Comments
V2007.1	12/31/2006	PM PIT	NA	Initial release
V2007.1	01/16/2007	PM PIT	All	Changes were made as per the PMC review – Final release
V2007.1	02/07/2007	PM PIT	NA	Approved by PMC and signed by PMC Chair
V2007.1	02/08/2007	PM PIT	NA	Approved and signed by Acting Chief Information Officer
V2007.1	05/30/2007	PMC Process Development Team	1.3 (page 2); 2.4 (page 8, 9, 10, 12, 15, 16); 3.4 (page 21, 25, 28, 34, 37, 43); 5.3 (page 55); Appendix A	Changed all occurrences of Program Manager to Program Coordinator, as per PMC directive.
V2007.1	09/12/2007	PMC Process Development Team	Cover Added new section 4.3.4	Replace document cover with new style/format standard cover. Added Monitor and Control (PI#64)
V2007.1	10/02/2007	PMC Process Development Team	All	Removed references to Test Strategy document
V2007.1	01/31/2008	PMC Process Development Team	All	Replaced references to elements with divisions, departments, or functional areas. (PI#153)
V2007.1	01/31/2008	PMC Process Development Team	All	Reviewed, and either updated (changed to PPQA) or deleted all references to QA. (PI#168).

<b>Version</b>	<b>Date (PMC Approved)</b>	<b>Author</b>	<b>Section(s) Changed</b>	<b>Description/Comments</b>
V2007.1	01/31/2008	PMC Process Development Team	All	Updated all references to IA, IE, IO with new ITIO Department terms. (PI#154)
V2007.1	01/31/2008	PMC Process Development Team	All	Reassign PMO Coordinator/Rep responsibilities and remove references of same. Also, remove references to project inventory list
V2007.1	03/17/2008	PMC Process Development Team	5.3.1.3; 5.3.1.4;	Changed Project Closeout to allow for electronic copies or links for distribution of information on project artifacts
V2007.1	03/18/2008	PMC Process Development Team	2.3, 2.4.3, 2.4.4	Replaced ITIRC references with CPIT per PI #170
V2007.1	03/20/2008	PMC Process Development Team	2.3, 2.4.3, 2.4.4, Drawing 2.4.3.1, Appendix A	Changed 'CPIT' to 'CPIT Group'. Changed 'ITIRC' to 'CPIT Group' or 'CPIT' on drawing and Appendix A
V2007.1	05/30/2008	PMC Process Development Team	5.3.1.3, 5.3.1.4	Removed EPMD References. Replaced EPMD with ITS LCM Champion where appropriate.
V2007.1	06/02/2008	PMC Process Development Team	5.3.1.3	Replaced references to ITS LCM Champion with Division Manager

Note: Detailed processes and templates are available on the OIT's Process Assets Library portal site.

The Office of Information Technology's Process Management Committee (PMC) members reviewed and approved this ITS LCM Version 2007.1.

**Cheryl Ringel**  
\_\_\_\_\_  
PMC Chair

Approval Date: Signed February 7, 2007

**Jon Baake**  
\_\_\_\_\_  
Acting Chief Information Officer

Approval Date: Signed February 8, 2007

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## Table of Contents

<b>CHAPTER 1 – Overview .....</b>	<b>1</b>
1.1 Purpose .....	1
1.2 Scope .....	1
1.3 Audience.....	2
1.4 Phase Overview.....	2
1.5 How to Read the PMLC .....	3
1.6 Common Terminology.....	4
1.7 References .....	5
<b>CHAPTER 2 – Project Initiation Phase .....</b>	<b>7</b>
2.1 Project Initiation Overview Diagram.....	7
2.2 Project Initiation Inputs .....	7
2.3 Project Initiation Outputs.....	7
2.4 Project Initiation Detailed Activities .....	8
2.4.1 Commence Project .....	8
2.4.2 Develop Level of Effort .....	9
2.4.3 Develop and Present Business Case .....	11
2.4.4 Develop Project Charter .....	14
2.4.5 Establish Project.....	15
<b>CHAPTER 3 – Project Planning Phase .....</b>	<b>19</b>
3.1 Project Planning Overview Diagram .....	19
3.2 Project Planning Inputs.....	20
3.3 Project Planning Outputs .....	20
3.4 Project Planning Detailed Activities .....	20
3.4.1 Develop Project ITSLCM Tailoring and Compliance Plan.....	20
3.4.2 Resource Acquisition and Procurement.....	22
3.4.3 Establish Integrated Project Team.....	24
3.4.4 Establish Communications .....	27
3.4.5 Establish Issues and Risk Matrix .....	30
3.4.6 Develop Project Schedule .....	34
3.4.7 Develop Project Cost.....	39

3.4.8	Develop Supplemental Plans.....	42
3.4.9	Develop Project Management Plan .....	44
<b>CHAPTER 4 – Project Execution, Monitoring and Control Phase.....</b>		<b>48</b>
4.1	Project Execution, Monitoring and Control Inputs .....	49
4.2	Project Execution, Monitoring and Control Outputs .....	49
4.3	Project Execution, Monitoring and Control Detailed Activities.....	50
4.3.1	Execute Project Management Plan.....	50
4.3.2	Conduct Team Development .....	52
4.3.3	Distribute Information.....	53
4.3.4	Monitor and Control the Project Management Plan .....	54
<b>CHAPTER 5 – Project Close-Out Phase .....</b>		<b>58</b>
5.1	Project Close-Out Inputs.....	59
5.2	Project Close-Out Outputs.....	59
5.3	Project Close-Out Detailed Activities .....	59
5.3.1	Close Project .....	59
<b>Appendix A .....</b>		<b>63</b>
<b>Appendix B .....</b>		<b>64</b>

## Overview

The Pension Benefit Guaranty Corporation (PBGC) Office of Information Technology (OIT) Project Management Life Cycle (PMLC) was developed by the Project Management Process Improvement Team (PM PIT). It defines the Information Systems and Information Technology Project Management processes and was created to assist Project Managers in carrying out their duties. The PMLC is intended to guide Project Managers from project initiation through the project close-out phases, detailing specific project management processes to be performed within each phase and defining the activities that comprise each process. It also describes the artifacts that are produced within each of the processes. The PMLC provides a common methodology for managing projects within PBGC, and should be used for all new and existing Information Systems and Information Technology projects, to include both internal projects, and those projects using contractor support.

The PBGC OIT Process Management Committee (PMC) owns and maintains the processes in this document. It also manages and controls changes made to the PBGC OIT's processes. Changes or improvements to these processes must be submitted to and approved by the PMC. All processes and templates associated with this process are located on the OIT Process Assets Library (PAL) community on the portal.

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## 1.1 PURPOSE

A common methodology encourages individual Project Managers across the OIT organization to approach each project with the same discipline and tools. The purpose of the PMLC is to present detailed project management processes to be used in initiating, planning, managing, executing, monitoring, and closing solutions delivery projects. The PMLC is both a “what to do” and a “how to do” guide for people involved in a project and is to be used by all the Information Systems and Information Technology projects.

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## 1.2 SCOPE

The PMLC was developed to assist Project Managers in carrying out their duties by incorporating the best practices of the Project Management Body of Knowledge (PMBOK®) and the Capability Maturity Model® Integration (CMMI®) project management principle.

The PMLC covers the project management knowledge areas of PMBOK® (excluding Procurement) and three specific process areas of CMMI® (Project Planning, Project Monitoring and Control, and Risk Management).

The phases discussed in the PMLC include Project Initiation, Project Planning, Project Execution, Monitoring and Control, and Project Close-Out.

### 1.3 AUDIENCE

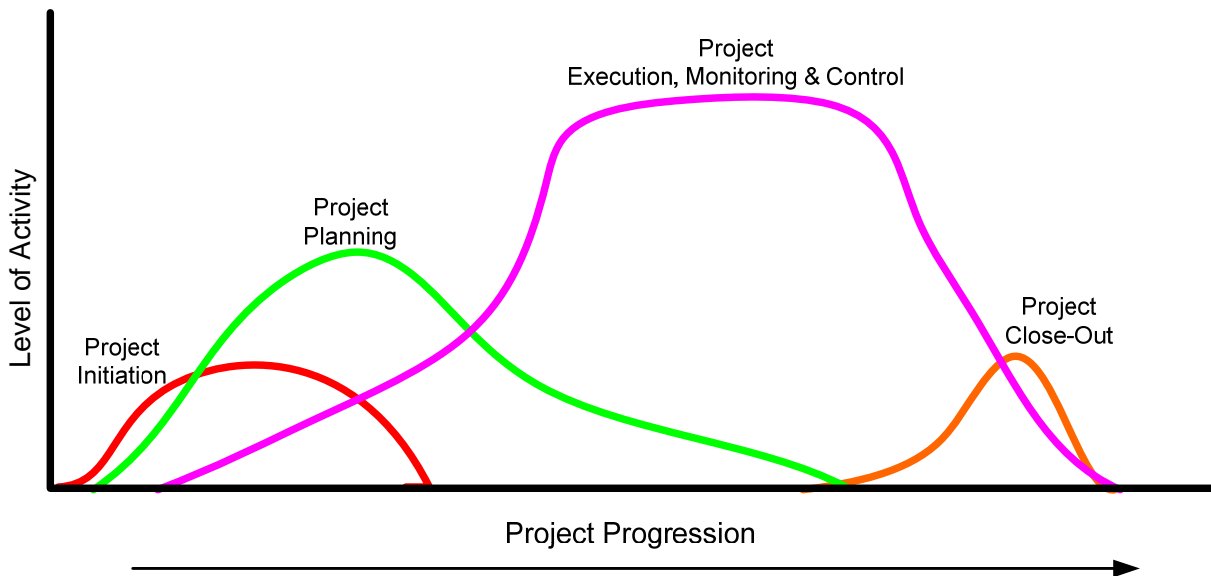
The PMLC is primarily intended for project managers and division managers responsible for managing Information Systems and Information Technology projects across all PBGC departments and offices. The PMLC is for managers new to the PBGC environment, as well as those with previous project management experience within the PBGC environment. However, any interested individual desiring to gain insight into conducting project management activities will benefit from reading this document.

### 1.4 PHASE OVERVIEW

There are four phases of the Project Management Life Cycle. The main purpose for each is:

- **Project Initiation** – Obtain high-level scope, budget, and schedule information; formally authorize the project; and produce the Project Charter.
- **Project Planning** – Develop the Project Management Plan; and integrate/coordinate all of the planning activities.
- **Project Execution, Monitoring and Control** – Execute the project plan; track project cost, time, scope, and quality; and take corrective action.
- **Project Close-Out** – Obtain final project acceptance; administratively close the project; and document lessons learned.

The diagram pictured below illustrates the inter-relationships between all four of these phases.



**Figure 1-1** Process Activity Project Progression Diagram

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## 1.5 HOW TO READ THE PMLC

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This document is divided into 5 major chapters, arranged by project management phase:

- Chapter 1: Overview
- Chapter 2: Project Initiation Phase
- Chapter 3: Project Planning Phase
- Chapter 4: Project Execution, Monitoring and Control Phase
- Chapter 5: Project Close-Out Phase

Chapters 2 – 5 have similar layouts; the general layout is provided below with descriptions of what each section contains within the chapter:

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**Overview** The overview section provides the purpose of the phase and the high-level tasks required in the phase.

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### X.1 [PHASE NAME] OVERVIEW DIAGRAM

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Chapters 2 and 3 provide high-level diagrams that depict the essential activities associated with the phase, and provide a process flow for the phase's activities. Each grey box is titled and identifies the detailed activity section where a further breakdown of the activity is supplied.

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### X.2 [PHASE NAME] INPUTS

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- A summary of all the inputs for the phase are listed here.

---

### X.3 [PHASE NAME] OUTPUTS

---

- A summary of all the outputs for the phase are listed here.

---

### X.4 [PHASE NAME] DETAILED ACTIVITIES

---

A list of the controls for all the activities within the phase is listed here.

---

#### X.4.1 Activity

---

A description of the activity is provided here.

##### X.4.1.1 Activity 1 Diagram

In Chapters 2 and 3, detailed process steps for the activity are diagrammed here. These diagrams are a decomposition of the overall phase diagram.

##### X.4.1.2 Inputs

- The artifacts required to start the activity are listed here.

#### X.4.1.3 Outputs

- The artifacts resulting from completing the activity are listed here.

#### X.4.1.4 Process Details

A detailed process table is provided for each activity. There may be one or more steps for each activity listed on the diagram. **Some steps may be done in parallel and will be identified as such in the Steps column.**

Inputs	Templates and Tools	Steps	Outputs	Role(s)
<ul style="list-style-type: none"> <li>• Required to start the step</li> </ul>	<ul style="list-style-type: none"> <li>• Template or tools used in this step</li> </ul>	<ul style="list-style-type: none"> <li>• The actual steps of the process</li> </ul>	<ul style="list-style-type: none"> <li>• Result of completing the step</li> </ul>	<ul style="list-style-type: none"> <li>• Role(s) responsible for completing the action</li> </ul>
<ul style="list-style-type: none"> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>

#### X.4.1.5 Artifact Repository

- Each artifact produced as a result of the activity will be identified as well as its storage location.

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## 1.6 COMMON TERMINOLOGY

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The following terms have been defined as they are frequently used in this document:

**Core Project Team:** The team members primarily responsible for performing the work.

**Participating Project Team:** The team members that provide input to the Core Team consisting of representatives from the different functional areas such as Process and Product Quality Assurance (PPQA), Enterprise Architect, Interface Team Analyst(s), IT Infrastructure Operations (ITIO) Department Representative (Note: ITIO will assign a Release Manager (RM) to each project as a single point of contact for the PM. The RM will engage other resources from the ITIO divisions as necessary during the project.), Security Certifier, etc.

**Process Assets Library (PAL):** A repository of process assets for use by those who are defining, implementing, and managing processes. Process assets include process-related documentation such as policies, defined processes, checklists, templates, training materials, and lessons learned documents.

**Project:** A temporary endeavor to create a unique product, service, or result.

**Project Manager (PM):** The person(s) responsible for coordinating the project overall, performing project management functions, and producing project management artifacts throughout the project life cycle. For the purpose of this document, this term refers to either the Federal Project Manager (Federal PM) or the Contractor Project Manager (Contractor PM) or both, depending on the project.

**Project Team Members:** The entire project team including both core and participating members. See also Core Project Team and Participating Project Team.

**Project Plan:** A formal, approved document used to guide both project execution and project control. The primary uses of the project plan are to document planning assumptions and decisions, facilitate communication among stakeholders, and document approved scope, cost, and schedule baselines. A project plan may be summary or detailed.

**Project Management Plan (PMP):** The PMP is the comprehensive planning document used for describing how the project will be managed and references the plans that are used on the project that exist in a stand-alone format. Refer to the Project Management Plan Template within the PAL located on the PBGC Portal for more information on the template. The stand-alone plans, combined with the PMP, form the overall project plan.

**Project Notebook:** A Project Notebook is a complete documentation of a project's details. The term Project Notebook refers to both an electronic and physical storage place for project artifacts.

**Project Schedule:** The planned dates for performing activities and meeting milestones. Generally, it is considered part of the overall project plan though typically a separate document.

**Project Scope:** The work that must be done to deliver a product with the specified features and functions.

**Solution Scope:** The features that characterize a solution or service.

**Stakeholders:** Anyone who is impacted by or contributes to a project. Stakeholders may include the project team, end users, suppliers, etc.

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## 1.7 REFERENCES

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Listed below are the documents that were referenced during the development of this Document:

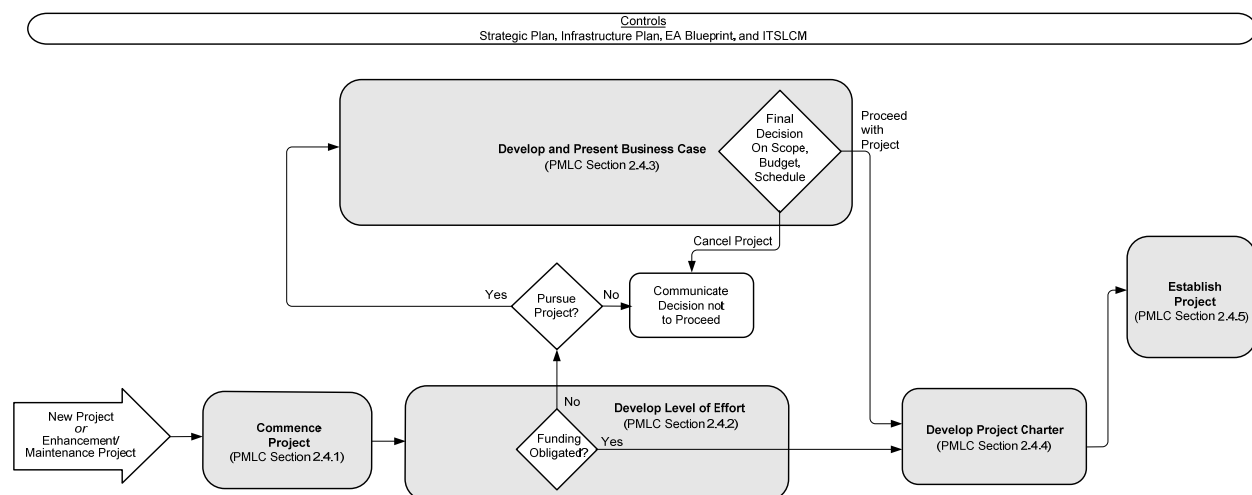
- A Guide to the Project Management Body of Knowledge (PMBOK®); 2000 Edition
- A Guide to the Project Management Body of Knowledge (PMBOK®); 2004 Edition
- CMMI® Guidelines for Process Integration and Product Improvement
- Keane Guide to Project Management (KGPM), Edition 5.3
- State of Michigan Project Management Methodology; Office of Project Management, May 2001
- New York State Project Management Guidebook, Release 2
- Department of Veterans Affairs, Office of Information Technology Project Management Guide, September 2004
- Quality Assurance Guidelines for Projects in Texas State Agencies, Project Monitoring and Control, February 2000
- Existing PBGC OIT Processes



## Overview

The Project Initiation phase establishes the high level budget, scope, and schedule, as well as formally authorizes the project to start. The activities in this phase include assigning roles, developing a level of effort, developing and presenting a business case, developing and approving a Project Charter, registering the project with the Office of Information Technology (OIT), and establishing the Project Notebook. Note that depending on a project's funding, a project may not require a Business Case.

## 2.1 PROJECT INITIATION OVERVIEW DIAGRAM



**Note:** See Appendix “A” for a detailed version of this diagram.

**Figure 2-1** Project Initiation Phase Overview Diagram

## 2.2 PROJECT INITIATION INPUTS

- New Project Request or Enhancement/Maintenance Project Request

## 2.3 PROJECT INITIATION OUTPUTS

- Approved Level of Effort (LOE)
- Business Case (if required)
- Capital Planning for Information Technology (CPIT) and Executive Management Committee (EMC) Summary Results (if required)
- Approved Project Charter
- Project Notebook

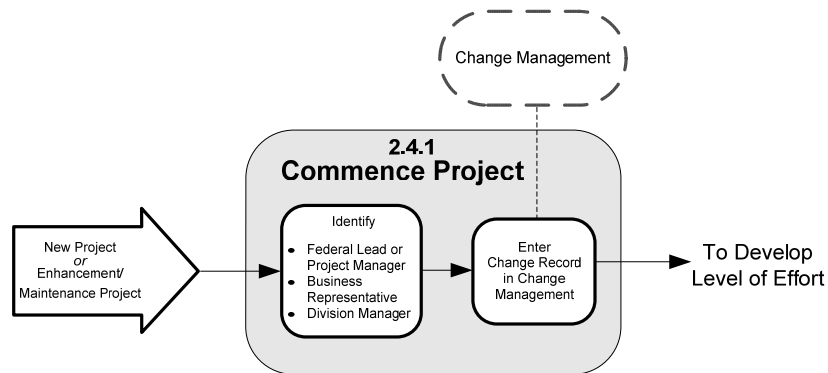
## 2.4 PROJECT INITIATION DETAILED ACTIVITIES

The activities within the Project Initiation phase are controlled by the Strategic Plan, Infrastructure Plan, Enterprise Architecture (EA) Blueprint, and the Information Technology Solutions Life Cycle Methodology (ITSLCM). Adherence to these plans and policies is required or a waiver must be received.

### 2.4.1 Commence Project

The Commence Project activity is important for identifying or confirming the Federal PM for the project. Also identified at this time are the Business Representative and the Division Manager. The Division Manager adds the project record to the designated OIT project and portfolio management system (e.g. Primavera) which contains key project information, such as the project's status and other dependencies. The Division Manager updates the project record as the project progresses through the initiation phase.

#### 2.4.1.1 Commence Project Diagram



**Figure 2-2** Commence Project Diagram

#### 2.4.1.2 Inputs

- New Project Request or Enhancement/Maintenance Project Request

#### 2.4.1.3 Outputs

- Project and Portfolio Management System Record
- Identified Federal PM
- Identified Business Representative
- Identified Division Manager

### 2.4.1.4 Process Details

Inputs	Templates and Tools	Steps	Outputs	Role(s)
<ul style="list-style-type: none"> <li>New Project Request or Enhancement/Maintenance Project Request</li> </ul>	<ul style="list-style-type: none"> <li>None</li> </ul>	<ul style="list-style-type: none"> <li>Identify (or confirm roles if enhancement/maintenance request) Federal PM, Business Representative, and Division Manager</li> </ul>	<ul style="list-style-type: none"> <li>Identified Federal PM, Business Representative, Division Manager</li> </ul>	<ul style="list-style-type: none"> <li>IT Senior Management</li> </ul>
<ul style="list-style-type: none"> <li>Identified Roles</li> </ul>	<ul style="list-style-type: none"> <li>None</li> </ul>	<ul style="list-style-type: none"> <li>Initiate the Project and Portfolio Management Record</li> </ul>	<ul style="list-style-type: none"> <li>Project and Portfolio Management Record</li> </ul>	<ul style="list-style-type: none"> <li>Division Manager</li> </ul>
<ul style="list-style-type: none"> <li>None</li> </ul>	<ul style="list-style-type: none"> <li>None</li> </ul>	<ul style="list-style-type: none"> <li>Enter the Change Record. Refer to the external Change Management process</li> </ul>	<ul style="list-style-type: none"> <li>Change Record</li> </ul>	<ul style="list-style-type: none"> <li>Federal PM</li> </ul>

### 2.4.1.5 Artifact Repository

- None

## 2.4.2 Develop Level of Effort

Developing the LOE begins once the Federal PM, Business Representative, and Division Manager have been identified, and the change record has been logged. In order to determine if funding is available, it is first necessary to have a high-level estimate of cost based on the proposed high-level project scope and requirements. This is captured in the LOE document. To create the LOE document, information regarding the project such as scope, schedule, and resources is gathered. Funding is reviewed and, if necessary, a contract modification is written. If funding is not available, a Business Case can be created and the LOE document then serves as input to the Business Case.

### 2.4.2.1 Develop Level of Effort Diagram

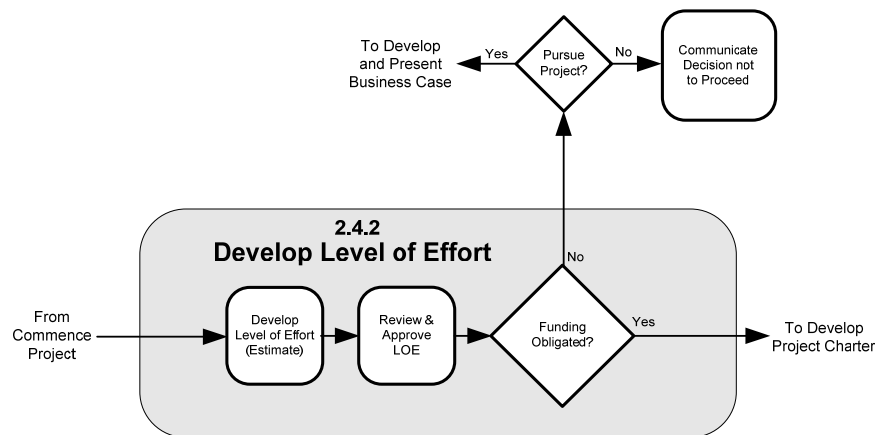


Figure 2-3 Develop Level of Effort Diagram

### 2.4.2.2 Inputs

- Identified Federal PM

### 2.4.2.3 Outputs

- LOE

### 2.4.2.4 Process Details

Inputs	Templates and Tools	Steps	Outputs	Role(s)
<ul style="list-style-type: none"> <li>• Assigned PM</li> </ul>	<ul style="list-style-type: none"> <li>• LOE</li> </ul>	<ul style="list-style-type: none"> <li>• Meet with requester to clarify scope of change for the new request</li> <li>• Develop LOE using LOE template. Be sure to refer to the Project ITSCLM Tailoring and Compliance Plan and the ITSCLM Tailoring and Compliance Guidance Document for what is included in a project</li> </ul>	<ul style="list-style-type: none"> <li>• Draft LOE</li> </ul>	<ul style="list-style-type: none"> <li>• Federal PM</li> <li>• Business Representative</li> <li>• Division Manager</li> <li>• Requestor</li> </ul>
<ul style="list-style-type: none"> <li>• Draft LOE</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• Request feedback or additional information from PPQA, Enterprise Architecture (EA), and IT Infrastructure Operation Department divisions</li> </ul>	<ul style="list-style-type: none"> <li>• Draft LOE</li> </ul>	<ul style="list-style-type: none"> <li>• Federal PM</li> <li>• PPQA, EA, RM, ITIO Representative</li> </ul>
<ul style="list-style-type: none"> <li>• Draft LOE</li> </ul>	<ul style="list-style-type: none"> <li>• Submit Artifacts For Approval process</li> </ul>	<ul style="list-style-type: none"> <li>• Follow the “Submit Artifacts for Approval” external process located in the PAL</li> </ul>	<ul style="list-style-type: none"> <li>• Approved LOE</li> </ul>	<ul style="list-style-type: none"> <li>• Refer to Project ITSCLM Tailoring and Compliance Guidance Document for roles</li> </ul>
<ul style="list-style-type: none"> <li>• Approved LOE</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• Check contract for obligated funding against LOE.</li> <li>• Discuss with Manager/ Sponsor about contract modifications or other ways to allocate funding.</li> <li>• If funding is available, proceed to “Develop Project Charter” activity</li> </ul>	<ul style="list-style-type: none"> <li>• Designated funding</li> </ul>	<ul style="list-style-type: none"> <li>• Federal PM</li> <li>• Contracting Officer Technical Representative (COTR)</li> </ul>

Inputs	Templates and Tools	Steps	Outputs	Role(s)
		<ul style="list-style-type: none"> <li>• If funding is not available, determine if a Business Case will be completed               <ul style="list-style-type: none"> <li>- If a Business Case will be completed, go to the “Develop and Present Business Case” Activity</li> <li>- If a Business Case will NOT be completed, communicate to the stakeholders/sponsors decision not to proceed and close Change Record. Project is cancelled</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Decision to create Business Case</li> </ul> <p>OR</p> <ul style="list-style-type: none"> <li>• Cancelled Project</li> </ul>	<ul style="list-style-type: none"> <li>• Federal PM</li> <li>• COTR</li> </ul>

#### 2.4.2.5 Artifact Repository

- Approved LOE - retained by Business Representative, Contracting Officer Technical Representative (COTR), and Federal PM. If project is funded a copy should also be kept in the Project Notebook – Defining Documents folder

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#### 2.4.3 Develop and Present Business Case

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The Business Case is developed to present information regarding the project’s viability and alignment to PBGC goals and mission, and is presented to the CPIT Group and the EMC. Upon reviewing the Business Case, the CPIT Group and the EMC make recommendations that are then reconciled with the Business Case and presented to the Sponsor. The Sponsor makes the final decision on the scope, budget, and schedule.

### 2.4.3.1 Develop and Present Business Case Diagram

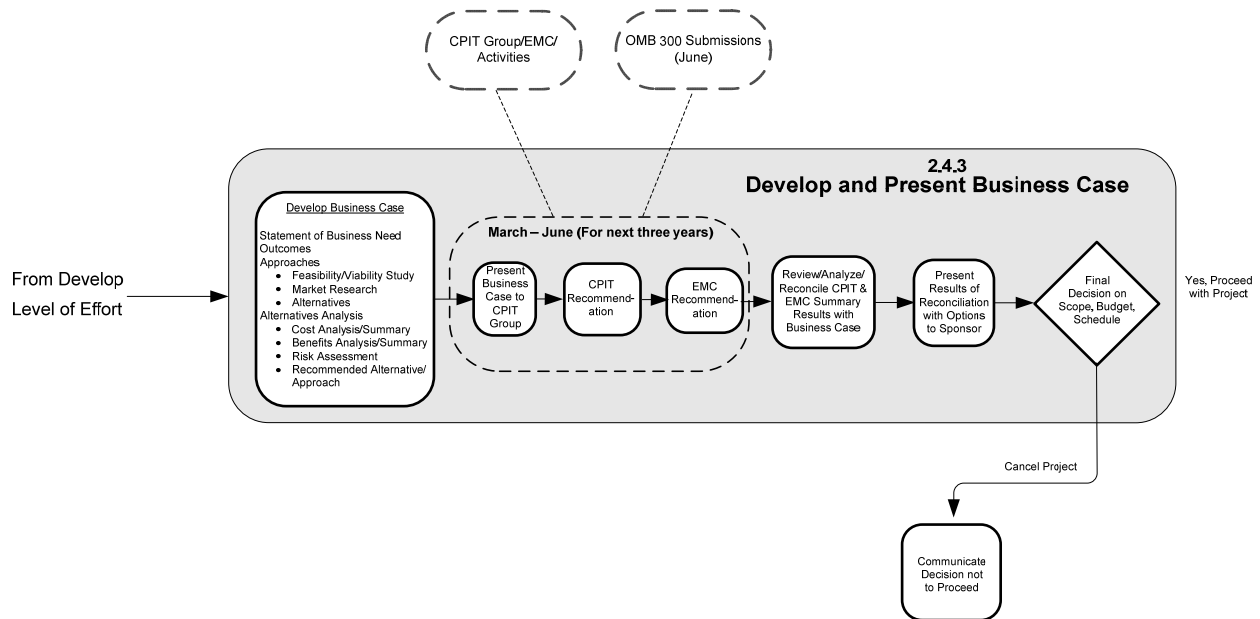


Figure 2-4 Develop and Present Business Case Diagram

#### 2.4.3.2 Inputs

- Approved/Signed-off LOE with no obligated funding

#### 2.4.3.3 Outputs

- Business Case
- CPIT/EMC Summary Results
- Sponsor Presentation
- Final Project Decision

#### 2.4.3.4 Process Details

Inputs	Templates and Tools	Steps	Outputs	Role(s)
<ul style="list-style-type: none"> <li>• Approved LOE</li> </ul>	<ul style="list-style-type: none"> <li>• CPIT Group Business Case (refer to CPIT Group for template)</li> </ul>	<ul style="list-style-type: none"> <li>• Review LOE and develop Business Case</li> </ul>	<ul style="list-style-type: none"> <li>• Business Case</li> </ul>	<ul style="list-style-type: none"> <li>• Business Representative assisted by Federal PM</li> <li>• Division Manager</li> </ul>
<ul style="list-style-type: none"> <li>• Business Case</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• Present Business Case to CPIT for CPIT Recommendation (Presentation may take 2 cycles for recommendation to be made)</li> </ul>	<ul style="list-style-type: none"> <li>• CPIT Recommendation Summary Results</li> </ul>	<ul style="list-style-type: none"> <li>• Business Representative</li> <li>• CPIT members</li> </ul>

Inputs	Templates and Tools	Steps	Outputs	Role(s)
<ul style="list-style-type: none"> <li>CPIT Group Recommendation</li> </ul>	<ul style="list-style-type: none"> <li>None</li> </ul>	<ul style="list-style-type: none"> <li>Review CPIT Recommendation and make EMC recommendation</li> </ul>	<ul style="list-style-type: none"> <li>EMC Recommendation Summary Results</li> </ul>	<ul style="list-style-type: none"> <li>Executive Management Committee (EMC)</li> </ul>
<ul style="list-style-type: none"> <li>CPIT Group and EMC Summary Results</li> </ul>	<ul style="list-style-type: none"> <li>None</li> </ul>	<ul style="list-style-type: none"> <li>Review summary results and analyze/reconcile the results with the Business Case. Develop options for accommodating Business Case, CPIT and EMC Summary Results. May involve re-scoping the effort and involving the people instrumental in developing the LOE</li> </ul>	<ul style="list-style-type: none"> <li>Revised Business Case or Options</li> </ul>	<ul style="list-style-type: none"> <li>Business Representative</li> <li>Federal PM</li> <li>PPQA, EA, ITIO Representatives</li> </ul>
<ul style="list-style-type: none"> <li>Revised Business Case or Options</li> </ul>	<ul style="list-style-type: none"> <li>None</li> </ul>	<ul style="list-style-type: none"> <li>Prepare and deliver presentation for Sponsor demonstrating options based on CPIT/EMC Summary Results</li> </ul>	<ul style="list-style-type: none"> <li>Sponsor Presentation</li> </ul>	<ul style="list-style-type: none"> <li>Business Representative</li> <li>Federal PM</li> </ul>
<ul style="list-style-type: none"> <li>Sponsor presentation</li> </ul>	<ul style="list-style-type: none"> <li>None</li> </ul>	<ul style="list-style-type: none"> <li>Obtain final decision on scope, budget and schedule from Sponsor. <ul style="list-style-type: none"> <li>- If yes, proceed to "Develop Project Charter" activity</li> <li>- If unable to proceed, communicate the decision not to proceed to the impacted stakeholders and close the change record. Project is cancelled</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Final Decision</li> </ul>	<ul style="list-style-type: none"> <li>Sponsor</li> <li>Business Representative</li> <li>Federal PM</li> </ul>

#### 2.4.3.5 Artifact Repository

- Business Case - CPIT/EMC Portal, and if project approved, in the Project Notebook – Defining Documents folder
- CPIT/EMC Summary Results – CPIT/EMC Portal, and if project approved, in the Project Notebook – Defining Documents folder
- Sponsor Presentation if project approved, in the Project Notebook – Defining Documents folder

## 2.4.4 Develop Project Charter

The Project Charter is the document used to formally authorize the start of a project. The purpose of the Project Charter is to demonstrate management support for the project, formally assign the Federal PM, as well as to provide the Federal PM with the authority to apply organizational resources to project activities.

### 2.4.4.1 Develop Project Charter Diagram

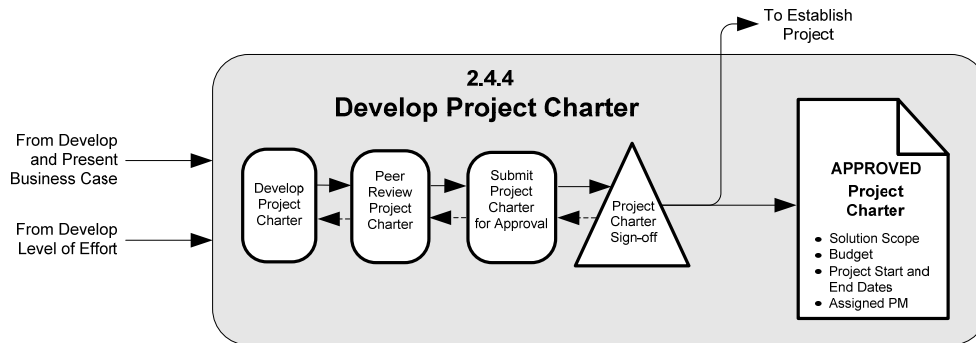


Figure 2-5 Develop Project Charter Diagram

### 2.4.4.2 Inputs

- Approved/Signed-off LOE -OR-
- Business Case (if required)
- CPIT/EMC Summary Results (if required)

### 2.4.4.3 Outputs

- Approved/Signed-off Project Charter
- Assigned Federal PM

### 2.4.4.4 Process Details

Inputs	Templates and Tools	Steps	Outputs	Role(s)
<ul style="list-style-type: none"> <li>• Approved LOE</li> <li>• Business Case (if required)</li> <li>• CPIT/EMC Summary Results (if required)</li> </ul>	<ul style="list-style-type: none"> <li>• Project Charter</li> </ul>	<ul style="list-style-type: none"> <li>• Review the approved LOE and other scoping documents as input for the Project Charter</li> <li>• Research previous projects for similar Project Charter documents to use as samples</li> <li>• Using the Project Charter template, draft the Project Charter</li> </ul>	<ul style="list-style-type: none"> <li>• Draft Project Charter</li> </ul>	<ul style="list-style-type: none"> <li>• Federal PM</li> </ul>



Inputs	Templates and Tools	Steps	Outputs	Role(s)
<ul style="list-style-type: none"> <li>Draft Project Charter</li> </ul>	<ul style="list-style-type: none"> <li>Peer Review Process</li> </ul>	<ul style="list-style-type: none"> <li>Conduct Peer Review following the “Peer Review” external process located in the PAL</li> </ul>	<ul style="list-style-type: none"> <li>Peer Reviewed Project Charter</li> <li>Peer Review artifacts</li> </ul>	<ul style="list-style-type: none"> <li>Refer to Project ITS/SLCM Tailoring and Compliance Guidance Document for roles</li> </ul>
<ul style="list-style-type: none"> <li>Reviewed Project Charter</li> </ul>	<ul style="list-style-type: none"> <li>Submit Artifacts for Approval process</li> </ul>	<ul style="list-style-type: none"> <li>Submit Project Charter for Approval following the “Submit Artifacts for Approval” external process located in the PAL</li> </ul>	<ul style="list-style-type: none"> <li>Approved Project Charter</li> <li>Assigned Federal PM</li> </ul>	<ul style="list-style-type: none"> <li>Refer to Project ITS/SLCM Tailoring and Compliance Guidance Document for roles</li> </ul>

#### 2.4.4.5 Artifact Repository

- Project Charter - Project Notebook (Defining Documents)

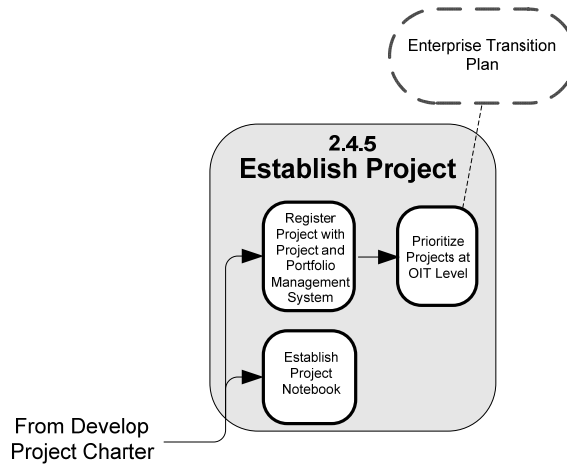
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#### 2.4.5 Establish Project

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Establishing the project includes tasks that assist in getting the project underway. During this activity, the Portfolio Manager is notified of the change in the project’s status from initiation to in-progress and the appropriate documents are updated. A Project Notebook is established and the initiation documents are filed there. In addition, OIT management assigns a priority to the project which aids in OIT planning.

### 2.4.5.1 Establish Project Diagram



**Figure 2-6** Establish Project Diagram

#### 2.4.5.2 Inputs

- Approved/Signed-off Project Charter
- Project and Portfolio Management System Record

#### 2.4.5.3 Outputs

- Project Notebook
- Updated Project and Portfolio Management System Record

#### 2.4.5.4 Process Details

Inputs	Templates and Tools	Steps	Outputs	Role(s)
<ul style="list-style-type: none"> <li>• Approved / Signed-off Project Charter</li> </ul>	<ul style="list-style-type: none"> <li>• Project Notebook</li> </ul>	<ul style="list-style-type: none"> <li>• Establish Project Notebook, including both the physical and electronic Project Notebooks. (For Enhancement/Maintenance Projects, use the existing project on the portal)</li> <li>• A recommended structure for both notebooks is provided below; if additional sections are required, add them as necessary. A tabbed 3-ring binder is recommended for the physical Project Notebook</li> </ul>	<ul style="list-style-type: none"> <li>• Project Notebook (electronic and physical)</li> </ul>	<ul style="list-style-type: none"> <li>• PM</li> </ul>
<ul style="list-style-type: none"> <li>• Approved / Signed-off Project Charter</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• Submit signed copy of Project Charter to Portfolio Manager who will assign a unique ID</li> </ul>	<ul style="list-style-type: none"> <li>• Updated Project and Portfolio Management System Record</li> </ul>	<ul style="list-style-type: none"> <li>• PM</li> <li>• Portfolio Manager</li> </ul>
<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• Set up Project Folder</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• Division Manager</li> </ul>

Inputs	Templates and Tools	Steps	Outputs	Role(s)
<ul style="list-style-type: none"> <li>Project and Portfolio Management,</li> </ul>	<ul style="list-style-type: none"> <li>None</li> </ul>	<ul style="list-style-type: none"> <li>Prioritize project at OIT level</li> </ul>	<ul style="list-style-type: none"> <li>Updated Project and Portfolio Management System Record</li> </ul>	<ul style="list-style-type: none"> <li>OIT Management</li> <li>Division Manager</li> <li>Portfolio Manager</li> </ul>

### 2.4.5.5 Artifact Repository

- None

#### Additional information about the Project Notebook

The electronic Project Notebook is created on the portal and is used to store project related materials. Refer to the Portal Team for more information on establishing a project on the portal. The information should be carefully organized to ensure the availability and accessibility of the information. The Project Notebook puts all the history of the project at one's fingertips. It should be kept in a place that is accessible to the PM and the Project Team to use as a reference manual throughout the project.

Even though much of the Project Notebook content may be maintained in electronic copy, a physical loose-leaf binder should also be created to house hard copies (where needed) with placeholders indicating where the material may be retrieved (drive, directory, filename, etc.). Always keep items intended for signature in hard copy, including the artifact approval sheet and change modification request forms. Keep hard copy artifacts in the notebook so there is no confusion about what version was actually approved. For deliverables that are too large to maintain in a notebook, include a placeholder indicating the location of the electronic copy. It is also advisable to have hard copies of the current project defining documents (such as the Project Charter, Project Management Plan, and the Project Schedule) for ease of reference and ability to bring to meetings if needed.

The Project Notebook is available to everyone involved in the project and must therefore be considered public. Do not store sensitive or confidential materials concerning human resources or financial information. However, although the information may be public, access and update control should still be implemented, as applicable. (The PM should consider creating a Confidential Project Notebook to store such items as Financials and Audit Findings.)

#### Project Notebook Table of Contents

**Note:** This is the recommended structure for both the electronic and physical notebooks. If this structure does not suit the project, it may be modified. If modified, all project related materials must still be stored in the Project Notebook. Store the most recent 3 months of materials in the physical notebook and insert pointers to where the older electronic materials reside.

1. Defining Documents (Project Charter, Project ITSLCM Tailoring and Compliance Plan, Project Management Plan, Staff Management Plan, etc.)
2. Issues and Risk Matrix

3. Project Status Reports (including Steering Committee briefings-not including financials)
4. Meeting Minutes (Meeting agenda and minutes with the project team, Steering Committee, interfacing teams, etc.)
5. Project Schedule (including original Basis Of Estimate (BOE) if possible, and weekly updates to the project schedule)
6. Project Modification Requests and Log (for Project and Requirements Change Requests)
7. Approved Deliverables and Log (including the approved deliverables)
8. Audit Findings
9. Correspondence

## CHAPTER 3

# Project Planning Phase

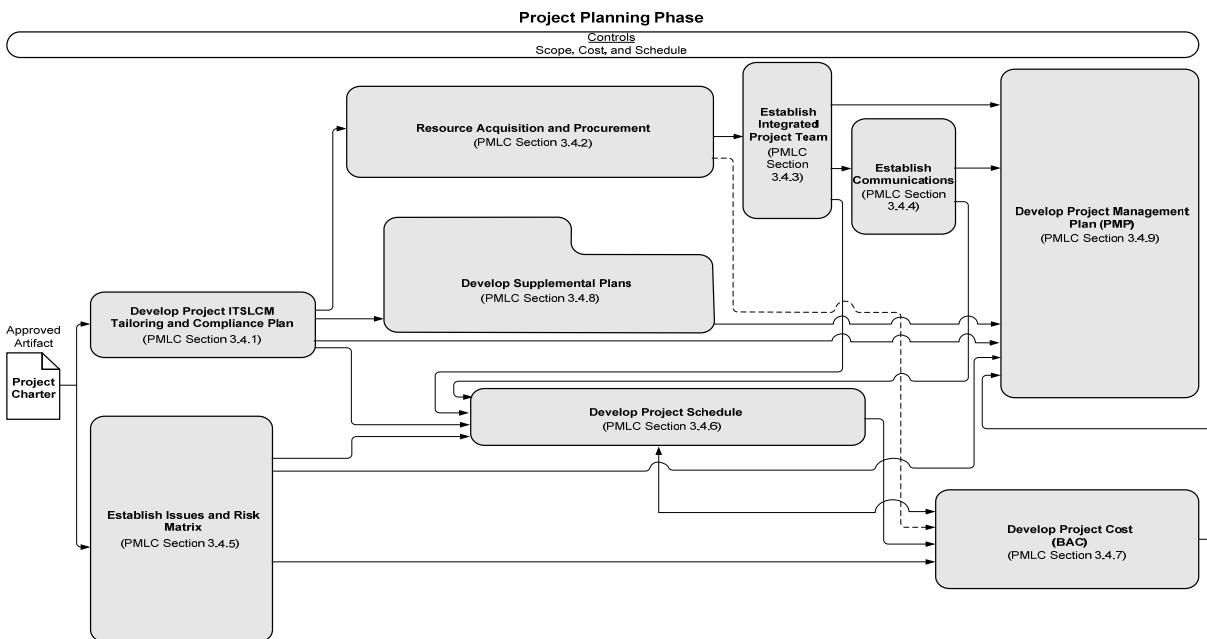
### Overview

The Project Planning Phase includes defining the project activities and required artifacts; acquiring equipment; establishing the project team and establishing the project schedule. Several of the activities in this phase require whole team participation in order for the task to be completed. The Project Management Plan (PMP) is the major deliverable at the end of this phase and is the collection of plans developed during this phase. The PMP includes all project planning activities required for a project, such as risk management planning; communications planning; issues; project modifications; acceptance management; and schedule, cost, and quality management.

Performing these activities properly will reduce the amount of risk and rework in later phases of the project. It involves developing the core work plans, work activities, resources, sequencing and timing; while at the same time developing plans to control the project or phase. Collectively, the plans represent what is required to create the solution and manage all aspects of the work.

Project Planning is an on-going process and is re-visited throughout much of the life of the project.

### 3.1 PROJECT PLANNING OVERVIEW DIAGRAM



**Note:** See Appendix “B” for a detailed version of this diagram.

**Figure 3-1** Project Planning Phase Overview Diagram

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## 3.2 PROJECT PLANNING INPUTS

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- Approved/Signed-off Project Charter

---

## 3.3 PROJECT PLANNING OUTPUTS

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- Approved Project ITSLCM Tailoring and Compliance Plan
- Acquired equipment, materials and people
- Approved PMP
  - Issues and Risk Matrix (Appendix)
  - Project Modification Log (Appendix)
  - Acceptance Log (Appendix)
  - Skills Assessment Plan (Appendix)
  - Staff Management Plan (Appendix)
  - Communications Matrix (Appendix)
  - Cost Loaded Project Schedule (Appendix)
  - Organizational Chart (Appendix)

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## 3.4 PROJECT PLANNING DETAILED ACTIVITIES

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The activities within the Project Planning phase are controlled by the scope, cost, and schedule identified in the Project Charter.

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### 3.4.1 Develop Project ITSLCM Tailoring and Compliance Plan

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The Project ITSLCM Tailoring and Compliance Plan allows for “tailoring” the PBGC’s ITSLCM list of deliverables to individual projects. Refer to the ITSLCM Tailoring and Compliance Plan document for further guidance on how to complete the Project ITSLCM Tailoring and Compliance Plan.

The Project ITSLCM Tailoring and Compliance Plan must be completed and signed-off before completing any other activities in this phase.

### 3.4.1.1 Develop Project ITS LCM Tailoring and Compliance Plan Diagram

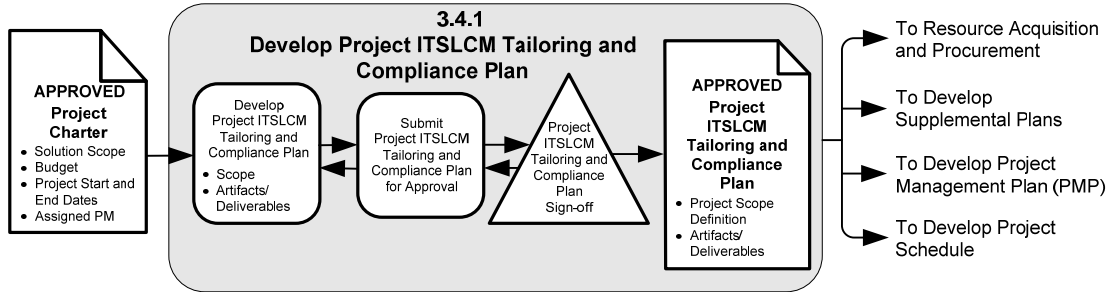


Figure 3-2 Develop Project ITS LCM Tailoring and Compliance Plan Diagram

#### 3.4.1.2 Inputs

- Approved/Signed-off Project Charter

#### 3.4.1.3 Outputs

- Approved/Signed-off Project ITS LCM Tailoring and Compliance Plan

#### 3.4.1.4 Process Details

Inputs	Templates and Tools	Steps	Outputs	Role(s)
<ul style="list-style-type: none"> <li>• Approved / Signed-off Project Charter</li> </ul>	<ul style="list-style-type: none"> <li>• Project ITS LCM Tailoring and Compliance Plan</li> </ul>	<ul style="list-style-type: none"> <li>• Review the approved Project Charter (solution scope and project scope) and the Project ITS LCM Tailoring and Compliance Guidance Document to determine the required project artifacts and the processes that best fit the project’s needs</li> <li>• Work with the Division Managers to determine what artifacts need to be added, modified, or removed</li> </ul>	<ul style="list-style-type: none"> <li>• Identified project artifacts</li> </ul>	<ul style="list-style-type: none"> <li>• Federal PM</li> <li>• Division Manager</li> </ul>
<ul style="list-style-type: none"> <li>• Identified project artifacts</li> </ul>	<ul style="list-style-type: none"> <li>• Project ITS LCM Tailoring and Compliance Plan</li> </ul>	<ul style="list-style-type: none"> <li>• Develop/draft the Project ITS LCM Tailoring and Compliance Plan</li> </ul>	<ul style="list-style-type: none"> <li>• Draft Project ITS LCM Tailoring and Compliance Plan</li> </ul>	<ul style="list-style-type: none"> <li>• Federal PM</li> </ul>
<ul style="list-style-type: none"> <li>• Draft Project ITS LCM Tailoring and Compliance Plan</li> </ul>	<ul style="list-style-type: none"> <li>• Submit Artifacts for Approval process</li> </ul>	<ul style="list-style-type: none"> <li>• Follow the “Submit Artifacts for Approval” external process located in the PAL for receiving approval of the Project ITS LCM Tailoring and Compliance Plan</li> </ul>	<ul style="list-style-type: none"> <li>• Approved Project ITS LCM Tailoring and Compliance Plan</li> </ul>	<ul style="list-style-type: none"> <li>• Refer to Project ITS LCM Tailoring and Compliance Plan Guidance Document for roles</li> </ul>

### 3.4.1.5 Artifact Repository

- Project ITSCLM Tailoring and Compliance Plan – Project Notebook (Defining Documents)

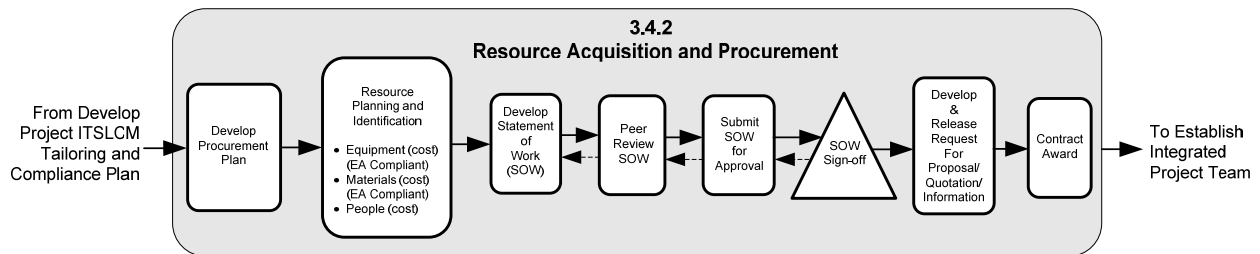
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## 3.4.2 Resource Acquisition and Procurement

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Resource Acquisition and Procurement involves identifying and securing the resources required to complete a project. Resources can include people, equipment, and materials. This activity is comprised of planning for a team possessing the skills required to perform the work (human resources), as well as scheduling the tools, equipment, and processes (non-human resources), which enable the team to complete the project. Due to the limited amount of information available at this point in the project, hardware/infrastructure information may not be available until the Project Execution phase.

### 3.4.2.1 Resource Acquisition and Procurement Diagram



**Figure 3-3** Resource Acquisition and Procurement Diagram

### 3.4.2.2 Inputs

- Approved/Signed-off Project Charter
- Approved/Signed-off Project ITSCLM Tailoring and Compliance Plan

### 3.4.2.3 Outputs

- Procurement Plan
- Approved/Signed-off Statement of Work
- Request for Proposal, Quotation and/or Information (RFP, RFQ or RFI)
- Contract



### 3.4.2.4 Process Details

Inputs	Templates and Tools	Steps	Outputs	Role(s)
<ul style="list-style-type: none"> <li>Approved/ Signed-off Project Charter</li> <li>Approved/ Signed-off Project ITSLCM Tailoring and Compliance Plan</li> </ul>	<ul style="list-style-type: none"> <li>Procurement Plan Guidance</li> </ul>	<ul style="list-style-type: none"> <li>Develop the Procurement Plan using tools and guidance provided by the Procurement Department</li> </ul>	<ul style="list-style-type: none"> <li>Procurement Plan</li> </ul>	<ul style="list-style-type: none"> <li>Federal PM</li> <li>Procurement Department</li> </ul>
<ul style="list-style-type: none"> <li>Procurement Plan</li> </ul>	<ul style="list-style-type: none"> <li>Statement of Work Guidance</li> </ul>	<ul style="list-style-type: none"> <li>Develop a Statement of Work (SOW) using tools and guidance provided by the Procurement Department. Identify the people, equipment and materials (including CDE-T and CDE-I environments) that will be needed for the project. Be sure to consider resources such as PPQA, IV&amp;V and ITC</li> <li>Ensure the equipment and materials requested are EA compliant and assign a cost to each</li> </ul>	<ul style="list-style-type: none"> <li>SOW</li> </ul>	<ul style="list-style-type: none"> <li>Federal PM</li> <li>Procurement Department</li> </ul>
<ul style="list-style-type: none"> <li>SOW</li> </ul>	<ul style="list-style-type: none"> <li>Peer Review Process</li> </ul>	<ul style="list-style-type: none"> <li>Arrange for the SOW to be peer reviewed following the "Peer Review" external process located in the PAL</li> </ul>	<ul style="list-style-type: none"> <li>Peer reviewed SOW</li> <li>Peer Review Artifacts</li> </ul>	<ul style="list-style-type: none"> <li>Refer to Project ITSLCM Tailoring and Compliance Guidance Document for Roles</li> </ul>
<ul style="list-style-type: none"> <li>Peer Reviewed SOW</li> </ul>	<ul style="list-style-type: none"> <li>Submit Artifact for Approval process</li> </ul>	<ul style="list-style-type: none"> <li>Once the SOW has been peer reviewed, submit the artifact for approval following the "Submit Artifact for Approval" external process located in the PAL</li> </ul>	<ul style="list-style-type: none"> <li>Signed off SOW</li> </ul>	<ul style="list-style-type: none"> <li>Refer to Project ITSLCM Tailoring and Compliance Guidance Document for Roles</li> </ul>
<ul style="list-style-type: none"> <li>Signed-off SOW</li> </ul>	<ul style="list-style-type: none"> <li>Request for Proposal/ Quotation/ Information Guidance</li> </ul>	<ul style="list-style-type: none"> <li>Based on the SOW, develop a Request for Proposal/Quotation/ Information guidance provided by the Procurement Department</li> </ul>	<ul style="list-style-type: none"> <li>RFP, RFQ, and/or RFI</li> </ul>	<ul style="list-style-type: none"> <li>Federal PM</li> <li>Procurement Department</li> </ul>
<ul style="list-style-type: none"> <li>RFP, RFQ, or RFI</li> </ul>	<ul style="list-style-type: none"> <li>None</li> </ul>	<ul style="list-style-type: none"> <li>Award contract using tools and guidance provided by the Procurement Department</li> </ul>	<ul style="list-style-type: none"> <li>Contract</li> </ul>	<ul style="list-style-type: none"> <li>Federal PM</li> <li>Procurement Department</li> </ul>

### **3.4.2.5 Artifact Repository**

- Procurement Plan – Project Notebook (Defining Documents)
- Statement of Work – Project Notebook (Defining Documents)
- RFP, RFQ, RFI – Project Notebook (Defining Documents)

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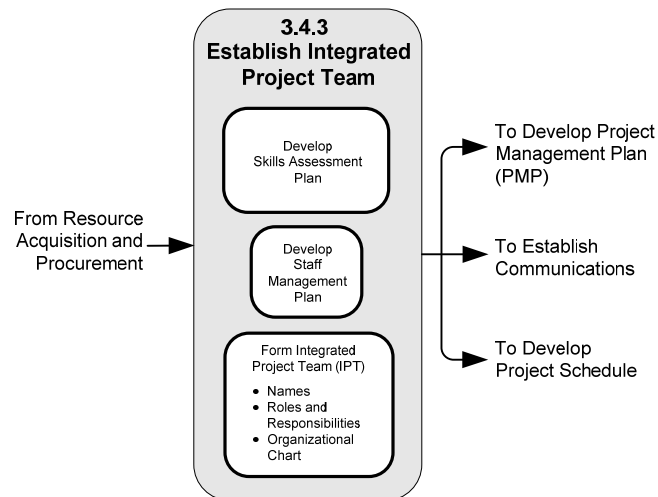
### **3.4.3 Establish Integrated Project Team**

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During this activity, the Integrated Project Team is established. This includes establishing the core team members and participating team members, such as the assigned EA Architect or the PPQA representative. During this activity, the PM also establishes plans to manage staffing and develops an organizational chart. During the Resource Acquisition and Procurement activity, a contract is awarded for projects requiring contractor assistance. This activity focuses on identifying all team members (Federal and contractor) involved in the project, both core and participating team members.

It is important to staff the project with team members that are appropriately skilled to ensure work activities can be carried out within the constraints of the schedule. If team members don't have the necessary skills, it is important to plan training to close the gap.

### 3.4.3.1 Establish Integrated Project Team Diagram



**Figure 3-4** Establish Integrated Project Team Diagram

#### 3.4.3.2 Inputs

- Contract
- Approved/Signed-off Project ITSLCM Tailoring and Compliance Plan
- Approved/Signed-off Project Charter

#### 3.4.3.3 Outputs

- Skills Assessment Plan
- Staff Management Plan
- Integrated Project Team
- Organizational Chart
- Updated PMP (Roles and Responsibilities)
- Artifact Review and Signoff worksheet

### 3.4.3.4 Process Details

Inputs	Templates and Tools	Steps	Outputs	Role(s)
<ul style="list-style-type: none"> <li>• Approved / Signed-off Project Charter</li> <li>• Approved / Signed-off Project ITSLCM Tailoring and Compliance Plan</li> <li>• Contract</li> </ul>	<ul style="list-style-type: none"> <li>• Project Management Plan</li> </ul>	<ul style="list-style-type: none"> <li>• Form Integrated Project Team which includes:               <ul style="list-style-type: none"> <li>- Identifying the roles required to complete the project (including roles from different functional areas, i.e. Tester, IT Infrastructure Operations department, Enterprise Architect, User Group, User Acceptance Testers, etc.)</li> </ul> </li> <li>• Work with the division Managers to assign participating team members to the project</li> <li>• Name the members of the team</li> <li>• Review team member list with Division Manager to ensure all relevant stakeholders are represented</li> <li>• Develop an Organizational Chart listing the names of all core and participating team members (Business Reps, Contractors, Developers, Testers, etc.)</li> <li>• Document the Roles and Responsibilities in the PMP</li> </ul>	<ul style="list-style-type: none"> <li>• Formed Project Team</li> <li>• Organizational Chart</li> <li>• Updated PMP (Roles and Responsibilities section)</li> </ul>	<ul style="list-style-type: none"> <li>• PM</li> <li>• Division Managers</li> <li>• Business Representatives</li> </ul>
<ul style="list-style-type: none"> <li>• Approved / Signed-off Project ITSLCM Tailoring and Compliance Plan</li> <li>• Organizational Chart</li> </ul>	<ul style="list-style-type: none"> <li>• Artifact Review and Signoff</li> </ul>	<ul style="list-style-type: none"> <li>• Once the team members have been identified, complete the Artifact Review and Signoff worksheet. The RM will identify who from ITIO will have responsibility for Artifact Review and Signoff</li> <li>• The Project ITSLCM Tailoring and Compliance Guidance Document provides the generic roles that are required to peer review, review and provide feedback, or formally approve the artifacts. Using these guidelines, complete the Artifact Review and Signoff worksheet</li> </ul>	<ul style="list-style-type: none"> <li>• Artifact Review and Signoff worksheet</li> </ul>	<ul style="list-style-type: none"> <li>• PM</li> </ul>

Inputs	Templates and Tools	Steps	Outputs	Role(s)
<ul style="list-style-type: none"> <li>Organizational Chart</li> </ul>	<ul style="list-style-type: none"> <li>Skills Assessment Plan</li> </ul>	<ul style="list-style-type: none"> <li>Determine training needs for the project team members. (This task does not include personnel management activities)</li> <li>Review any existing training records of assigned team members</li> <li>Perform a gap analysis between the training needs vs. the completed training of the assigned team members</li> <li>Develop the Project Team Skills Assessment Plan</li> </ul>	<ul style="list-style-type: none"> <li>Skills Assessment Plan</li> </ul>	<ul style="list-style-type: none"> <li>PM</li> </ul>
<ul style="list-style-type: none"> <li>Skills Assessment Plan</li> </ul>	<ul style="list-style-type: none"> <li>Staff Management Plan</li> </ul>	<ul style="list-style-type: none"> <li>Develop the Staff Management Plan</li> </ul>	<ul style="list-style-type: none"> <li>Staff Management Plan</li> </ul>	<ul style="list-style-type: none"> <li>PM</li> </ul>

### 3.4.3.5 Artifact Repository

- Skills Assessment Plan – Project Notebook (Defining Documents)
- Staff Management Plan – Project Notebook (Defining Documents)
- Organizational Chart – Project Notebook (Defining Documents)
- Artifact Review and Signoff worksheet – Project Notebook (Defining Documents)

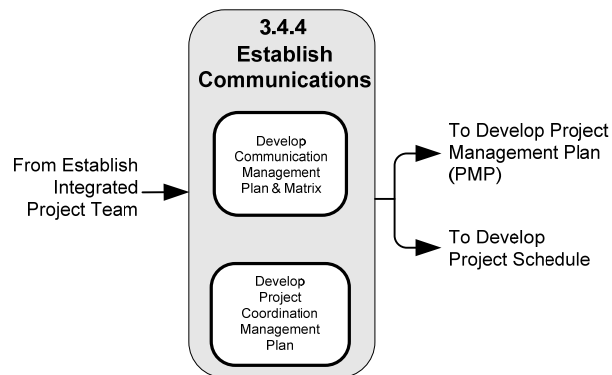
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### 3.4.4 Establish Communications

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Communications planning involves defining the information needs of project stakeholders and determining dependencies between the project and its participating team. It includes identifying the type of information stakeholders' need, when that information is needed, and the method for obtaining that information. In addition, project dependencies must be identified, documented, and managed throughout the life of the project. As part of Establish Communications, the PM is responsible for defining a communications management approach in the PMP, as well as for producing the Communications Management Plan and Matrix, and the Project Coordination Management Plan.

### 3.4.4.1 Establish Communications Diagram



**Figure 3-5** Establish Communications Diagram

#### 3.4.4.2 Inputs

- Roles and Responsibilities Section of the PMP
- Organizational Chart

#### 3.4.4.3 Outputs

- Updated PMP (Communications Management Plan section)
- Communication Management Matrix
- Updated PMP (Project Coordination Management Plan section)

#### 3.4.4.4 Process Details

Inputs	Templates and Tools	Steps	Outputs	Role(s)
<ul style="list-style-type: none"> <li>• Organizational Chart</li> </ul>	<ul style="list-style-type: none"> <li>• PMP</li> </ul>	<ul style="list-style-type: none"> <li>• Develop a high-level project communications approach, and document in the PMP. This approach provides an overview of how communications will be shared on this project</li> </ul>	<ul style="list-style-type: none"> <li>• Updated PMP (Communications Management Plan section)</li> </ul>	<ul style="list-style-type: none"> <li>• PM</li> </ul>

Inputs	Templates and Tools	Steps	Outputs	Role(s)
<ul style="list-style-type: none"> <li>• Staff Management Plan</li> <li>• Roles and Responsibilities section of the PMP</li> </ul>	<ul style="list-style-type: none"> <li>• Communications Management Matrix</li> </ul>	<ul style="list-style-type: none"> <li>• Document the specific communication needs of the project in the Communications Management Matrix. Be sure to consider:               <ul style="list-style-type: none"> <li>- What information needs to be collected and when</li> <li>- Who will receive the information</li> <li>- What method will be used to gather and store the information</li> <li>- The most convenient form of media for all team members</li> <li>- Reporting relationships/ PBGC OIT Organizational Structure</li> <li>- Listing the contact information for all Project Team members</li> <li>- Schedule of distribution of each type of communication</li> <li>- What dependencies exist between the core project team and participating project team</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Communications Management Matrix</li> </ul>	<ul style="list-style-type: none"> <li>• PM</li> </ul>
<ul style="list-style-type: none"> <li>• Organizational Chart</li> <li>• Roles &amp; Responsibilities section of the PMP</li> </ul>	<ul style="list-style-type: none"> <li>• PMP</li> </ul>	<ul style="list-style-type: none"> <li>• Develop an approach for managing the dependencies between the core and participating project teams addressing how these dependencies will be managed and monitored and how coordination issues will be escalated</li> <li>• Include how efforts will be coordinated and communicated with interfacing teams/projects</li> <li>• Review Coordination Plan with Division Manager to ensure complete representation</li> </ul>	<ul style="list-style-type: none"> <li>• Updated PMP (Project Coordination Management Plan section)</li> </ul>	<ul style="list-style-type: none"> <li>• PM</li> </ul>

### 3.4.4.5 Artifact Repository

- Communications Management Matrix – Project Notebook (Defining Documents)

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### 3.4.5 Establish Issues and Risk Matrix

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This activity establishes the matrix where both project risks and issues are tracked.

#### **Risks**

The purpose of Risk Management is to identify potential problems before they occur so that risk handling activities can be planned and invoked as needed across the life of the project. Managing risks before they become issues can help mitigate adverse impacts on achieving project objectives.

Risk identification is an important activity of Risk Management and includes identifying and documenting risks in the Issues and Risk Matrix. The major risk identification occurs during the Project Planning phase once the project team has been formed; however, risks should be identified throughout the project from initiation to close-out.

In addition to risk identification, risk analysis is conducted. This is the process of assessing the impact and probability of identified risks in order to prioritize them according to their potential effect on project objectives.

Finally, risk response involves determining how the effect of the risk can be minimized through developing alternative courses of action. Each risk designated to be mitigated based on risk analysis should have a mitigation strategy.

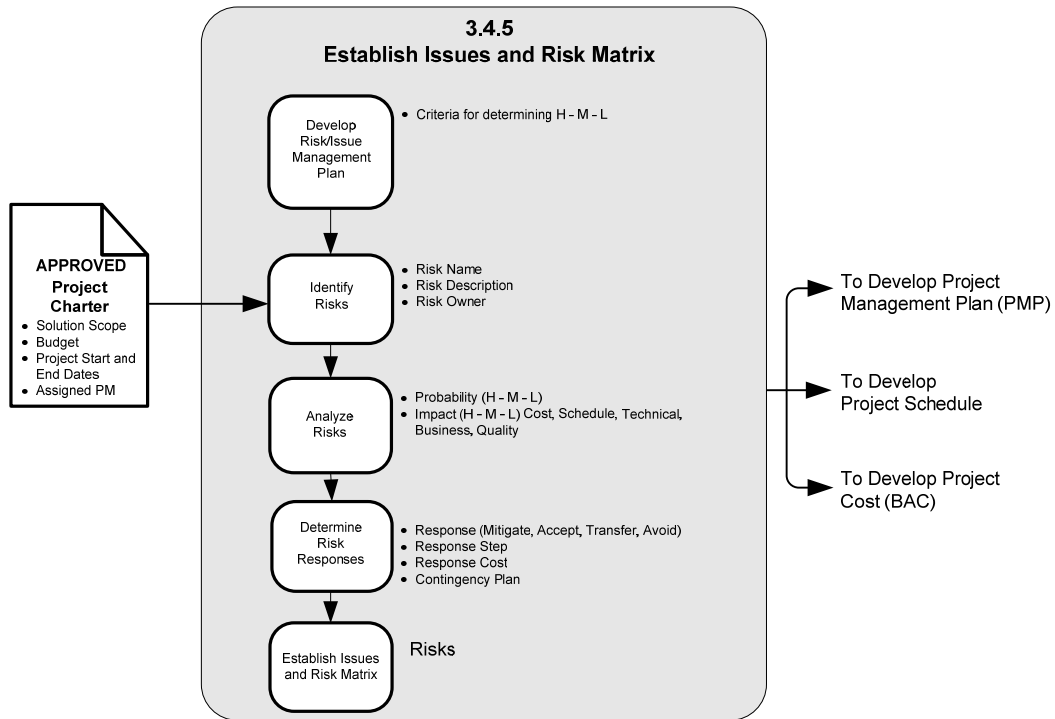
#### **Issues**

An issue is defined as any item adversely affecting execution of the project. Issues may adversely impact the cost, time frame, and/or quality of the deliverables of the project. Issues are often derived from project risks - as the risk is realized, it becomes an issue. Resolving issues is an on-going process throughout the life of any project. The keys to effective issue resolution are early identification, communication, and management.

Properly handling issues is one of the most important activities done to keep a project on schedule. The objective of issue management is to identify issues that are then quickly and effectively resolved before the project schedule and/or budget are negatively impacted.



### 3.4.5.1 Establish Issues and Risk Matrix Diagram



**Figure 3-6** Establish Issues and Risks Matrix Diagram

#### 3.4.5.2 Inputs

- Approved/Signed-off Project Charter

#### 3.4.5.3 Outputs

- Updated PMP (Risk and Issues Management Plan section)
- Issues and Risk Matrix

### 3.4.5.4 Process Details

Inputs	Templates and Tools	Steps	Outputs	Role(s)
<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• Project Management Plan</li> </ul>	<ul style="list-style-type: none"> <li>• Document how risk management will be performed in the Risk Management section of the PMP. This should include:               <ul style="list-style-type: none"> <li>- The methodology that will be used</li> <li>- Roles and responsibilities</li> <li>- How often risks will be reviewed</li> <li>- Which risks will be mitigated based on criteria defined for the project (see below for more information)</li> </ul> </li> <li>• Document how issue management will be performed in the Issue Management section of the PMP. This should include:               <ul style="list-style-type: none"> <li>- Issue identification and logging procedures</li> <li>- Roles and responsibilities</li> <li>- How often issues will be reviewed</li> <li>- Escalation path for unresolved issues</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Updated PMP (Risk and Issue Management Plan section)</li> </ul>	<ul style="list-style-type: none"> <li>• PM</li> </ul>
<ul style="list-style-type: none"> <li>• Approved / Signed-off Project Charter</li> <li>• Risk and Issues Management Plan section of the PMP</li> </ul>	<ul style="list-style-type: none"> <li>• Issues and Risk Matrix</li> </ul>	<ul style="list-style-type: none"> <li>• In the Issues and Risk Matrix, define criteria for project risk by stating what low, medium, and high probabilities and impacts are</li> <li>• Identify risks for the project by meeting with core and participating project team members and by reviewing project artifacts such as the Project Charter, the WBS and the schedule. The risk name and description should be entered into the matrix as well as the owner</li> </ul>	<ul style="list-style-type: none"> <li>• Issues and Risk Matrix</li> </ul>	<ul style="list-style-type: none"> <li>• PM</li> <li>• Core and Participating Project Team Members</li> </ul>
<ul style="list-style-type: none"> <li>• Issues and Risk Matrix</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• Analyze risks for probability and impact and assign values to each of the impact categories (Cost, Schedule, Quality, Technical, and Business) using the criteria defined for the project</li> </ul>	<ul style="list-style-type: none"> <li>• Updated Issues and Risk Matrix</li> </ul>	<ul style="list-style-type: none"> <li>• Project Team Members</li> </ul>

Inputs	Templates and Tools	Steps	Outputs	Role(s)
<ul style="list-style-type: none"> <li>Issues and Risk Matrix</li> </ul>	<ul style="list-style-type: none"> <li>None</li> </ul>	<ul style="list-style-type: none"> <li>Identify which risks require a risk response as defined in the Project Management Plan</li> <li>Determine the risk response for the identified risks and enter a description of the response into the matrix. (See below for more information.)</li> <li>Document any needed contingency plans. See below for additional information</li> </ul>	<ul style="list-style-type: none"> <li>Updated Issues and Risk Matrix</li> </ul>	<ul style="list-style-type: none"> <li>Project Team Members</li> </ul>

### Additional information about Establishing the Issue and Risk Matrix

Not all risks require a risk response. For example, risks with high consequences and high probability should be responded to as soon as possible. Risks with low consequences and low probability may not need to be responded to at all. Each project must decide which risks will be responded to depending on the circumstances of the project. Document the threshold for responding to risks in the PMP.

The following definitions apply for the possible risk response strategies:

**Avoidance** – Risk avoidance is changing the project’s approach to eliminate the risk or condition or to protect the project objectives from its impact. Although the project team can never eliminate all risk events, some specific risks may be avoided.

**Transference** – Risk transfer is seeking to shift the consequence of a risk to a third party together with the ownership of the response. Transferring the risk simply gives another party the responsibility for its management; it does not eliminate it.

**Mitigation** – Mitigation seeks to reduce the probability and/or consequences of an adverse risk event to an acceptable threshold. Taking early action to reduce the probability of a risk’s occurring or its impact on the project is more effective than trying to resolve it once the risk has been realized and become an issue. Mitigation costs should be appropriate given the likely probability of the risk and its consequences. If mitigation is chosen as the risk response, determine when risks will be mitigated.

**Acceptance** – This technique indicates that the project team has decided not to change the project’s approach to deal with a risk or is unable to identify any other suitable response strategy. Active acceptance may include developing a contingency plan to execute, should the risk occur and become an issue. Passive acceptance requires no action, leaving the project team to deal with the risks as they occur.

#### **3.4.5.5 Artifact Repository**

- Issues and Risk Matrix - Project Notebook (Issues and Risk Matrix)

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### 3.4.6 Develop Project Schedule

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The Develop Project Schedule activities are required to achieve realistic effort estimates, activity duration estimates, and project start and end dates. Projects that perform these activities have a better chance of being finished as scheduled.

Although the activities here are provided sequentially, in practice they may be cyclical as the development of the schedule occurs.

Below is a description of the activities:

#### **Develop the Work Breakdown Structure (WBS)**

A WBS is a hierarchical representation of the solution being delivered on a project. The high-level project scope is decomposed to a level that provides a clear understanding of what is to be delivered for purposes of planning, controlling, and managing the project scope. Work not included in a WBS is considered out of scope. A WBS is neither a schedule nor an organizational representation of the project; instead, it defines what is to be delivered. Once the scope is clearly understood, the PM can determine who will deliver it and how it will be delivered.

#### **Activity Definition and Sequencing**

Activity definition and sequencing involves dividing the project into smaller, more manageable activities and then specifying the order of completion. This is called an activity list. The activity list includes all activities that will be performed on the project, and is organized as an extension to the WBS to help ensure that it is complete and does not exclude any required activities. It includes descriptions of each activity to ensure that the Project Team understands what work needs to be completed.

#### **Activity Estimating, Activity Duration Estimating, and Activity Resource Assignments**

Activity estimating is the process of assigning effort estimates to each activity included in your activity list. The project team works together to complete the effort estimates. If an activity is estimated to take longer than 80 hours to complete, the task must be broken down further until the task can be delivered in 80 hours or less.

Common techniques for estimating include using historical information, the Monte Carlo Simulation method, or Program Evaluation and Review Technique (PERT).

The PERT formula is:

**PERT Weighted Average = (Optimistic + 4(Most Likely) + Pessimistic) / 6**

Next, human resources are assigned to specific activities. Duration estimates are completed for each of the tasks keeping in mind the 80-hour rule, which imposes the requirement that no single resource can work on a task for more

than 80 hours without the submission of an internal artifact. If the estimate exceeds the industry-recognized 80-hour rule, the team must re-visit the activity list and the WBS to further break the work down to a point where the effort estimate is under 80 hours. The task of submitting a deliverable (deliverable due date) is considered a milestone, and has no hours allocated to it.

### Build the Project Schedule and Determine the Critical Path

Schedule development includes the process of assigning start and finish dates to the activities using a project scheduling tool. The critical path is the shortest time to complete the project. Fast tracking (compressing the project schedule by overlapping activities that would normally be done in sequence, such as design and construction) or crashing (taking action to decrease the total project duration after analyzing a number of alternatives to determine how to get the maximum duration compression for the least cost) may also be considered to assist in meeting the overall end dates of the project. This is an iterative process and often requires revisiting the duration and cost estimates.

During the Develop Project Schedule activities, the project schedule is approved, reviewed by the Division Managers, and baselined. Once baselined, the project schedule must be managed and can only be re-baselined if approved project modification requests affect the project schedule. See Chapter 4 for more information on managing the project schedule.

#### 3.4.6.1 Develop Project Schedule Diagram

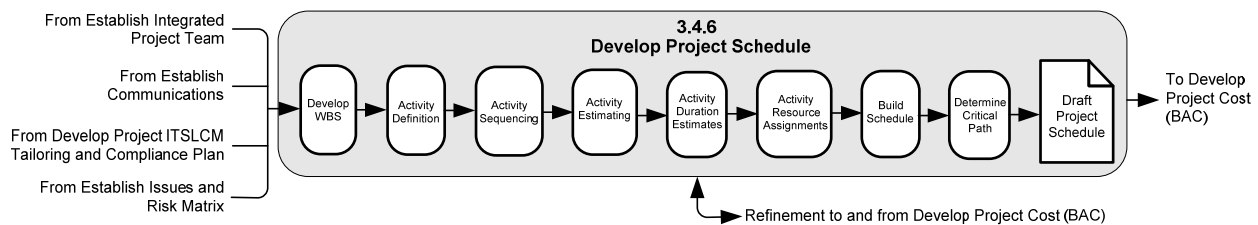


Figure 3-7 Develop Project Schedule Diagram

#### 3.4.6.2 Inputs

- Approved/Signed-off Project ITSLCM Tailoring and Compliance Plan
- Approved/Signed-off Project Charter
- Project Level Organizational Chart
- Identified Risks

#### 3.4.6.3 Outputs

- Draft Project Schedule

### 3.4.6.4 Process Details

Inputs	Templates and Tools	Steps	Outputs	Role(s)
<ul style="list-style-type: none"> <li>• Project Charter</li> <li>• Project ITSLCM Tailoring and Compliance Plan</li> <li>• Historical Information</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• Review the high-level scope statement from the Project Charter, and also review WBSs from similar past projects to determine whether they can be re-used for the current project</li> <li>• Review the Project ITSLCM Tailoring and Compliance Plan to see what artifacts are required for the project</li> <li>• Develop the WBS by decomposing the project deliverables into smaller and more manageable pieces. Break down the project into work packages (or work products/deliverables) that can be realistically estimated, cannot be broken down further, and can be completed without requiring or waiting for additional information. Consider all external constraints including security updates, quarterly patches, hardware/software upgrades, etc</li> <li>• Develop a WBS dictionary. A WBS dictionary is used to further define the effort involved for each task, controls what work is done when, and helps to prevent scope creep (i.e. keeps the scope from growing uncontrollably past agreed upon parameters). The WBS dictionary should include the following information:               <ul style="list-style-type: none"> <li>- Work package descriptions</li> <li>- Schedule dates</li> <li>- Cost budgets</li> <li>- High level staff assignments</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• WBS</li> <li>• WBS Dictionary</li> </ul>	<ul style="list-style-type: none"> <li>• Core/ Participating Team Members</li> </ul>

Inputs	Templates and Tools	Steps	Outputs	Role(s)
<ul style="list-style-type: none"> <li>• WBS</li> <li>• WBS Dictionary</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• Decompose the project work packages into smaller and more manageable activities (an activity list), using past similar project activity lists as potential input. (This is similar to how the project is decomposed into work packages when developing the WBS)</li> <li>• Define activity dependencies, and sequences the activities within the activity list. Common methods used for activity sequencing include precedence diagramming, arrow diagramming, or the Graphical Evaluation and Review Technique (GERT). A manual sequencing process is also an accepted sequencing technique</li> </ul>	<ul style="list-style-type: none"> <li>• Decomposed and sequenced activities</li> </ul>	<ul style="list-style-type: none"> <li>• Project Team</li> </ul>
<ul style="list-style-type: none"> <li>• Decomposed and sequenced activities</li> </ul>		<ul style="list-style-type: none"> <li>• Estimate the hours for each activity. Common techniques for estimating include the Program Evaluation and Review Technique (PERT), using historical information, or using the Monte Carlo Simulation method</li> <li>• Document the basis for the effort estimate for future reference</li> <li>• Update the WBS and activity list with any further decomposition that was uncovered during estimating</li> <li>• Determine the duration of each activity based on the effort estimate and following the 80-hour rule</li> <li>• Assign resources to each activity</li> </ul>	<ul style="list-style-type: none"> <li>• Estimated hours for activities with assigned resources</li> </ul>	<ul style="list-style-type: none"> <li>• Project Team</li> </ul>

Inputs	Templates and Tools	Steps	Outputs	Role(s)
<ul style="list-style-type: none"> <li>Estimated activities with assigned resources</li> </ul>	<ul style="list-style-type: none"> <li>Project Schedule Template</li> </ul>	<ul style="list-style-type: none"> <li>Develop the Project Schedule using the Project Schedule template. Additional information about completing the Project Schedule is included below</li> <li>Calculate the Critical Path using the Critical Path Method (CPM) and validates the calculated project end date with the project end date (or period of performance) defined by the Project Charter. If the critical path varies from the defined end date, meet with project stakeholders to determine if project Scope, Cost or Schedule Management should be invoked, or if the estimates need to be re-visited. Refer to the PMBOK for more information on calculating the critical path</li> <li>Review the Project Schedule with the Project Team to ensure that team members are comfortable with delivering work according to this schedule. Incorporate comments</li> <li>Resource-level the Project Schedule and review with the project team. Refer to the PMBOK for more information on resource-leveling</li> </ul>	<ul style="list-style-type: none"> <li>Draft Project Schedule</li> </ul>	<ul style="list-style-type: none"> <li>PM</li> </ul>

Additional information about the Project Schedule

A Project Schedule template has been developed using the PMLC and the approved SDLCs. When completing the tasks related to the PMLC, consider the following information:

- Team Meetings – include time for preparing for the meeting (agenda), attending the meeting, and documenting the meeting (minutes)
- Steering Committee Meetings – include time associated with preparing and reviewing the presentation, attending the meeting, and documenting the meeting (minutes)
- CCB Meetings – include time for preparing for the meeting (agenda), attending the meeting, and documenting the meeting (minutes)
- Stakeholder Meetings – include time for preparing for the meeting (agenda), attending the meeting, and documenting the meeting (minutes)
- Project Status Reporting – include time for preparing and reviewing reports
- EVM Reporting – include time for producing the EVM reports out of MS Project
- Team Development – include time for team building sessions, performance appraisals, personnel meetings



- Issues Management – include time for updating the issues log, analyzing issues, tracking issues to closure, taking corrective actions
- Risk Management – include time for updating the project risk matrix, analyzing risks, tracking risks, taking corrective actions, contingency planning
- Maintain Project Notebook – include time for updating the project notebook
- Project Acceptance Management – include time for preparing acceptance sheets, monitoring/following-up on acceptances, updating the acceptance log
- Updating Project Planning Artifacts – include time for review and updates to all artifacts from the Project Planning phase to include the PMP, Risk Plans, Communications Plan, etc.
- Project Schedule Management – include time for entering actual hours, updating the schedule as tasks are completed, or as change requests/acceptances are approved, re-baselining, general reviews to make sure the project is on track

The Project Schedule template assumes full implementation of the SDLC, and must be updated to directly correlate with the approved Project ITSCLM Tailoring and Compliance Plan. All artifacts identified for completion in the Project ITSCLM Tailoring and Compliance Plan must be identified in the Project Schedule. The Project Schedule must include tasks for the review and sign-offs of artifacts. ITSCLM artifacts are indicated by a red font. All of these artifacts require signature according to the Artifact Review and Signoff worksheet. Project Milestones are indicated by a blue font. These activities have no work associated with them and therefore have a duration/work value of zero (0). Assign zero hours to milestones in the project schedule.

Projects that are designated to report Earned Value (EV) must adhere to the guidelines listed in the Earned Value Prerequisite Checklist, located on the PAL.

Baseline the Project Schedule only after approval from management. Once the schedule has been baselined, the Project Manager is responsible for creating EVM reports in accordance with the Project Communications Plan. The Project Schedule should be updated with actuals (not re-baselined) on a regular basis, as defined in the Project Schedule Planning section of the PMP. Weekly updates are recommended.

#### **3.4.6.5 Artifact Repository**

- Draft Project Schedule – Project Notebook (Project Schedule)

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### **3.4.7 Develop Project Cost**

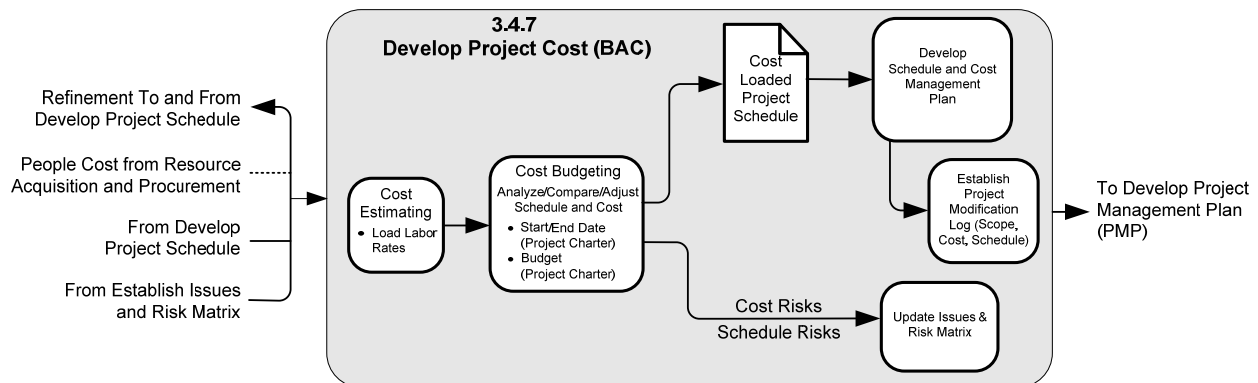
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At PBGC, the project budget is determined during project initiation as part of the Level of Effort and/or the Business Case process.

During this activity, labor rates are entered into the Project Schedule and the Budget at Completion (BAC) is calculated for the resources and equipment needed to complete the project.

This activity includes comparing the BAC and estimated date of completion to the budget and end date in the Approved/Signed-off Project Charter. Often times the “Develop Project Schedule” activity is re-visited to reconcile the differences.

### 3.4.7.1 Develop Project Cost Diagram



**Figure 3-8** Develop Project Cost Diagram

#### 3.4.7.2 Inputs

- Approved/Signed-off Project Charter
- Draft Project Schedule
- Procurement Plan (Cost estimates for Equipment, Materials, and Resources)
- Issues and Risk Matrix

#### 3.4.7.3 Outputs

- Cost Loaded Project Schedule
- Updated PMP (Schedule and Cost Management Plan section)
- Project Modification Log

### 3.4.7.4 Process Details

Inputs	Templates and Tools	Steps	Outputs	Role(s)
<ul style="list-style-type: none"> <li>• Approved/Signed-off Project Charter</li> <li>• Draft Project Schedule</li> <li>• Procurement Plan (Cost estimates for Equipment, Materials, and Resources)</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• Calculate the cost estimate of resources by entering the labor rates for each resource assigned tasks in the Project Schedule</li> <li>• Calculate the cost estimate of the equipment and materials - Other Direct Costs (ODC) - that are required for the project</li> <li>• Break the cost estimates down by phase and populate the table in the Cost and Schedule section of the PMP. Cost estimates and actuals will be tracked in accordance with the activities described in Chapter 4</li> <li>• Compare the calculated BAC and Start/End Dates to the Project Charter estimates</li> <li>• Revisit “Develop Project Schedule” as necessary to re-estimate activities, re-assign tasks, crash or fast track the project to adjust the Project Schedule and BAC as necessary</li> <li>• If unable to reconcile the variance between the Project Charter and the Cost Loaded Project Schedule, discuss alternatives and ways to resolve the discrepancies with the Project Sponsors (changes to scope, cost or schedule)</li> <li>• Obtain decision, implement resolution and update all documentation as necessary</li> </ul>	<ul style="list-style-type: none"> <li>• Cost Loaded Project Schedule</li> </ul>	<ul style="list-style-type: none"> <li>• PM</li> <li>• Sponsors</li> </ul>
<ul style="list-style-type: none"> <li>• Issues and Risk Matrix</li> <li>• OMB Guidance</li> </ul>		<ul style="list-style-type: none"> <li>• Update the Issues and Risk Matrix with any items identified during the Cost Estimating and analysis steps above</li> </ul>	<ul style="list-style-type: none"> <li>• Updated Issues and Risk Matrix</li> </ul>	<ul style="list-style-type: none"> <li>• PM</li> </ul>

Inputs	Templates and Tools	Steps	Outputs	Role(s)
	<ul style="list-style-type: none"> <li>• PMP</li> </ul>	<ul style="list-style-type: none"> <li>• Determine how the schedule and cost will be managed and document in the PMP</li> <li>• Document how often the schedule will be updated and thresholds of deviations. Refer to Office of Management and Budget (OMB) guidance for more information on the schedule thresholds</li> <li>• Define and document in the Communications Matrix a mechanism for capturing team member actual effort hours for each task and estimates to complete. (One common mechanism is for team members to record actual hours and estimates to complete by task in status reports)</li> </ul>	<ul style="list-style-type: none"> <li>• Updated PMP (Schedule and Cost Management section)</li> <li>• Updated Communications Matrix</li> </ul>	<ul style="list-style-type: none"> <li>• PM</li> </ul>
	<ul style="list-style-type: none"> <li>• Project Modification Log</li> </ul>	<ul style="list-style-type: none"> <li>• Using the template located in the PAL, establish the Project Modification Log. This log is used to track all changes to the project's scope, cost, and schedule</li> </ul>	<ul style="list-style-type: none"> <li>• Established Project Modification Log</li> </ul>	<ul style="list-style-type: none"> <li>• PM</li> </ul>

### 3.4.7.5 Artifact Repository

- Cost Loaded Project Schedule – Project Notebook (Project Schedule)

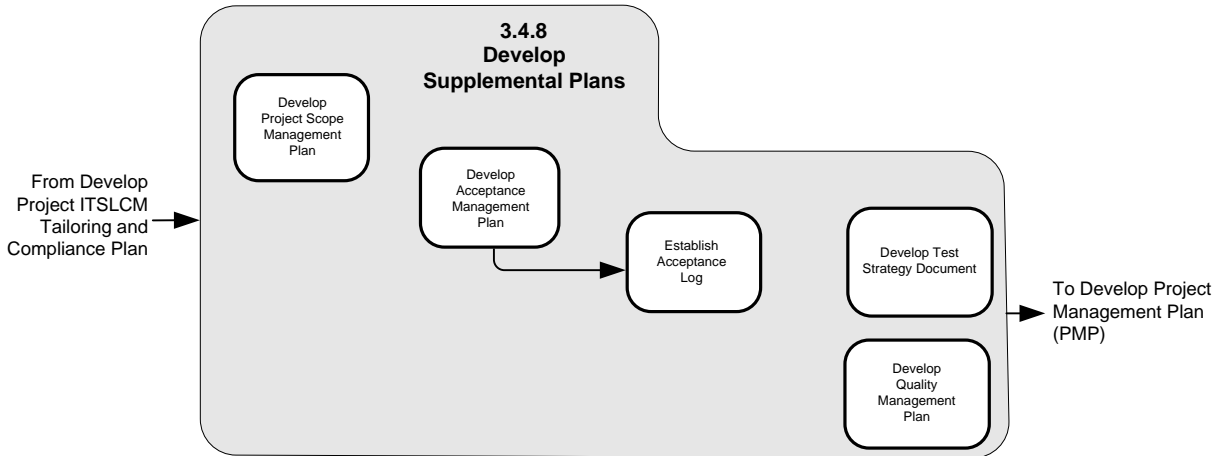
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## 3.4.8 Develop Supplemental Plans

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This activity includes developing the additional plans required to complete the PMP.

### 3.4.8.1 Develop Supplemental Plans Diagram



**Figure 3-9** Develop Supplemental Plans Diagram

### 3.4.8.2 Inputs

- Approved/Signed-off Project ITSLCM Tailoring and Compliance Plan

### 3.4.8.3 Outputs

- Updated PMP sections:
  - Project Scope Management Plan
  - Acceptance Management Plan
  - Quality Management Plan
- Established Acceptance Log (Appendix)

### 3.4.8.4 Process Detail

Inputs	Templates and Tools	Steps	Outputs	Role(s)
<ul style="list-style-type: none"> <li>Approved Project ITSLCM Tailoring and Compliance Plan</li> </ul>	<ul style="list-style-type: none"> <li>PMP</li> </ul>	<ul style="list-style-type: none"> <li>Complete the section in the PMP regarding Project Scope Management (define how the scope will be managed; changes to scope must be approved)</li> </ul>	<ul style="list-style-type: none"> <li>Updated PMP</li> </ul>	<ul style="list-style-type: none"> <li>PM</li> </ul>
<ul style="list-style-type: none"> <li>Approved Project ITSLCM Tailoring and Compliance Plan</li> </ul>	<ul style="list-style-type: none"> <li>PMP</li> </ul>	<ul style="list-style-type: none"> <li>Using the Acceptance Log template from the PAL, establish the project's Acceptance Log. The Acceptance log is used to track all approvals for the project</li> <li>Complete the section in the PMP regarding Acceptance Management (define how long approvers have to approve an artifact)</li> </ul>	<ul style="list-style-type: none"> <li>Updated PMP</li> <li>Acceptance Log</li> </ul>	<ul style="list-style-type: none"> <li>PM</li> </ul>
<ul style="list-style-type: none"> <li>Approved Project ITSLCM Tailoring and Compliance Plan</li> </ul>	<ul style="list-style-type: none"> <li>PMP</li> </ul>	<ul style="list-style-type: none"> <li>Work with the PPQA Team to provide them with the project information they will need to successfully conduct a PPQA Audit</li> </ul>	<ul style="list-style-type: none"> <li>Updated PMP</li> </ul>	<ul style="list-style-type: none"> <li>PM / Project Team Member</li> <li>PPQA Team</li> </ul>
<ul style="list-style-type: none"> <li>Approved Project ITSLCM Tailoring and Compliance Plan</li> </ul>	<ul style="list-style-type: none"> <li>PMP</li> </ul>	<ul style="list-style-type: none"> <li>Complete the Quality Management section of the PMP (define the types of quality related processes being implemented on the project)</li> </ul>	<ul style="list-style-type: none"> <li>Updated PMP</li> </ul>	<ul style="list-style-type: none"> <li>PM</li> </ul>

### 3.4.8.5 Artifact Repository

- Updated PMP – Project Notebook (Defining Documents)
- Acceptance Log - Project Notebook (Acceptance Log)

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## 3.4.9 Develop Project Management Plan

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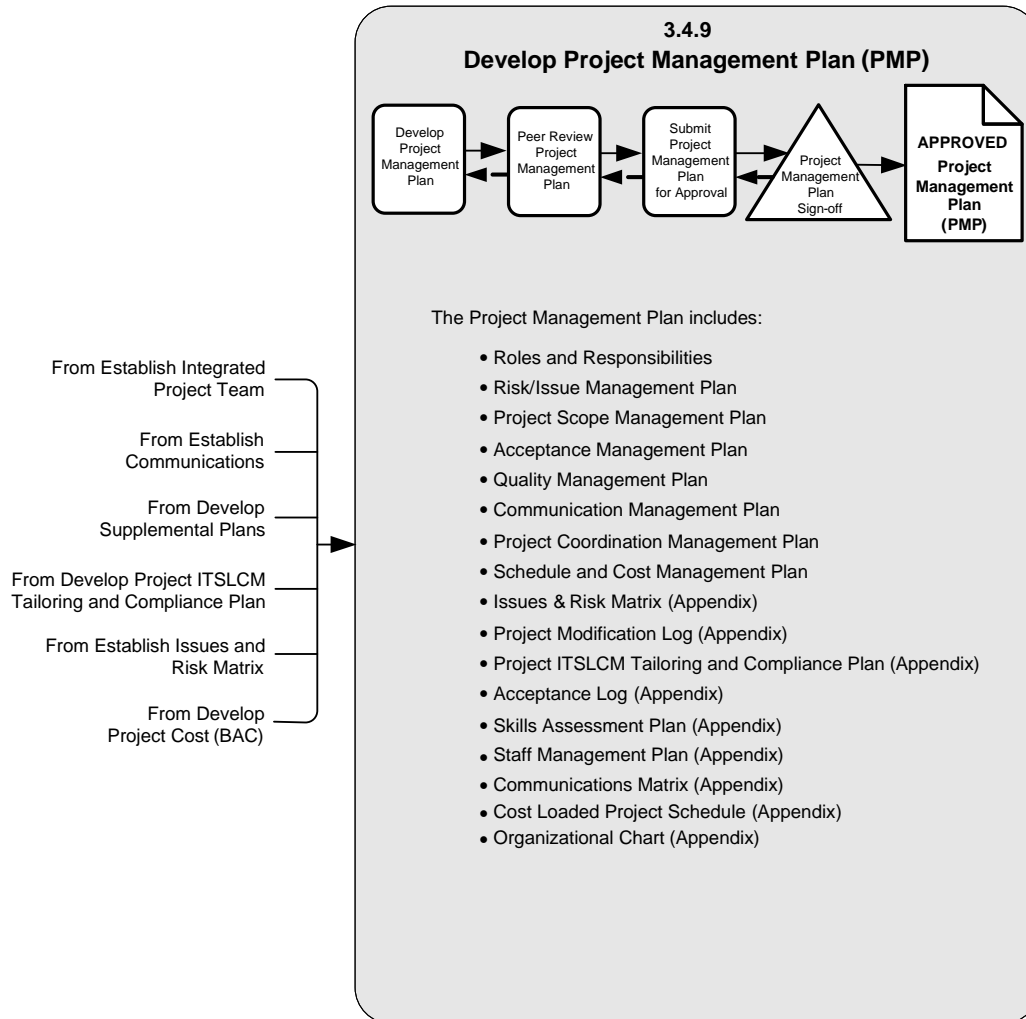
The PMP is the comprehensive planning document used for describing how the project will be managed and references the document appendices that are used on the project that exist in a stand-alone format. The appendices combined with the PMP form the overall project plan. All plans must be synchronized with the PMP.

The PMP integrates and coordinates the results of all the planning activities. It addresses such items as project scope, cost, and schedule, as well as communications, risk, and project coordination. The PMP describes in detail

the technical and management approaches that will be used to execute and manage the project.

The creation of the PMP begins early in the planning process. As planning activities progress and more information become known, it is expanded and refined.

### 3.4.9.1 Develop Project Management Plan Diagram



**Figure 3-10** Develop Project Management Plan Diagram

### 3.4.9.2 Inputs

- Approved/Signed-off Project Charter
- Approved/Signed-off Project ITSLCM Tailoring and Compliance Plan
- All previously completed PMP sections & appendices

### 3.4.9.3 Outputs

- Approved Project Management Plan (including the Baseline Project Schedule)

### 3.4.9.4 Process Details

Inputs	Templates and Tools	Steps	Outputs	Role(s)
<ul style="list-style-type: none"> <li>• Project Charter</li> <li>• Project ITSLCM Tailoring and Compliance Plan</li> <li>• Previously completed PMP sections</li> </ul>	<ul style="list-style-type: none"> <li>• Project Management Plan</li> </ul>	<ul style="list-style-type: none"> <li>• Complete the PMP</li> <li>• Review the results of the planning activities (such as risk planning or communications planning), which have taken place and incorporate the results into the PMP template</li> </ul>	<ul style="list-style-type: none"> <li>• Draft Project Management Plan</li> </ul>	<ul style="list-style-type: none"> <li>• PM</li> <li>• Project Team Members</li> </ul>
<ul style="list-style-type: none"> <li>• Updated Project Management Plan</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• Review the resulting document in an iterative process to ensure that all the information is appropriately identified and integrated into a coherent whole. At the culmination of all the planning activities, the PMP should go through a final review by the team to ensure completeness and accuracy</li> </ul>	<ul style="list-style-type: none"> <li>• Updated Project Management Plan</li> </ul>	<ul style="list-style-type: none"> <li>• PM</li> <li>• Project Team Members</li> </ul>
<ul style="list-style-type: none"> <li>• Updated Project Management Plan</li> </ul>	<ul style="list-style-type: none"> <li>• “Peer Review” process</li> </ul>	<ul style="list-style-type: none"> <li>• Conduct a peer review following the “Peer Review” external process located in the PAL</li> </ul>	<ul style="list-style-type: none"> <li>• Peer Reviewed Project Management Plan</li> <li>• Peer Review artifacts</li> </ul>	<ul style="list-style-type: none"> <li>• Refer to the Artifact Review and Signoff worksheet</li> </ul>
<ul style="list-style-type: none"> <li>• Reviewed Project Management Plan</li> </ul>	<ul style="list-style-type: none"> <li>• “Submit Artifacts for Approval” process</li> </ul>	<ul style="list-style-type: none"> <li>• Submit the PMP for approval following the “Submit Artifacts For Approval” external process located in the PAL</li> </ul>	<ul style="list-style-type: none"> <li>• Approved Project Management Plan</li> </ul>	<ul style="list-style-type: none"> <li>• Refer to the Artifact Review and Signoff worksheet</li> </ul>
<ul style="list-style-type: none"> <li>• Cost Loaded Project Schedule</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• Meet with the Division Manager upon PMP approval to review the approved plan for concurrence with EVM reporting</li> <li>• Upon concurrence of the Division Manager, baseline the project schedule</li> </ul>	<ul style="list-style-type: none"> <li>• Baseline Project Schedule</li> </ul>	<ul style="list-style-type: none"> <li>• PM</li> <li>• Division Manager</li> </ul>



#### **3.4.9.5 Artifact Repository**

- Project Management Plan – Project Notebook (defining documents)
- Baselined Project Schedule – Project Notebook (Project Schedule)

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## **CHAPTER 4**

# **Project Execution, Monitoring and Control Phase**

### **Overview**

As the project moves from the Project Planning phase to the Project Execution, Monitoring and Control phase, the project team and the necessary resources to carry out the project are in place and ready to perform project activities. This phase includes the coordination of people and other resources to carry out the planned activities documented in the Project Management Plan (PMP) and the Project Schedule.

Project Execution includes activities such as executing the tasks in the project plan, managing the progress of the project, completing work packages, team development, information distribution, and PPQA Audits.

Project Monitoring and Control includes tracking all major project variables – cost, time, scope, and the quality of deliverables. The overall objective of the activity is to track actual project accomplishments and results to the Project Management Plan. This includes updating the Project Management Plan (PMP) to reflect project accomplishments to date, revising the plan for remaining work, and providing visibility to the project as it progresses, allowing the team and management to take corrective actions early when project performance varies significantly from original plans.

Project Execution, Monitoring and Control is an on-going phase throughout much of the life of the project. Several of the activities within this phase are conducted frequently and concurrently with other activities.

---

### **4.1 PROJECT EXECUTION, MONITORING AND CONTROL INPUTS**

---

- Approved/Signed-off Project Management Plan (including all appendices and the baselined Project Schedule)
- Project Modification Requests
- Issues and Risk Matrix

---

### **4.2 PROJECT EXECUTION, MONITORING AND CONTROL OUTPUTS**

---

- Work Results
- Status/Performance Reports
- Project Modification Requests
- Corrective Action Plans
- Updated Project Schedule
- Updated Project Management Plan
- Updated Issues and Risk Matrix

## 4.3 PROJECT EXECUTION, MONITORING AND CONTROL DETAILED ACTIVITIES

There activities within this phase are controlled by the Project ITS LCM Tailoring and Compliance Plan and the Project Management Plan.

### 4.3.1 Execute Project Management Plan

Once the Project Management Plan has been approved, execution of the plan can begin. Project Management Plan execution includes the completion of the required tasks to achieve the work results of the project. Project Modification Requests are identified during this phase of the project; therefore, Project Scope, Cost, and Schedule Management are a large part of the execution of the project plan.

#### 4.3.1.1 Inputs

- Approved/Signed-off Project Management Plan
- Baseline Project Schedule
- Communications Management Plan
- Risks and Issues Management Plan
- Schedule and Cost Management Plan
- Project Modification Requests

#### 4.3.1.2 Outputs

- Work Results
- Updated Project Schedule
- Project Deliverables/Artifacts
- Status/Performance Reports
- Updated Acceptance Log
- Updated Project Modification Log
- Updated Issues and Risk Matrix
- Corrective Action Plans

#### 4.3.1.3 Process Details

Inputs	Templates and Tools	Steps	Outputs	Role(s)
<ul style="list-style-type: none"> <li>• Approved / Signed-off Project Management Plan</li> <li>• Project Schedule</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• Authorize work to be done based on the activities that have been approved</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• PM</li> </ul>
<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• Project Deliverables/Artifacts Templates</li> </ul>	<ul style="list-style-type: none"> <li>• Complete work as defined in the Project Management Plan and the Project Schedule</li> </ul>	<ul style="list-style-type: none"> <li>• Work results</li> <li>• Project Deliverables/Artifacts</li> </ul>	<ul style="list-style-type: none"> <li>• Project Team</li> </ul>
<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• Manage the work of the Project Team</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• PM</li> </ul>

<b>Inputs</b>	<b>Templates and Tools</b>	<b>Steps</b>	<b>Outputs</b>	<b>Role(s)</b>
<ul style="list-style-type: none"> <li>• Communications Management Plan</li> </ul>	<ul style="list-style-type: none"> <li>• Status/ Performance Report Templates</li> </ul>	<ul style="list-style-type: none"> <li>• Complete status/performance reports as defined by the Communications Management Plan</li> </ul>	<ul style="list-style-type: none"> <li>• Status/ Performance Reports</li> </ul>	<ul style="list-style-type: none"> <li>• Project Team</li> </ul>
<ul style="list-style-type: none"> <li>• Schedule and Cost Management Plan</li> <li>• Project Schedule</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• Manage project progress (scope, time, cost) against the project baseline</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• PM</li> </ul>
<ul style="list-style-type: none"> <li>• Drafted Artifacts</li> </ul>	<ul style="list-style-type: none"> <li>• Peer Review Process</li> </ul>	<ul style="list-style-type: none"> <li>• Complete the peer reviews as scheduled in accordance with the Peer Review external processes</li> </ul>	<ul style="list-style-type: none"> <li>• Reviewed artifacts</li> <li>• Peer Review artifacts</li> </ul>	<ul style="list-style-type: none"> <li>• Refer to the Artifact Review and Signoff worksheet</li> </ul>
<ul style="list-style-type: none"> <li>• Reviewed Project Deliverables</li> </ul>	<ul style="list-style-type: none"> <li>• “Submit Artifacts for Approval” process</li> </ul>	<ul style="list-style-type: none"> <li>• Follow the “Submit Artifacts for Approval” external process for obtaining acceptance of deliverables as scheduled</li> </ul>	<ul style="list-style-type: none"> <li>• Approved Deliverables</li> </ul>	<ul style="list-style-type: none"> <li>• Refer to the Artifact Review and Signoff worksheet</li> </ul>
<ul style="list-style-type: none"> <li>• Acceptance Log</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• Update the established project Acceptance Log as each deliverable is approved/signed-off</li> </ul>	<ul style="list-style-type: none"> <li>• Updated Acceptance Log</li> </ul>	<ul style="list-style-type: none"> <li>• PM</li> </ul>
<ul style="list-style-type: none"> <li>• Project Schedule</li> <li>• Schedule and Cost Management Plan</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• Update the baselined project schedule as defined by the Schedule and Cost Management Plan to include recording actual hours and estimates to complete</li> </ul>	<ul style="list-style-type: none"> <li>• Updated project schedule</li> </ul>	<ul style="list-style-type: none"> <li>• PM</li> </ul>
<ul style="list-style-type: none"> <li>• Risk/Issue Management Plan</li> <li>• Issues and Risk Matrix</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• Manage the project risks and issues processes as defined by the Risk/Issue Management Plan</li> </ul>	<ul style="list-style-type: none"> <li>• Updated Issues and Risk Matrix</li> </ul>	<ul style="list-style-type: none"> <li>• PM</li> </ul>
<ul style="list-style-type: none"> <li>• Project Modification Requests</li> </ul>	<ul style="list-style-type: none"> <li>• Project Modification Form</li> </ul>	<ul style="list-style-type: none"> <li>• Manage project in accordance with the Project Scope, Schedule and Cost Management Plans as defined by the PMP</li> <li>• Manage project modification requests through the Requirements Change Management process (external process)</li> </ul>	<ul style="list-style-type: none"> <li>• Updated Project Modification Log</li> </ul>	<ul style="list-style-type: none"> <li>• Project Team</li> </ul>

#### 4.3.1.4 Artifact Repository

- Project Modification Requests – Project Notebook (Project Modification Requests and Log)
- Work Results/Project artifacts – Refer to the Configuration Management Plan (external process) for configuration procedures and storage location)
- Approved Deliverable – Project Notebook (Approval Forms and Log)

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#### 4.3.2 Conduct Team Development

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Team Development covers activities that increase the ability of the individual team members in both technical and managerial areas and activities that increase the team’s ability to perform as a team. Team Development includes activities like team building, performance management, rewards and recognition, and training.

##### 4.3.2.1 Inputs

- Skills Assessment Plan
- Staff Management Plan

##### 4.3.2.2 Outputs

- Improved Team Performance

##### 4.3.2.3 Process Details

Inputs	Templates and Tools	Steps	Outputs	Role(s)
<ul style="list-style-type: none"> <li>• Staff Management Plan</li> <li>• Project Schedule</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• Participate in project planning activities, such as development of the WBS or the development of estimates</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• Project Team</li> </ul>
<ul style="list-style-type: none"> <li>• Staff Management Plan</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• Coordinate/lead team building activities for all team members</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• PM</li> </ul>
<ul style="list-style-type: none"> <li>• Staff Management Plan</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• Monitor planned team building activities for team members to ensure they are taking place as expected</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• PM</li> </ul>
<ul style="list-style-type: none"> <li>• Staff Management Plan</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• Reward/recognize team members for good performance</li> </ul>	<ul style="list-style-type: none"> <li>• Improved Team Performance</li> </ul>	<ul style="list-style-type: none"> <li>• PM</li> </ul>
<ul style="list-style-type: none"> <li>• Skills Assessment Plan</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• Attend planned skills assessment training activities</li> </ul>	<ul style="list-style-type: none"> <li>• Improved Team Performance</li> </ul>	<ul style="list-style-type: none"> <li>• Project Team</li> </ul>
<ul style="list-style-type: none"> <li>• Skills Assessment Plan</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• Monitor planned skills assessment training activities for team members to ensure they are taking place as expected</li> </ul>	<ul style="list-style-type: none"> <li>• Improved Team Performance</li> </ul>	<ul style="list-style-type: none"> <li>• PM</li> </ul>

#### 4.3.2.4 Artifact Repository

- None

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### 4.3.3 Distribute Information

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Information Distribution involves executing the Communication Management Plan through status reporting, status meetings, and responding to unexpected requests for information. Executing the Communication Management Plan ensures that all relevant stakeholders get needed project information in a timely manner.

#### 4.3.3.1 Inputs

- Communications Management Plan
- Communications Management Matrix

#### 4.3.3.2 Outputs

- Meeting Minutes/Agenda
- Project Status/Performance Reports/Briefings/Presentations
- Informed Project Team

#### 4.3.3.3 Process Details

Inputs	Templates and Tools	Steps	Outputs	Role(s)
<ul style="list-style-type: none"> <li>• Communications Management Plan</li> <li>• Communications Management Matrix</li> </ul>	<ul style="list-style-type: none"> <li>• Minutes/Agenda</li> </ul>	<ul style="list-style-type: none"> <li>• Conduct regularly scheduled status meetings (as defined in the Communications Management Matrix and the Coordination Management Plan section of the PMP)</li> <li>• Document meeting minutes</li> </ul>	<ul style="list-style-type: none"> <li>• Meeting Minutes/Agendas</li> </ul>	<ul style="list-style-type: none"> <li>• PM</li> </ul>
<ul style="list-style-type: none"> <li>• Communications Management Plan</li> </ul>	<ul style="list-style-type: none"> <li>• Project Status Report</li> <li>• Steering Committee Presentation</li> </ul>	<ul style="list-style-type: none"> <li>• Develop briefings/presentations (as defined in the Communications Management Plan), and distribute</li> <li>• Assemble regularly scheduled status reports and distribute</li> </ul>	<ul style="list-style-type: none"> <li>• Project Status Reports</li> <li>• Steering Committee Presentation</li> </ul>	<ul style="list-style-type: none"> <li>• PM</li> </ul>
<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• Respond to ad hoc requests for information regarding the project</li> </ul>	<ul style="list-style-type: none"> <li>• Correspondence</li> </ul>	<ul style="list-style-type: none"> <li>• PM</li> </ul>
<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• Make information available to team members</li> </ul>	<ul style="list-style-type: none"> <li>• Informed Project Team</li> <li>• Updated Project Notebook</li> </ul>	<ul style="list-style-type: none"> <li>• PM</li> </ul>

#### 4.3.3.4 Artifact Repository




- Meeting Agendas and Minutes – Project Notebook (Meeting Minutes)
- Ad hoc Requests and Responses – Project Notebook (Correspondences)
- Project Status Report – Project Notebook (Project Status Reports)
- Steering Committee Briefings - Project Notebook (Project Status Reports)

---

#### 4.3.4 Monitor and Control the Project Management Plan

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The Project Management Plan is the basis for monitoring a project’s activities and taking corrective actions. Corrective action is defined as anything done to bring expected future project performance in line with the PMP. Progress is primarily determined by comparing the actual work products, cost, effort, and schedule to the plan, at regular, predefined intervals defined in the PMP and project schedule. This visibility into the project enables corrective actions to take place in a timely manner when significant deviations from the plan occur. The thresholds for defining when corrective action plans are needed for non-earn value projects are defined within the project’s PMP. Earned Value projects must followed the following guidelines for reporting status and implementing corrective action plans. These actions may require re-planning, such as revising the original PMP.

	CPI	SPI	Reporting Guidelines
Green 	Between 0.95 and 1.05	Between 0.95 and 1.05	A normal project status report is provided.
Yellow 	Between 0.91 and 0.94 or 1.06 and 1.09	Between 0.91 and 0.94 or 1.06 and 1.09	A verbal explanation is required.
Red 	≤ 0.90 or ≥ 1.10	≤ 0.90 or ≥ 1.10	A written corrective action plan is required.

##### 4.3.4.1 Inputs

- Project Schedule
- Issues and Risk Matrix
- Change Modification Requests

##### 4.3.4.2 Outputs

- Updated Project Schedule
- Corrective Action Plans
- Updated Project Artifacts
- Updated Issues and Risk Matrix
- Lessons Learned



- EVM Reports

#### 4.3.4.3 Process Details

Inputs	Templates and Tools	Steps	Outputs	Role(s)
<ul style="list-style-type: none"> <li>• Project Schedule</li> </ul>	<ul style="list-style-type: none"> <li>• Corrective Action Plan</li> </ul>	<ul style="list-style-type: none"> <li>• Monitor and control the project size by measuring the work products and tasks completed. This is accomplished by periodically assessing the attributes (size, complexity, etc.) of the work products and tasks and comparing the actual attributes to the estimated attributes as defined in the basis of estimate (BOE) and approved requirements document</li> <li>• When deviations occur, take corrective action (Project Modification Request, verifying current project scope, etc.) and note lessons learned</li> </ul>	<ul style="list-style-type: none"> <li>• Updated Project Schedule</li> <li>• Corrective Action Plans</li> </ul>	<ul style="list-style-type: none"> <li>• PM</li> </ul>
<ul style="list-style-type: none"> <li>• Project Modification Requests</li> </ul>	<ul style="list-style-type: none"> <li>• Corrective Action Plan</li> </ul>	<ul style="list-style-type: none"> <li>• Monitor and control change to project scope by ensuring that changes to the product scope are reflected in the project scope (i.e. the PMP, Project Schedule, etc.). Coordinate the effect of a change on the project scope, cost, quality, and schedule</li> <li>• Report information related to scope performance (such as which interim artifacts have been completed) during scheduled status meetings. Take corrective action on scope performance, and note lessons learned</li> </ul>	<ul style="list-style-type: none"> <li>• Updated Project Artifacts</li> <li>• Corrective Action Plans</li> </ul>	<ul style="list-style-type: none"> <li>• PM</li> </ul>

Inputs	Templates and Tools	Steps	Outputs	Role(s)
<ul style="list-style-type: none"> <li>• Project Schedule</li> <li>• Project Budget</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• When Earned Value (EV) is required, use EV to monitor progress (cost and schedule) and forecast cost and schedule adjustments</li> <li>• Monitor the commitments identified in the project schedule and review the commitments against the actual completion dates and/or forecasted completion dates</li> <li>• Monitor cost and schedule against the defined thresholds and implement Scope, Schedule and Cost Management activities as required to the correct deviations. (See PMP for defined thresholds for the project)</li> </ul>	<ul style="list-style-type: none"> <li>• Updated Project Schedule</li> <li>• EVM Reports</li> </ul>	<ul style="list-style-type: none"> <li>• PM</li> </ul>
<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• Monitor and control project results to ensure quality of work.</li> <li>• Ensure that specific project results comply with documented project quality standards, and the project is following documented work approaches and processes</li> <li>• Improve the quality of work and eliminate causes of unsatisfactory work. Analyze all corrective actions to evaluate their effectiveness</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• PM</li> </ul>
<ul style="list-style-type: none"> <li>• Issues and Risk Matrix</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• Monitor and control risks by keeping track of identified risks through the use of the Issues and Risk Matrix</li> <li>• Monitor existing project risks, identify new risks (with input from all team members), and ensure the execution of risk mitigating activities</li> <li>• Report risk related information during scheduled status meetings and steering committee briefings. Take corrective action, and capture lessons learned related to risk planning and mitigation</li> </ul>	<ul style="list-style-type: none"> <li>• Updated Issues and Risk Matrix</li> <li>• Lessons Learned</li> </ul>	<ul style="list-style-type: none"> <li>• PM</li> </ul>

#### **4.3.4.4 Artifact Repository**

- Corrective Action Plan – Project Notebook (Issues and Risk Matrix)
- Lessons Learned – Project Notebook (Audit Findings)

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## CHAPTER 5

### Project Close-Out Phase

#### Overview

The purpose of the Project Close-out phase is to obtain final project acceptance, to assess the project and to derive any lessons learned and best practices that may be applied to future projects, and to administratively close out the project. Contact the Procurement Department for contract close-out assistance.

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#### 5.1 PROJECT CLOSE-OUT INPUTS

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- Completed Work Results

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#### 5.2 PROJECT CLOSE-OUT OUTPUTS

---

- Final Project Acceptance
- Completed Lessons Learned
- Project Materials Archived

---

#### 5.3 PROJECT CLOSE-OUT DETAILED ACTIVITIES

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There are no constraints on the Project Close-Out activities.

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##### 5.3.1 Close Project

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The PM closes out the project once all work results are complete and all project deliverables/ artifacts have been approved. Closing a project includes obtaining final project acceptance; conducting and documenting a lessons learned review session; performing administrative closure and transition activities; and archiving project materials.

##### 5.3.1.1 Inputs

- Completed Work Results

##### 5.3.1.2 Outputs

- Final Project Acceptance
- Completed Lessons Learned
- Project Materials Archived
- Historical Information Stored

### 5.3.1.3 Process Details

Inputs	Templates and Tools	Steps	Outputs	Role(s)
<ul style="list-style-type: none"> <li>Completed Work Results</li> </ul>	<ul style="list-style-type: none"> <li>Approval Form</li> </ul>	<ul style="list-style-type: none"> <li>Submit an Approval Form for final project acceptance once all project deliverables/artifacts are approved, and the final solution is implemented and verified by the customer. Document on the Approval Form all project deliverables that were completed as part of the project, and document the date of approval for each deliverable</li> </ul>	<ul style="list-style-type: none"> <li>Final Project Acceptance</li> </ul>	<ul style="list-style-type: none"> <li>PM</li> </ul>
<ul style="list-style-type: none"> <li>Completed Work Results</li> </ul>	<ul style="list-style-type: none"> <li>Lessons Learned</li> </ul>	<ul style="list-style-type: none"> <li>Plan for a Lessons Learned Session by determining the participants (core and participating team members) and identifying lessons learned categories (cost, teamwork, and schedule)</li> <li>Schedule the Lessons Learned session, invite the participants, and distribute meeting materials</li> <li>Facilitate sessions where team members openly and professionally discuss what went well on the project, what did not go well, and lessons learned</li> <li>Group project lessons learned by similar categories, and document on the Lessons Learned Form</li> <li>Distribute with the appropriate audience</li> </ul>	<ul style="list-style-type: none"> <li>Completed Lessons Learned</li> </ul>	<ul style="list-style-type: none"> <li>PM</li> </ul>

Inputs	Templates and Tools	Steps	Outputs	Role(s)
<ul style="list-style-type: none"> <li>Completed Work Results</li> </ul>	<ul style="list-style-type: none"> <li>None</li> </ul>	<ul style="list-style-type: none"> <li>Complete the following administrative closure activities:               <ul style="list-style-type: none"> <li>Close out the project schedule. All tasks should have an estimate to complete of zero, indicating that the task is complete</li> <li>Ensure that no change requests or Approval Forms are outstanding on the Project Modification Log and Acceptance Log</li> <li>Close out the Risk and Issues Matrix. All issues should be documented as resolved, or transferred to a new project. Risks should be closed out, or transferred to a new project</li> <li>Ensure that the Project Notebook is updated with all relevant information to include approval for final project acceptance</li> <li>Close out other project management tasks</li> <li>Archive project materials</li> <li>Return project equipment</li> <li>Vacate facilities (if required)</li> <li>Release project resources</li> <li>If a contract close out is required, refer to the Procurement Department for details</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Closed Project</li> </ul>	<ul style="list-style-type: none"> <li>PM</li> </ul>
<ul style="list-style-type: none"> <li>Completed Project</li> </ul>	<ul style="list-style-type: none"> <li>None</li> </ul>	<ul style="list-style-type: none"> <li>Notify the responsible Division Manager and provide links to project information for use on future projects including estimates, project schedule, defining documents, etc. (Be sure to remove all sensitive information)</li> <li>If any project artifacts are considered to be examples of best practices for future projects; (1) Submit Process Improvement Requests to PMC for evaluation as a Best Practice; (2) Respond to PI Database acknowledgement of PI and send a link for the completed artifacts to the PI Mailbox</li> </ul>	<ul style="list-style-type: none"> <li>Project Materials Archived</li> <li>Historical Information Stored</li> </ul>	<ul style="list-style-type: none"> <li>PM</li> </ul>

#### **5.3.1.4 Artifact Repository**

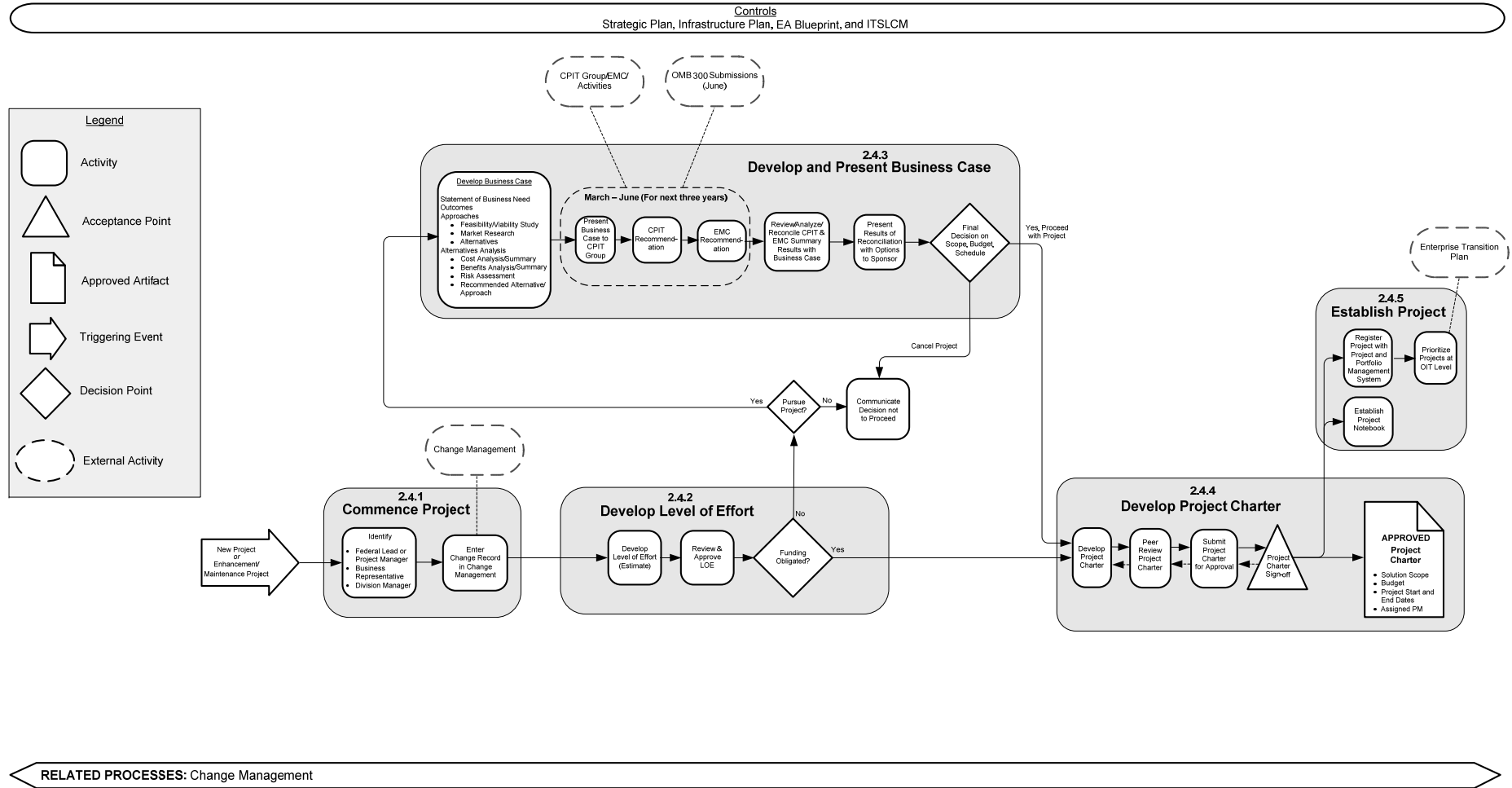
- Lessons Learned – Project Notebook (Audit Findings) Federal PM stores a copy, and submits links to completed documents to the PMC
- Historical Information – Federal PM stores a copy of all materials, and submits links to all materials to the Division Manager and PMC



# APPENDIX A

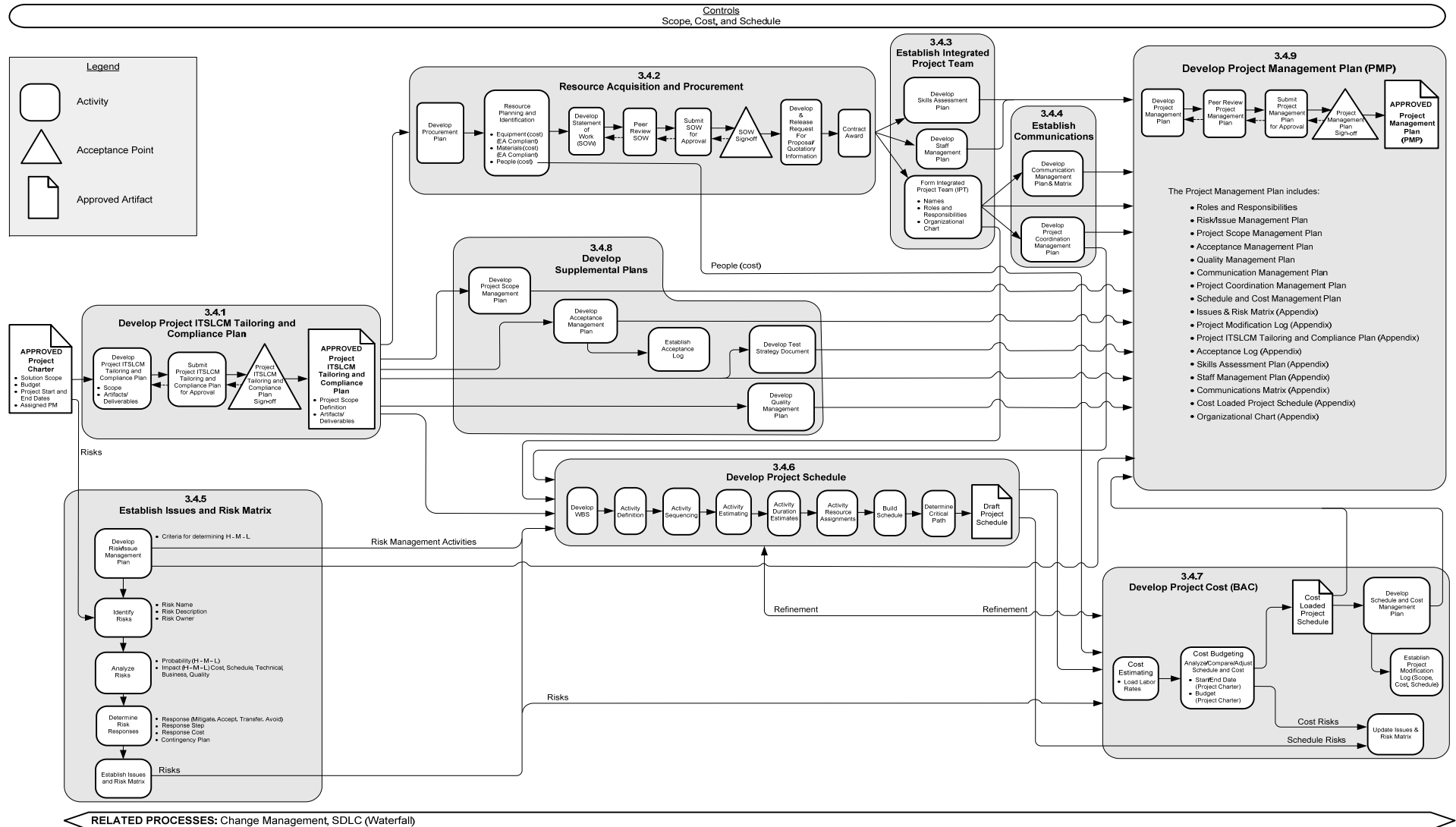
## Project Initiation Phase Diagram

### Project Management Life Cycle Project Initiation Phase (Chapter 2)



## APPENDIX B

# Project Planning Phase Diagram





Information Technology  
Solutions Life Cycle Methodology  
(ITSLCM)

Section 4

Solutions Delivery Life Cycle (SDLC)  
(Waterfall)

Last Updated Date: 05/30/2008

**Revision History**

<b>Version</b>	<b>Date (PMC Approved)</b>	<b>Author</b>	<b>Section(s) Changed</b>	<b>Description/Comments</b>
V2007.1	12/31/2006	OIT PMO	NA	Initial release
V2007.1	01/16/2007	OIT PMO	All	Changes were made as per the PMC review – Final release
V2007.1	02/07/2007	OIT PMO	NA	Approved by PMC and signed by PMC Chair
V2007.1	02/08/2007	OIT PMO	NA	Approved and signed by Acting Chief Information Officer
V2007.1	05/30/2007	PMC Process Development Team	1.5 (page 5)	Changed all occurrences of Program Manager to Program Coordinator, as per PMC directive
V2007.1	09/12/2007	PMC Process Development Team	Cover 2.1 (page 13) 3.1 (page 23) 4.1 (page 30) 5.1 (page 39) 6.1 (page 48) Updated 1.6.2 and 5.4.3	Replace document cover with new style/format standard cover. Updated Related Processes thread of all five phase diagrams. Updated per PI#109, 144
V2007.1	01/31/2008	PMC Process Development Team	Cover Pages 12, 16, 17 Figure 2-1	Corrected inconsistent references to Solution Impact Identification Document, making “Solution” a singular form, not plural. Updated per PI#162
			Figure 5-1	Updated Test Phase diagram. Updated per PI#168
			All references.	Updated all references to IA Rep, IE Rep and IO Rep with Release Manager (RM) and Infrastructure Operations Department Representative (ITIO Rep) Updated per PI#154

Version	Date (PMC Approved)	Author	Section(s) Changed	Description/Comments
			All	Replace references to element with division or functional area. Reviewed, and either updated or deleted references to QA
			4.4 (page 33)	Updated the Finalize Test Scripts, Scenarios, and Cases activity based on the approval of PI #169
			All references	Updated all references to Solution Development and Maintenance Representative (SDM Rep) to IT & Business Modernization Representative (ITBM Rep)
			Overview (page 1)	Updated the PMLC and SLDC (Waterfall) Processes Diagram
V2007.1	03/25/2008	PMC Process Development Team	2.4.5	PI#199. Correct reference to approval of System Security Plan from Design Phase to Test Phase.
V2007.1	03/26/2008	PMC Process Development Team	Chapter 3 Overview (p21) Chapter 5 Overview (p35) Sec 6.4.1 (p47).	PI#194. Replaced all references to Help Desk with Service Desk
V2007.1	05/30/2008	EPMD Process Improvement Services Team	Sec 1.5 (pg. 5) Sec 6.5 (pg. 49) All footers	PI #212. Replaced all references to 'User Support Representative' and 'US Rep' with 'Service Desk Representative' and 'Service Desk Rep'. Removed 'of y', where y is the total # of pages in the document, from the footer



Note: Detailed processes and templates are available on the OIT's Process Assets Library portal site.

The Office of Information Technology's Process Management Committee (PMC) members reviewed and approved this ITSLCM Version 2007.1.

**Cheryl Ringel**

\_\_\_\_\_  
PMC Chair

Approval Date: **Signed February 7, 2007**

**Jon Baake**

\_\_\_\_\_  
Acting Chief Information Officer

Approval Date: **Signed February 8, 2007**

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## Table of Contents

<b>CHAPTER 1 – Overview .....</b>	<b>1</b>
1.1 Purpose .....	2
1.2 Audience.....	2
1.3 SDLC (Waterfall) Process Flow and Artifacts .....	3
1.4 Phase Overview.....	4
1.5 Common Terminology.....	5
1.6 Detailed Phase Diagrams .....	5
<b>CHAPTER 2 – Requirements Phase.....</b>	<b>11</b>
2.1 Requirements Phase Diagram.....	13
2.2 Requirements Phase Inputs.....	15
2.3 Requirements Phase Outputs.....	15
2.4 Requirements Phase Narrative.....	15
2.5 Requirements Phase Related Processes and Templates.....	20
<b>CHAPTER 3 – Design Phase .....</b>	<b>21</b>
3.1 Design Phase Diagram.....	23
3.2 Design Phase Inputs.....	25
3.3 Design Phase Outputs .....	25
3.4 Design Phase Narrative .....	25
3.5 Design Phase Related Processes and Templates.....	27
<b>CHAPTER 4 – Construction Phase .....</b>	<b>29</b>
4.1 Construction Phase Diagram .....	30
4.2 Construction Phase Inputs.....	32
4.3 Construction Phase Outputs .....	32
4.4 Construction Phase Narrative .....	32
4.5 Construction Phase Related Processes and Templates.....	35
<b>CHAPTER 5 – Test Phase .....</b>	<b>36</b>
5.1 Test Phase Diagram .....	38
5.2 Test Phase Inputs.....	40
5.3 Test Phase Outputs .....	40



5.4 Test Phase Narrative .....	40
5.5 Test Phase Related Processes and Templates .....	44
<b>CHAPTER 6 – Deployment Phase .....</b>	<b>46</b>
6.1 Deployment Phase Diagram .....	47
6.2 Deployment Phase Inputs .....	49
6.3 Deployment Phase Outputs .....	49
6.4 Deployment Phase Narrative .....	49
6.5 Deployment Phase Related Processes and Templates .....	50

**Overview**

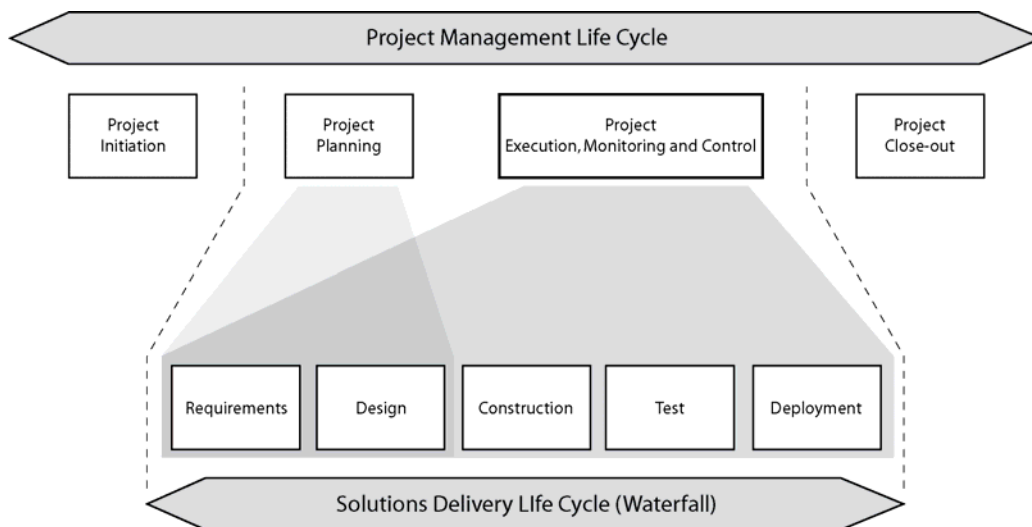
The Pension Benefit Guaranty Corporation (PBGC) Office of Information Technology (OIT) Solutions Delivery Life Cycle (SDLC) (Waterfall) was developed by the Program Management Office (PMO) in conjunction with OIT divisions. The SDLC (Waterfall) is the component of the Information Technology Solutions Life Cycle Methodology (ITSLCM) that provides a common methodology for delivering solutions within PBGC uniformly and repeatedly so that consistent results can be achieved when developing Information Technology (IT) solutions. The SDLC (Waterfall) should be used for all new and existing Information Systems and Information Technology projects. Refer to the Project ITSLCM Tailoring and Compliance Plan Guidance document for more detailed descriptions of the project types and sizes that are subject to the SDLC (Waterfall).

**SDLC (Waterfall)**

The SDLC (Waterfall) is a sequential delivery model that has five phases: Requirements, Design, Construction, Test, and Deployment. It is recommended that each phase be completed before the next phase is begun in order to reduce the risk of rework and provide the ability to identify problems early and resolve them more efficiently.

**SDLC (Waterfall) and PMLC**

The SDLC (Waterfall) is designed to be implemented jointly with the Project Management Life Cycle (PMLC) as depicted in Figure 1-1 PMLC and SDLC (Waterfall) Processes Diagram. The PMLC details the project management processes used in initiating, planning, managing, executing, monitoring, and closing solutions delivery projects.



**Figure 1-1 PMLC and SDLC (Waterfall) Processes Diagram**

Some of the activities related to the Requirements and Design Phases of the SDLC (Waterfall) may be completed concurrent with the Project Planning Phase of the PMLC. While most activities in the Project Planning Phase of the PMLC can be completed prior to the completion of the Requirements Phase of the SDLC (Waterfall), some Project Planning artifacts may not be finalized until the SDLC (Waterfall) Design Phase is near completion. For example, a Project Management Plan or Project Schedule for a new or complex project may not be finalized until all the design elements are determined near the end of the Design Phase.

The Process Management Committee (PMC) maintains and publishes the OIT processes, including the SDLC (Waterfall) assets (policies, processes, templates, models) to the OIT Process Asset Library (PAL).

Improvements to the SDLC (Waterfall) assets must be submitted to and approved by the PMC.

---

## 1.1 PURPOSE

---

The purpose of the SDLC (Waterfall) is to provide a high-level framework for IT project teams to acquire, develop, enhance, and maintain information systems and information technology solutions at PBGC. This document is intended to be used in conjunction with the Project Management Life Cycle (PMLC).

The ITSLCM is a framework for developing, maintaining, and decommissioning solutions. Refer to the ITSLCM for how the SDLC (Waterfall) fits into its framework. Refer to the Project ITSLCM Tailoring and Compliance Plan Guidance document to determine whether, based on project type or size, a project is subject to the SDLC (Waterfall). The Project ITSLCM Tailoring and Compliance Plan Guidance document also identifies the roles responsible for producing, reviewing and approving the artifacts listed in the SDLC (Waterfall) document.

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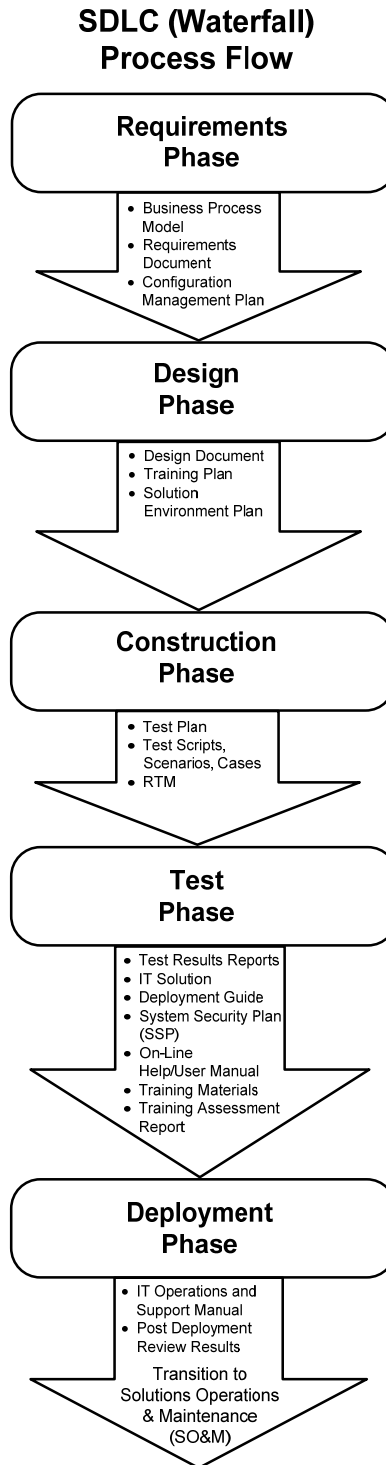
## 1.2 AUDIENCE

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The SDLC (Waterfall) is intended for use by all IT integrated project teams (Federal and Contractor) responsible for and involved in managing, designing, developing, testing, deploying and maintaining Information Systems and Information Technology projects across all PBGC departments and offices.

### 1.3 SDLC (WATERFALL) PROCESS FLOW AND ARTIFACTS

Figure 1-2 depicts the SDLC (Waterfall) process flow and the artifacts associated with each phase.



**Figure 1-2** SDLC (Waterfall) Process Flow Diagram

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## 1.4 PHASE OVERVIEW

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This section describes, at a high level, the methodology required for completing the five phases of the SDLC (Waterfall) (Requirements, Design, Construction, Test, and Deployment) as depicted above in Figure 1-2 SDLC (Waterfall) Process Flow Diagram.

---

### 1.4.1 Purpose of Each Phase

---

- **Requirements** – To document the current and proposed business processes and analyze the difference between the two; to identify, analyze, specify, and document the business, operational, and security requirements of the project so that the solution meets PBGC’s business needs; to begin development of the Solution Environment Plan, if applicable; and, to begin development of the System Security Plan (SSP). The final outputs of the phase are Approved Business Process Model, Approved Requirements Document, and Approved Configuration Management Plan.
- **Design** – To design the functional, technical, architectural, and security components of the IT solution; to ensure that the design traces back to requirements; to develop the training plan; to begin development of the test plan, and test scripts, scenarios, and cases; and, to complete development of the Solution Environment Plan. The final outputs of the phase are the Approved Design Document, Approved Training Plan, and Approved Solution Environment Plan.
- **Construction** – To develop the IT solution to meet the specified requirements according to the Approved Requirements Document and Approved Design Document; to finalize the test plan; to finalize test scripts, scenarios, and cases; to finalize the RTM; to begin development of the deployment guide; to design and begin development of the training materials and on-line help/user manual. The final outputs of the phase are Approved Test Plan, Reviewed and Final Test Scripts, Scenarios, and Cases, and Final RTM.
- **Test** – To ensure that the IT solution meets or exceeds the specified requirements and works as intended in the planned environments; to finalize training materials and on-line help/user manual; to conduct the training; and, to set-up Common Development Environment-Integration (CDE-I), Integration Testing Center (ITC), and Training environments. The final outputs of the phase are Approved Test Results Report, Approved IT Solution, Reviewed and Final Deployment Guide, Approved SSP, Approved On-line Help/User Manual, Approved Training Materials, and Reviewed and Final Training Assessment Report.
- **Deployment** – To deploy the Approved IT solution into the Production environments – Headquarters and Continuity of Operations Plan (COOP) site; to transition the Approved IT Solution to OIT Solutions Operations and Maintenance (SO&M); to complete and deliver the IT Operations and

Support Manual to the Deployment Team; and, to Conduct Final Security Certification and Accreditation (C&A). The final outputs of the phase are the Reviewed and Final IT Operations and Support Manual, Post Deployment Review Results, Accreditation Package, and the Transitioned Approved IT Solution.

Refer to the phase narratives within this document for complete descriptions of the artifacts listed above.

---

## 1.5 COMMON TERMINOLOGY

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Refer to the ITSLCM Glossary of Terms located in the ITSLCM Appendix A or on the PBGC OIT PAL, here in after referred to as the PAL.

The following list of abbreviations is used throughout this document:

- Business Representative – Business Rep
- Configuration and Change Management Representative – CCM Rep
- Chief Financial Officer – CFO
- Chief Information Officer – CIO
- Contracting Officer Technical Representative – COTR
- Deputy Chief Information Officer – DCIO
- Division Manager – DM
- Enterprise Architecture Representative – EA Rep
- Enterprise Information Security Representative – EIS Rep
- Federal Project Manager – Federal PM
- Human Resources Department (HRD) Training Institute Representative – TI Rep
- Internal Control Committee - ICC
- Release Manager – RM
- IT & Business Modernization Representative – ITBM Rep
- IT Infrastructure Operations Department Representative – ITIO Rep
- Process and Product Quality Assurance Representative – PPQA Rep
- Resources Management Representative – Resource Mgmt Rep
- Service Desk Representative – Service Desk Rep

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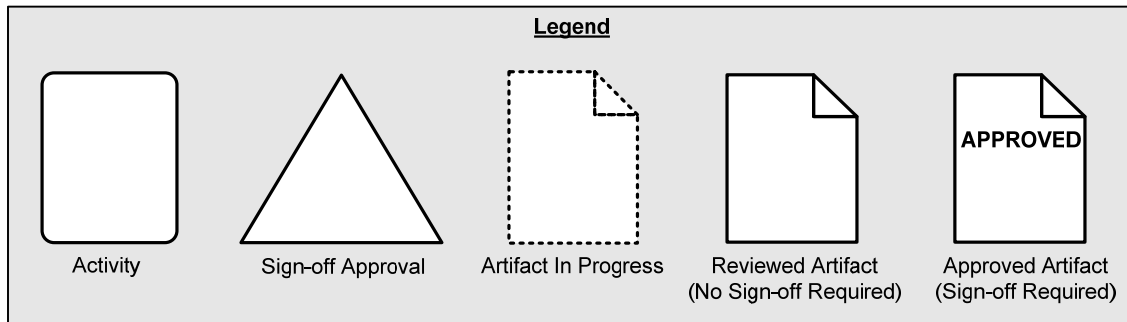
## 1.6 DETAILED PHASE DIAGRAMS

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Each SDLC (Waterfall) phase is depicted by a detailed diagram in its respective chapter. The diagram illustrates the essential activities associated with the phase and provides a process flow for the phase's activities. The diagrams consist of five types of components: Activity, Sign-off Approval, Artifact in Progress, Reviewed Artifact (No Sign-off Required), and

Approved Artifact (Sign-off Required), as shown in the Figure 1-3 SDLC (Waterfall) Diagram Legend.

The components define specific aspects of the diagram. Each gray box depicted on the diagram identifies an activity section. Understanding the diagram's composition will enable you to quickly comprehend the information depicted on the diagram.



**Figure 1-3** SDLC (Waterfall) Diagram Legend

In addition to all the components of the diagram as described in the legend, the diagrams also depict phase level controls, related processes, and project specific plans.

---

### 1.6.1 Phase Level Controls

---

There are eight controls that govern and ensure compliance to the SDLC (Waterfall). Controls are constraints on the operation of the processes. The following controls must be adhered to when delivering an IT solution within PBGC.

- **PBGC's Corporate Strategic Plan** describes the corporation's long term goals and the approach to attain them.
- **OIT's Infrastructure Plan** determines the goals for maintaining and improving the corporation's IT infrastructure and the roadmap to achieve them.
- **OIT's Enterprise Architecture (EA) Blue Print** is a corporate plan that describes and ensures compliance to the framework, shared services, and standard components needed to support an architecture that supports the PBGC Corporate Strategic Plan.
- **The Information Technology Solutions Life Cycle Methodology (ITSLCM)** provides a framework for managing IT solutions and IT investments.
- **The Steering Committee (SC)** has oversight over the project scope, cost, and schedule. Any impact to these factors must be approved by the SC.

- **The Change Control Board (CCB)** manages the project requirement changes that do not affect the project scope, cost, and schedule.
- **OIT's Security Policy** ensures compliance to U.S. National Institute of Standards and Technology (NIST) Federal Information Processing Standards (FIPS).
- **The Internal Control Committee (ICC)** maintains and publishes a list of management, internal and audit controls that impact projects. A designated participant by ICC to be involved to define management, internal and audit control requirements for financial and mixed-financial IT solution projects, and participate in user acceptance testing of these controls.

---

### 1.6.2 Related Processes

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The following related processes are a part of the ITS LCM framework that supports the SDLC (Waterfall) methodology. Note: Not all processes apply to all phases but are used as needed. While a process may apply during the Requirements phase, it may not apply to any of the subsequent phases (Design, Construction, Test, or Deploy).

- **Project Management Life Cycle (PMLC)** – PMLC defines the Information Systems and Information Technology Project Management Life Cycle from project initiation through the project close-out phases.
- **Change Management** – Change Management is an IT Infrastructure Library (ITIL) process for tracking the modification details of a solution. Each change request is analyzed for impact, evaluated for necessity, and documented for the record.
- **Create and Update Business Processes** – This process provides the means for reviewing the current project scope against the current business process state so they can be analyzed and improved.
- **Requirements Development** – Requirements Development is a process for gathering, analyzing, and validating business, user, functional, and operational requirements.
- **Requirements Change Management (REQM)** – REQM is the process for managing requirements and establishes a change control process for accepting, rejecting, or deferring changes to approved requirements.
- **Process and Product Quality Assurance (PPQA)** – PPQA provides management with insight into the effectiveness of established processes and their associated artifacts. This is achieved by objectively evaluating processes and work products to ensure compliance to the established policies, processes and procedures. Additionally, PPQA tracks and reports non-compliance issues.



- **Configuration Management (CM)** – Configuration Management ensures that the configuration of an item (and its components) is known and documented, and that any changes to an item are controlled and tracked. It applies technical and administrative direction and surveillance over the life cycle of the item.
- **Security Planning Procedures** – Security Planning Procedure is the process for evaluating the security needs of a system to determine the appropriate security controls ensuring confidentiality, integrity, and availability of a system and its information.

---

### 1.6.3 Project Specific Plans

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The following plans are created with information specific to each project. Each plan may be created before, during, or after the SDLC (Waterfall) phases. The plans may also be developed in one phase and finalized in another.

- **The Project Management Plan (PMP)** – The PMP is a comprehensive planning document used for describing how the project will be managed and references the document appendices that are used on the project that exist in a stand-alone format. This document is created as part of the PMLC.
- **System Security Plan (SSP)** – The SSP details the types of security required for a solution based on the type of information being processed and the degree of sensitivity. It is developed in the Requirements Phase, updated in the Design and Construction Phases, and finalized at the end of the Test Phase.
- **Configuration Management Plan** – This plan identifies methods and tools for promoting deliverable items within development, testing, and production environments. It identifies the final location of all work products including software, documentation, plans, status reports, critical communications, action items, and meeting minutes. The CM plan is developed and finalized in the Requirements Phase.
- **Solution Environment Plan** – This plan describes the requirements of the environment that must be met to build the solution. The Solution Environment Plan includes information related to the CDE-T, CDE-I, ITC, Training, Production, and COOP environments. It is developed in the Requirements Phase and finalized in the Design Phase.

---

### 1.6.4 Common Processes

---

The Peer Review and Submit Artifact for Approval processes appear in every phase of the SDLC (Waterfall). The Submit Artifact for Approval process is also followed for documents that are Review Only but no signatures are required.

**Peer Review Process**

During the Peer Review process, the artifact is evaluated for correctness and completeness. It should ensure that the artifact meets the needs and expectations of the users, and confirms that the artifact was developed in accordance with appropriate standards. Peer Review is an iterative process, and artifacts may be required to cycle through the Peer Review process several times until the artifact is ready to move to the approval process.

**Submit Artifact for Approval Process**

During the Submit Artifact for Approval process, the artifact is still evaluated and accepted for correctness and completeness. It should ensure that the artifact meets the needs and expectations of the users and confirms that the artifacts were developed in accordance with appropriate standards. The process includes determining the approvers, conducting a walkthrough, and obtaining signoff on the artifact. The Submit Artifact for Approval process requires a signature from all the identified approvers. The Review Only process does not require a signature.

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## Overview

During the Requirements Phase, the business needs that the proposed solution is to address are identified, documented, and approved. The Business Process Model process identifies and documents existing business processes in the 'As-Is' process. The new or modified processes are determined and documented in the 'To-Be' business process model documentation. Additionally, the Requirements Phase identifies, documents, and gains approval for the requirements, and establishes project oversight to manage scope changes throughout the project by creating a Change Control Board (CCB) and Steering Committee, if necessary.

### Requirements Phase Activities

The Requirements Phase is comprised of the following activities:

- **Establish Change Control Board/Steering Committee** – The purpose of this activity is to organize and authorize the Change Control Board and Steering Committee to manage changes to the project scope throughout the project life cycle.
- **Develop Solution Environment Plan** – This activity identifies which environments are impacted by the project and determines how the environments should be configured. Development of the Solution Environment Plan begins in the Requirements Phase to accommodate the configuration of the Existing/COTS solution in the Common Development Environment – Team Specific (CDE-T) environment. If there is no Existing/COTS solution, the Solution Environment Plan may be started later; however, it must still be finalized in the Design Phase. The draft Solution Environment Plan is an output of this activity.
- **Set-up CDE-T Environment** – In this activity, the Common Development Environment – Team Specific (CDE-T) (development) environment is set-up to meet the requirements necessary to support the deployment of the COTS solution to the CDE-T environment.
- **Deploy Existing/COTS Solution** – During this activity, the Existing/COTS Solution is deployed and configured in the CDE-T environment. The availability of the Existing/COTS solution provides an environment to review and analyze the current solution features and specifications to determine what changes, if any, are needed to accommodate the new requirements.
- **Develop Business Process Model** – This activity identifies, documents, and gains approval for the business processes that will drive the requirements. The Approved Business Models (As-Is and To-

Be models) and Solution Impact Identification Document are outputs of this activity.

- **Develop Requirements Document** – This activity elicits, analyzes, and documents the business needs and the requirements to satisfy the business needs. The Approved Requirements Document, Requirements Traceability Matrix (RTM), Logical Data Model (LDM), and Updated Solution Impact Identification Document are outputs of this activity.
- **Develop System Security Plan (SSP)** – During this activity a plan is created to document how the project will comply with the PBGC Information System Security requirements. The draft SSP is an output of this activity.
- **Develop Configuration Management Plan** – This activity develops the plan to manage the configuration items produced during the project life cycle. This activity also establishes the configuration management repository. The outputs are the Approved Configuration Management Plan and Established Configuration Management Repository.

## 2.1 REQUIREMENTS PHASE DIAGRAM

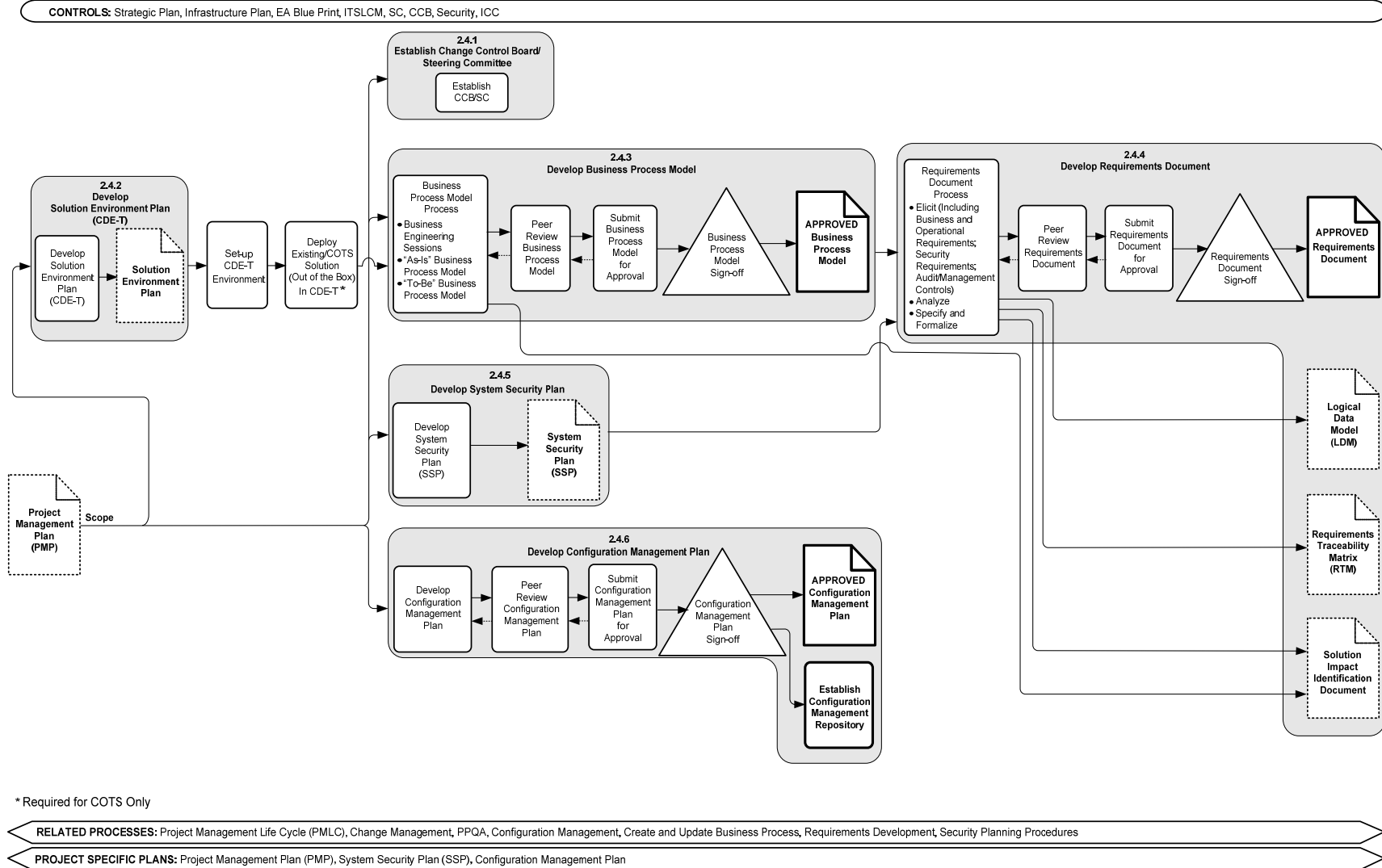


Figure 2-1 Requirements Phase Diagram

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## 2.2 REQUIREMENTS PHASE INPUTS

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- Project Management Plan (PMP) Scope (artifact in progress)

---

## 2.3 REQUIREMENTS PHASE OUTPUTS

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- Established Change Control Board (CCB)/Steering Committee (SC)
- Approved Business Process Model
- Approved Requirements Document
- Approved Configuration Management Plan
- Established Configuration Management Repository
- Solution Environment Plan (artifact in progress)
- System Security Plan (SSP) (artifact in progress)
- Logical Data Model (LDM) (artifact in progress)
- Requirements Traceability Matrix (RTM) (artifact in progress)
- Solution Impact Identification Document (artifact in progress)

---

## 2.4 REQUIREMENTS PHASE NARRATIVE

---

The Requirements Phase can be initiated after the Scope section of the PMP is completed. In this phase, the business process models are identified and approved; the requirements document is developed and approved; if there is an existing/COTS solution available, the solution environment plan is developed; the configuration management plan is developed and approved; and, the initial system security plan is developed.

---

### 2.4.1 Establish Change Control Board/Steering Committee

---

The CCB and SC establish the controls necessary to keep the project within scope, budget and schedule in the Establish CCB/Steering Committee activity. The CCB manages any change to the project requirements. Its establishment at the beginning of the Requirements Phase ensures that the Requirements (REQM) process is followed. The SC has oversight over the project scope, cost, and schedule. Any requirements changes that affect these factors are escalated to the Steering Committee for review and approval. The REQM process is an external process that manages changes to the requirements throughout the life of the project.

---

### 2.4.2 Develop Solution Environment Plan (CDE-T)

---

The PMP scope section also triggers the Develop Solution Environment Plan if there is a COTS solution or an existing solution already in production available for the project. The Develop Solution Environment Plan (CDE-T)



process creates the initial Solution Environment Plan. The plan describes the requirements of the environment that must be met in order to build, test, train, and implement the solution into production. The initial draft of this plan contains information on how to configure the CDE-T environment so the Existing/COTS solution may be installed. In the Design Phase, the plan is updated to include information on the ITC, Training, Production, and COOP environments and the document is finalized in the Design Phase.

---

### **Set-up CDE-T Environment**

---

In this activity, the CDE-T environment is set-up and configured in preparation for deploying the Existing/COTS solution. The required hardware, operating system, memory, Random Access Memory (RAM), and other environment related components are set-up and configured.

---

### **Deploy Existing/COTS Solution (Out of the Box in CDE-T)**

---

In the Configure Existing/COTS Solution activity, the COTS solution or the existing solution is installed in the CDE-T environment. During a Conference Room Pilot, the Existing/COTS solution will be evaluated to determine if its features and functionality meet the business needs of the project. The results of the Conference Room Pilot will be used in the development of the 'To-Be' Business Process Model in the Develop Business Process Model activity.

---

## **2.4.3 Develop Business Process Model**

---

### **Business Process Model Process**

The purpose of the Business Process Model process is to identify the current state and identify the future state of the business processes. This is accomplished by analyzing the 'As-Is' model (if exists) using various modeling tools and techniques. Using the same process, the 'To-Be' or future state business processes are determined and documented. The 'gap' between the two states is analyzed in a gap analysis and used to drive the requirements in the Develop Requirements Document process.

The initial step in the Develop Business Process Model process is to identify the current state of the business processes and document the processes in the 'As-Is' business process model. The 'As-Is' business model approaches the business processes from the enterprise perspective and documents how the data flows through the existing solutions, other enterprise systems and applications, and how it maps back to the PBGC Enterprise Architecture Blueprint.

The 'To-Be' business model addresses the business processes future state. It again documents the business processes and their relationship to other enterprise applications, systems, hardware, data, structure and maps to the PBGC EA Blueprint.

The high-level requirements in the PMP scope section are then used to identify the differences between the 'As-Is' and the new requirements in a gap analysis. The gap analysis is then used to create the new optimized and efficient 'To-Be' Business Process Model and subsequently the Business Process Model document.

The Business Process Model document is submitted to the Peer Review and Submit Artifacts for Approval processes. The Business Process Model must be approved before requirements gathering activities can begin. The Approved Business Process Model will be used as a driver for the Develop Requirements Document activity.

The Solution Impact Identification Document is generated during the Develop Business Process Model Process. As the processes are identified and analyzed, the impact of the proposed new requirements on existing processes, systems, and applications are identified, analyzed, and documented. The Solution Impact Identification Document identifies the impacts of the project on the existing business processes, active production applications, and existing infrastructure requirements. This is a living document and should be updated and managed throughout the SDLC (Waterfall) phases as additional impacts are identified.

The Approved Business Process Model and Solution Impact Identification Document are outputs of the Develop Business Process Model Process.

#### **[Peer Review Business Process Model and Submit Business Process Model for Approval](#)**

The Peer Review process allows a group of the producer's peers to review the artifact for defects before submitting for approval. The Submit Artifacts for Approval process is a formal review of the artifact and requires a signature.

---

### **2.4.4 Develop Requirements Document**

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#### **[Requirements Document Process](#)**

The purpose of the Requirements Document process is to identify, analyze, document, and obtain approval for the solution requirements. The Requirements Document is a formal statement of the expected benefits, scope, assumptions and constraints, interfaces, functional requirements and operational requirements for the project. Using the Approved Business Process Model and the Draft SSP as inputs and working with the business owners, subject matter experts (SME), and other stakeholders, the solution requirements are identified, analyzed and documented in the Requirements Document. The Requirements Document should be approved before the Design Phase begins to reduce the risk of designing against incorrect or invalid requirements and to minimize design rework.

Another artifact of this process is the Requirements Traceability Matrix (RTM). The RTM is a table that captures all the detailed solution requirements and traces the requirements from identification through deployment. The document is updated when there is a change to the requirements and as each requirement is satisfied in the Design and Test Phases of the SDLC (Waterfall). At the end of the project life cycle, the RTM will illustrate how each of the original requirements were modified, if applicable, and satisfied in the solution design, and evaluated and verified in the Test Phase. At the end of the Requirements Phase, the Business Process #, Requirement #, Approval Date, Priority, Source of Requirement, and Stability columns of the RTM should be completed. Subsequent columns are populated during the Design and Test Phases.

The Requirements Document is used to create the initial Logical Data Model (LDM). The LDM is a database model that has not yet been normalized. The data model is developed based on the data and how it relates to business processes and solutions. The LDM is finalized as an appendix to the Approved Design Document in the Design Phase.

The Solution Impact Identification Document, generated in the Develop Business Process Model process, is updated in the Requirements Document process as additional impacts are identified.

The Develop Requirements Document activity generates several artifacts: the Approved Requirements Document, the Logical Data Model (LDM), the Requirements Traceability Matrix (RTM), and the Updated Solution Impact Identification Document.

#### **Peer Review Requirements Document and Submit Requirements Document for Approval**

The Requirements Document is submitted to the Peer Review and Submit Artifacts for Approval processes to ensure the document contains, at a high-level, the required information. The Submit Artifacts for Approval process is a formal review of the artifact and requires a signature.

### **2.4.5 Develop System Security Plan**

The purpose of the System Security Plan process is to ensure that the solution adheres to the PBGC Information Security Standards and the National Institute of Standards and Technology Standards (NIST). PBGC Information Security processes protect PBGC information and systems against unauthorized access. NIST provides standards and guidelines for protecting Federal IT systems.

The PMP scope section provides enough information to begin the System Security Plan (SSP). The plan details the types of security required for a solution based on the type of information being processed and the degree of

sensitivity. The plan also identifies whether the PBGC Information System Security Officer requires that a system be certified and accredited. The SSP can be started before the Develop Requirements Document process is completed. However, the security requirements should be considered a part of the Develop Requirements Document process as these requirements will need to be incorporated in the Solution Design. The SSP is initiated in the Requirements Phase and is approved in the Test Phase. The draft SSP is an output of this process.

---

## **2.4.6 Develop Configuration Management Plan**

---

### **Develop Configuration Management Plan**

The purpose of the Configuration Management Plan is to document how changes to the hardware, software, documentation and any other identified configuration items will be controlled and managed during the project life cycle. The plan can be developed and approved once the PMP scope, which provides the high-level requirements for the solution, has been finalized. The Configuration Management Plan must be reviewed and approved.

The Establish Configuration Management Repository process identifies where and how the project artifacts will be stored. The artifacts include the documents, code, and any other tangible component of the solution created during the SDLC (Waterfall). The repository, which is a central storage location for the artifacts, usually allows for controlled access to the artifacts, version management, revision control, and product model and composition management for software code. The repository is established by the end of the Requirements Phase to provide a place to store and manage the Requirements Phase artifacts and to ensure there is a place to store and manage the future phase artifacts.

### **Peer Review Configuration Management Plan and Submit Configuration Management Plan for Approval**

The Configuration Management Plan is submitted to the Peer Review and Submit Artifacts for Approval processes to ensure that the Configuration Management Plan meets the criteria set by the Change and Configuration Management functional area and provides adequate information for the project team to understand and utilize. The Submit Artifacts for Approval requires approval signatures indicating the Approvers understand and agree with the contents of the plan.

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## 2.5 REQUIREMENTS PHASE RELATED PROCESSES AND TEMPLATES

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The Requirements Phase is supported by the following detailed processes and templates:

- Develop Solution Environment Plan Process (See RM)
  - Solution Environment Plan Template (PAL)
- Set-up CDE-T Environment Process (See RM)
- Deploy Existing/COTS Solution Process (See CDE-T RM )
- Establish Change Control Board/Steering Committee Process (See Federal PM)
- Peer Review/Submit Artifact for Approval Processes
  - Peer Review Process (PAL)
  - Submit Artifact for Approval Process (PAL)
- Develop Business Process Model
  - Business Process Model Process (PAL)
  - Business Process Peer Review Workbook Template (PAL)
  - Solution Impact Identification Document Template (PAL)
- Develop Requirements Document Process
  - Requirements Document Process (PAL)
  - Requirements Document Template (PAL)
  - Requirements Traceability Matrix Template (PAL)
  - Requirements Document Peer Review Workbook (PAL)
- Develop System Security Plan Process (See EIS Rep)
  - System Security Plan Template (PAL)
- Develop Configuration Management Plan Process (See CCM Rep)
  - Configuration Management Plan Template (PAL)

Note: The PAL is updated regularly with new templates supporting the SDLC (Waterfall). Refer to the PAL first when trying to locate available templates.

## Overview

The primary tasks that support the goals of the Design Phase are to develop and get approval for the Design Document; to develop and get approval for the Test Plan and the Test Scripts, Scenarios, Cases; to develop the Training Plan; and, to finalize and approve the Solution Environment Plan.

### Design Phase Activities

The Design Phase is comprised of the following activities:

- **Develop Design Document** – This activity develops the design document which includes the detailed functional, technical, architectural, and security specifications for the IT solution. The specifications tell the development team what is needed to build the solution. The Design Document should be approved before the Construction Phase begins. The outputs are the Approved Design Document, an Updated RTM, and an Updated SSP.
- **Develop Test Plan and Test Scripts, Scenarios, Cases** – In this activity, the development of the Test Plan and the Test Scripts, Scenarios, and Cases is initiated. The Test documentation is started in the Approved Requirements Document and finalized during the Construction Phase to ensure that Test adequately encompasses the solution requirements and specifications. The outputs to the activity are drafts of the Test Plan and Test Scripts, Scenarios, Cases.
- **Develop Training Plan** – In this activity, the Training Plan is developed and approved. Development of the Training Plan can begin during the Peer Review Design Document process. The Training Plan describes how training for the solution will be addressed and is needed to ensure that Training is factored into the project schedule, that adequate resources are available for this activity to ensure all training needs are addressed (i.e. users or Service Desk), and to ensure that training adheres to any PBGC training standards. The output of this activity is the Approved Training Plan.
- **Finalize Solution Environment Plan (CDE-I, ITC, Training, Production, and COOP)** – In this activity, the Solution Environment Plan is completed, reviewed, and approved. The Approved Solution Environment Plan is required in order to set-up the identified environments. If the development environment (CDE-T) was not set-up in the Requirements Phase, the Solution Environment Plan has to be completed in the Design Phase so that the CDE-T environment can be set-up in the Construction Phase. The Common Development Environment-Integration (CDE-I), Integration Testing Center (ITC), Training, Production, and Continuity of Operations Plan (COOP) have

to be set-up with the appropriate hardware, software, and configurations necessary to support the project in the Test and Deployment Phases. The output is the Approved Solution Environment Plan.

### 3.1 DESIGN PHASE DIAGRAM

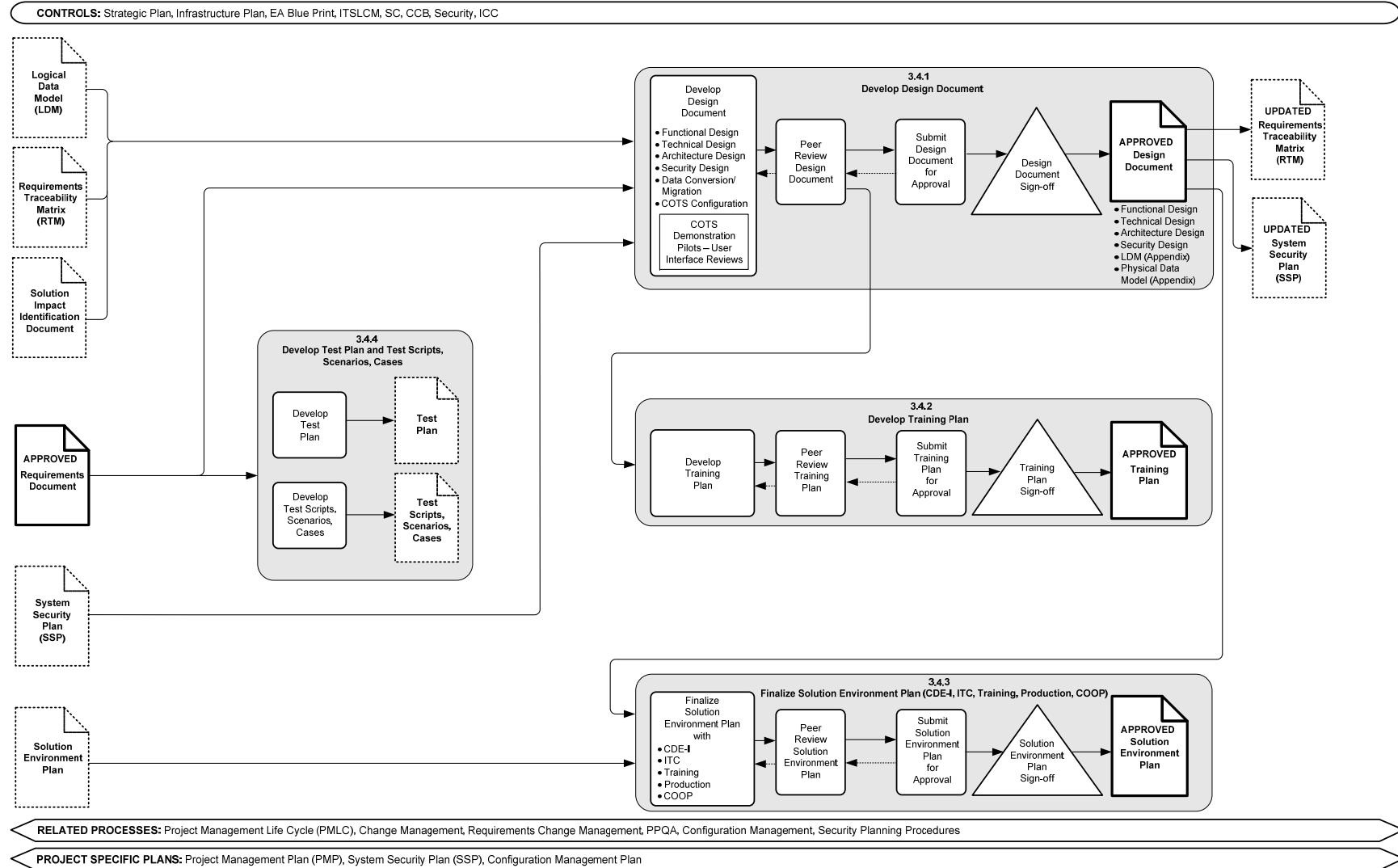


Figure 3-1 Design Phase Diagram



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## 3.2 DESIGN PHASE INPUTS

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- Logical Data Model (LDM) (artifact in progress)
- Requirements Traceability Matrix (RTM) (artifact in progress)
- Solution Impact Identification Document (artifact in progress)
- Approved Requirements Document
- System Security Plan (SSP) (artifact in progress)
- Solution Environment Plan (artifact in progress)

---

## 3.3 DESIGN PHASE OUTPUTS

---

- Test Plan (artifact in progress)
- Test Scripts, Scenarios, Cases (artifact in progress)
- Approved Designed Document
- Updated Requirements Traceability Matrix (RTM) (artifact in progress)
- Updated System Security Plan (SSP) (artifact in progress)
- Approved Training Plan
- Approved Solution Environment Plan

---

## 3.4 DESIGN PHASE NARRATIVE

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### 3.4.1 Develop Design Document

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#### Develop Design Document

The purpose of the Develop Design Document process is to develop and get approval for the Design Document. The Design Document provides the specifications on how to build or configure the solution. The functional, technical, architectural and security design requirements, components, attributes, relationships, and information flow are developed, described, and documented in the Design Document. This information provides the details necessary to construct the solution. If the solution is a COTS solution many of the above areas may not be applicable or required. The completed Design Document is reviewed and approved for completeness and adherence to the PBGC EA Blueprint and Information Security Standards. The output of this activity is the Approved Design Document. The Logical Data Model (LDM) and Physical Data Model (PDM) are appendices to the Approved Design Document.

### **Peer Review Design Document and Submit Design Document for Approval**

The Design Document is submitted to the Peer Review process in order to identify and correct defects before releasing the artifact from the phase activities. The Design Document is submitted to the Submit Artifacts for Approval process for formal review and approval signatures. This process ensures the design meets the appropriate standards for Enterprise Architecture, Configuration Management, Enterprise Information Security, IT Infrastructure Operations Department, ICC Rep or CFO or CFO delegated representative (for financial or mix-financial solutions only) and any other designated stakeholder.

The Requirements Traceability Matrix (RTM) should be updated at the end of this process with the Design Specification that incorporates the related requirement. The SSP should also be updated at the end of this process to reflect security design considerations.

## **3.4.2 Develop Training Plan**

### **Develop Training Plan**

The Training Plan ensures that all aspects of the solution are addressed in training and that users (including support staff and other staff) of the solution receive comprehensive training. It identifies the information on which students will be trained, the method of delivery, and training logistical details. The Training Plan is reviewed and approved. The output of this activity is the Approved Training Plan.

### **Peer Review Training Plan and Submit Training Plan Document for Approval**

The Training Plan is submitted to the Peer Review process to ensure accuracy and that it contains no defects. The Training Plan is submitted to the Submit Artifact for Approval process for approval to ensure the plan includes the appropriate information for comprehensive training of the solution.

## **3.4.3 Finalize Solution Environment Plan (CDE-I, ITC, Training, Production, COOP)**

### **Finalize Solution Environment Plan**

The Solution Environment Plan describes the configuration of the different solution environments and how they are to be set-up and maintained. This plan has to be finalized before the environments are set-up and configured in subsequent phases. In the Requirements Phase the plan was initiated to allow for set-up and configuration of the CDE-T environment only. Now in the Design Phase, the document is expanded to include hardware, software, and configuration information for the CDE-I, ITC, Training, Production, and COOP environments.

### **Peer Review Solution Environment Plan and Submit Solution Environment Plan Document for Approval**

The Solution Environment Plan is submitted to the Peer Review process. The Solution Environment Plan is submitted to the Submit Artifact for Approval process for approval and to ensure compliance to Enterprise Architecture, Configuration Management, Information Security, and other designated stakeholder standards.

#### **3.4.4 Develop Test Plans and Test Scripts, Scenarios, Cases**

##### **Develop Test Plan and Test Scripts, Scenarios, Cases**

The Test Plan identifies the types of testing, test items, the pass/fail criteria, the testing approach, the level of effort, resource needs, testing risks, the schedule, and the approvals needed to close the testing activities. The plan should be completed and approved before any test activities begin. The output of this process is a draft of the Test Plan. It is recommended that the Unit Test does not start until the Test Plan has been finalized and approved.

The Test Scenarios, Scripts, and Cases provide the detailed steps used in the testing activities. The Test Scenario provides a hypothetical narrative based on user experiences that help the tester work through the relevant components that should be tested in a complex solution. Test Scripts are automated programs that simulate the steps in a test scenario. Test Cases are a manual set of steps that simulate a test scenario. The Test Scenarios, Scripts, and Cases provide the detailed tasks needed to execute the test activities. The output of this process is the draft of the Test Scenarios, Scripts, and Cases. The Test Scenarios, Scripts, and Cases are not finalized until the Construction Phase.

## **3.5 DESIGN PHASE RELATED PROCESSES AND TEMPLATES**

The Design Phase is supported by the following detailed processes and templates:

- Develop Design Document Process (See Federal PM, EA Rep, and EIS Rep)
  - Design Document Template (PAL)
- Peer Review/Submit Artifact for Approval Processes
  - Peer Review Process (PAL)
  - Submit Artifact for Approval Process (PAL)
- Develop Training Plan Process (See Federal PM and TI Rep)
  - Training Plan Template (PAL)
- Develop Test Plan and Test Scripts, Scenarios, Cases Process
  - Test Plan Template (PAL)

- Finalize Solution Environment Plan Process (See RM)
  - Solution Environment Plan Template (PAL)

Note: The PAL is updated regularly with new templates supporting the SDLC (Waterfall). Refer to the PAL first when trying to locate available templates.

## Overview

During the Construction Phase, the IT solution is built to meet the specifications in the Approved Design Document and the requirements in the Approved Requirements Document.

### Construction Phase Activities

The Construction Phase is comprised of the following activities:

- **Review Solution Environment Plan** – In this activity, the Solution Environment Plan is reviewed to ensure the CDE-T environment still meets the specifications of the plan before the Construction/COTS Configuration (CDE-T) activity begins.
- **Review Requirements, Design, and RTM Documents** – In this activity, the Requirements, Design, and RTM documents are reviewed to ensure the construction/configuration team fully understands the requirements and design specifications.
- **Construction/COTS Configuration (CDE-T)** – In this activity, the IT Solution is built or the COTS solution is configured to specified requirements. The output is the IT Solution and an Updated SSP.
- **Finalize Test Plan** – In this activity, the Test Plan is completed and approved. The output is the Approved Test Plan.
- **Develop Deployment Guide** – In this activity, the Deployment Guide development is started. The output is a draft of the Deployment Guide.
- **Finalize Test Scripts, Scenarios, and Cases** – In this activity, the Test Scripts, Scenarios, and Cases are completed and approved, and the RTM is finalized. The outputs are the Approved Test Scripts, Scenarios, and Cases and the Final RTM.
- **Design and Develop Training Materials and On-line Help/User Manual** – In this activity, the training materials are designed and developed. The training materials are created and submitted for review only. The output is the draft Training Materials. The On-line Help/User Manual is also developed in this activity and submitted for review.

### 4.1 CONSTRUCTION PHASE DIAGRAM

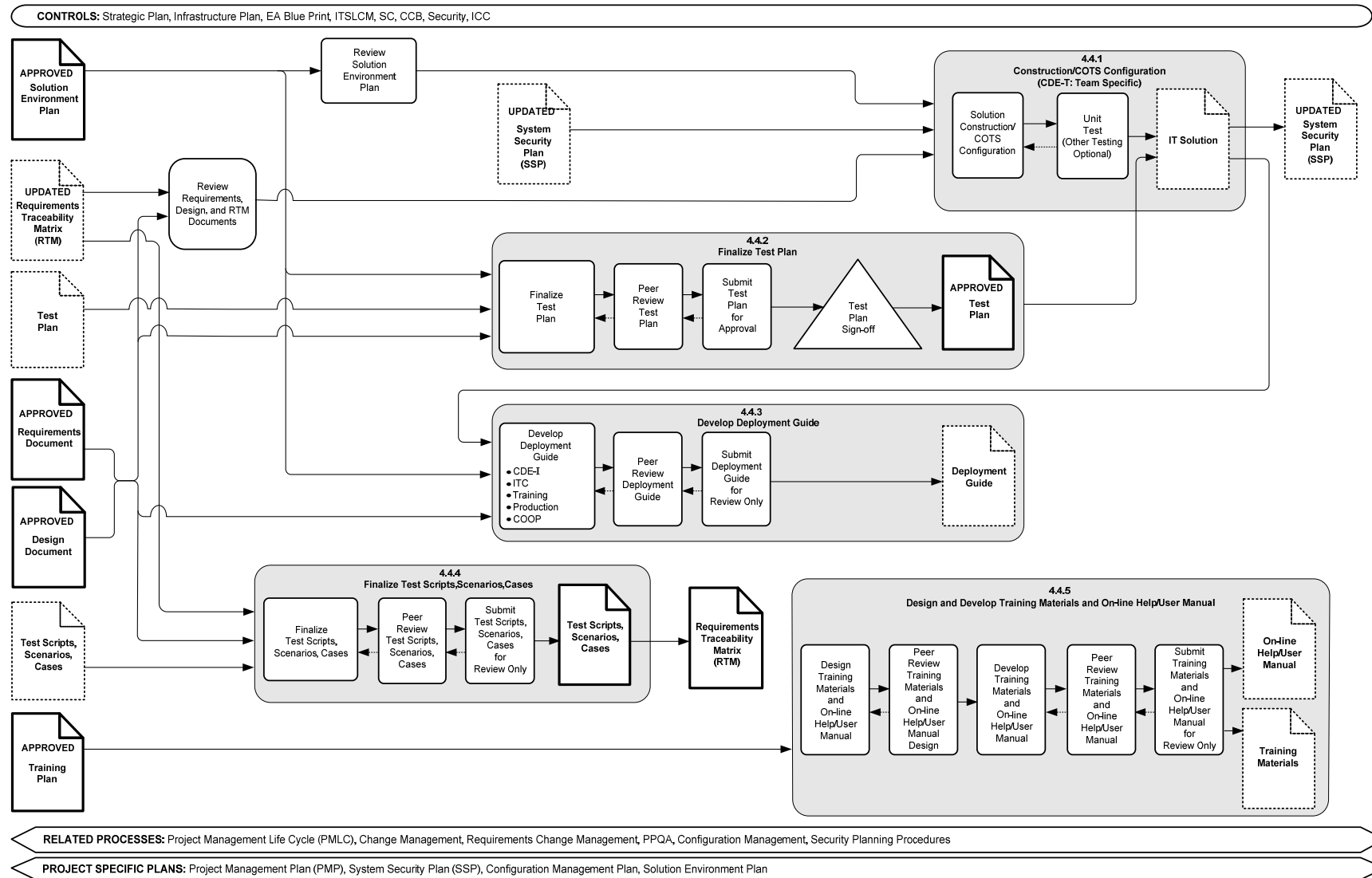


Figure 4-1 Construction Phase Diagram

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## 4.2 CONSTRUCTION PHASE INPUTS

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- Approved Solution Environment Plan
- Updated Requirements Traceability Matrix (RTM) (artifact in progress)
- Test Plan (artifact in progress)
- Approved Requirements Document
- Approved Design Document
- Test Scripts, Scenarios, and Cases (artifact in progress)
- Approved Training Plan

---

## 4.3 CONSTRUCTION PHASE OUTPUTS

---

- IT Solution (artifact in progress)
- Updated System Security Plan (SSP) (artifact in progress)
- Approved Test Plan
- Deployment Guide (artifact in progress)
- Test Scripts, Scenarios, and Cases (Reviewed and Final)
- Requirements Traceability Matrix (Reviewed and Final)
- On-Line Help/User Manual (artifacts in progress)
- Training Materials (artifacts in progress)

---

## 4.4 CONSTRUCTION PHASE NARRATIVE

---

The main purpose of the Construction Phase is to build the IT Solution. The Phase is initiated by the Approved Solution Environment Plan, the Approved Requirements Document, and the Approved Design Document.

---

### **Review Requirements, Design, and RTM Documents**

---

The Approved Requirements Document, Design Document, and Updated RTM are reviewed to ensure understanding of the approved requirements and design specifications before commencing construction.

---

### **Review Solution Environment Plan**

---

The Solution Environment Plan was drafted in the Requirements Phase in order to facilitate set-up of an existing solution or new COTS solution in the CDE-T Environment to support the activities for the Develop Business Process Model process. The plan was finalized and approved in the Design Phase; however, requirements or specification changes in the Design Phase may require changes to the CDE-T environment. The plan is reviewed to

ensure there are no changes needed for the CDE-T environment. Additionally, specifications were added to the document for the remaining environments – CDE-I, ITC, Training, Production, and COOP. The Review of the Solution Environment Plan ensures that the specifications for all affected environments are understood and ready for implementation.

#### **4.4.1 Construction/COTS Configuration (CDE-T: Team Specific)**

##### **Solution Construction/COTS Configuration**

The purpose of this process is to build the solution or configure the COTS solution. The requirements and specifications in the Approved Requirements Document, Approved Design Document, and Updated RTM are implemented. The System Security Plan (SSP) is updated with the any changes to the security details made in the Construction Phase. The untested IT Solution is the output of this activity.

##### **Unit Test**

The Unit Test is a high-level verification of a particular module or component of the solution. This type of test is conducted after the solution has been constructed and before the solution is released to the testing group to ensure that the each module or component works as specified in the Approved Requirements Document and the Approved Design Document. It is recommended that the Unit Test planning be documented in the Test Plan. The IT solution is the output of this activity.

#### **4.4.2 Finalize Test Plan**

##### **Finalize Test Plan**

The purpose of this process is to finalize and get approval for the Test Plan before the testing activities begin. The details described in the Test Plan such as the items to be tested, the schedule, and the resources are confirmed. It is recommended, although not required, that the Test Plan include the Unit Test details and be finalized and signed before the Unit Test is conducted. The Approved Test Plan is the output of this process.

##### **Peer Review Test Plan and Submit Test Plan Document for Approval**

The Test Plan undergoes a Peer Review to ensure that there are no inaccuracies or defects. The Test Plan is also submitted to the Submit Artifact for Approval process. The authorized stakeholders review the Test Plan and indicate approval with its contents by signature.

#### **4.4.3 Develop Deployment Guide**

##### **Develop Deployment Guide**

The Deployment Guide describes the scope, approach, resources, and schedule of all deployment activities associated with the solution. The document will provide the “how to deploy” information for deploying the

solution to the CDE-I, ITC, Training, Production, and COOP environments. The Deployment Guide is finalized after the solution has been constructed and unit tested to ensure that the details captured in the document are accurate. The information in the Deployment Guide will also be validated in the Test Phase to make sure the tasks and schedule described in the document are achievable. Although the Deployment Guide is reviewed it is not finalized in this process. It will be finalized after validation in the Test Phase.

#### **Peer Review Deployment Guide and Submit Deployment Guide for Review Only**

The Deployment Guide is submitted to the Peer Review process. It is also submitted to the Submit Artifact for Approval (Review Only) and process although this is a formal review signatures are not required. A reviewed draft of the Deployment Guide is the output of this process.

### **4.4.4 Finalize Test Scripts, Scenarios, Cases**

#### **Finalize Test Scripts, Scenarios, and Cases**

The Test Scripts, Scenarios, and Cases are finalized and reviewed without sign-off in this process. The test cases are validated against the requirements, the test scripts are reviewed for correctness and accuracy and are finalized. The documents and programs are submitted to members of the test group for peer review.

The Test Script # and Test Case # columns are updated on the RTM. The RTM should be finalized before moving to the Test Phase. Any new requirements change requests should be accepted and managed through the requirements management process for future solution releases. The peer reviewed Test Scripts, Scenarios, and Cases and the Final RTM are the outputs of this activity.

### **4.4.5 Design and Develop Training Materials and On-line Help/User Manual**

#### **Design Training Materials and On-line Help/User Manual.**

The Design Training and On-line Help/User Manual process provides an outline of what the training will consist of and how the training will be delivered. It describes the content, the examples, the exercises, and any test questions to be used during the training session.

#### **Peer Review Training Materials and On-line Help/User Manual Design**

The Training Materials and On-Line Help/ User Manual Design Outline are reviewed through the Peer Review process but do not undergo the Submit Artifact for Approval process.

### **Develop Training Materials and On-line Help/User Manual**

In this process, the physical materials such as Instructor Guide with instructor notes, Student Manual with examples and comprehensive exam are prepared based on the Training Materials and On-line Help/User Manual Outline.

Every PBGC solution must be accompanied by a detailed on-line help guide or by a hard copy user manual. The guide or manual contains the user instructions for the solution. The Student Manual in the Training Materials may be used to develop the On-Line Help or User Manual.

### **Peer Review Training Materials and Submit Training Materials for Review Only**

The Training Materials are submitted to the Peer Review process to ensure they are comprehensive and understandable to the intended audience. They are also submitted to the Submit Artifact for Approval (Review Only) process and although this is a formal review signatures are not required.

---

## **4.5 CONSTRUCTION PHASE RELATED PROCESSES AND TEMPLATES**

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The Construction Phase is supported by the following detailed processes and templates:

- Peer Review/Submit Artifact for Approval Processes
  - Peer Review Process (PAL)
  - Submit Artifact for Approval Process (PAL)
- Construction/COTS Configuration Processes (See ITBM Rep and RM)
- Finalize Test Plan Process
  - Test Plan Template (PAL)
- Develop Deployment Guide Process (See RM)
  - Deployment Guide Template (PAL)
- Finalize Test Scripts, Scenarios, and Cases Process
- Design and Develop Training Materials and On-Line Help/User Manual Process (See Federal PM and TI Rep)
  - User Manual Template (PAL)

Note: The PAL is updated regularly with new templates supporting the SDLC (Waterfall). Refer to the PAL first when trying to locate available templates.

## Overview

In the Test Phase, the objective is to evaluate the IT Solution against approved requirements, design specifications, quality and security standards, and to ensure it integrates well with external environments, systems, and interfaces.

### Test Phase Activities

The Test Phase is comprised of the following activities:

- **Develop IT Operations and Support Manual** – In this activity, the development of the IT Operations and Support Manual is initiated. The manual provides complete details on operating and maintaining the solution in production and COOP including Service Desk access request process, multi-tier Technical Assistance Request (TAR) process support, day-to-day administration on all tiers (front-end, middle-tier and back-end) by users, Service Desk, project teams and infrastructure teams, and costs associated with day-to-day operations and administration.
- **Conduct Testing (CDE-I)** – This activity validates that the solution modules and components will work as expected with other modules, components, systems, applications, and in the expected environment. The output is the Updated IT Solution, Approved CDE-I Test Results Report, and draft Deployment Guide.
- **Conduct Testing/Verification (ITC)** – This activity validates the solution as a whole meets the functional and operational requirements and meets user expectations. The output is the Approved Test Results Report, Approved IT solution, and the Reviewed Deployment Guide.
- **Finalize System Security Plan (SSP)** – In this activity, the SSP is finalized with the results of the EIS Certification and Accreditation (C&A) Test in the Conduct Testing/Verification (ITC) activity. The output of this activity is the Approved System Security Plan.
- **Finalize Training Materials and On-line Help/User Manual** – This activity finalizes the Training Materials and the On-line Help/User Manual. The Training Materials must be completed in preparation for the Conduct Training activity. The On-line Help/User Manual must be ready to deploy with the application. The outputs are the Approved Training Materials and Approved On-Line Help/User Manual.
- **Conduct Training** – The Conduct Training activity executes the training plan and uses the training materials to train the intended audience.

- **Develop Training Assessment Report** – In this activity, a training assessment report is prepared to document the effectiveness of the training and lessons learned about the training development and execution. The Reviewed Training Assessment Report is the output of this activity.

### 5.1 TEST PHASE DIAGRAM

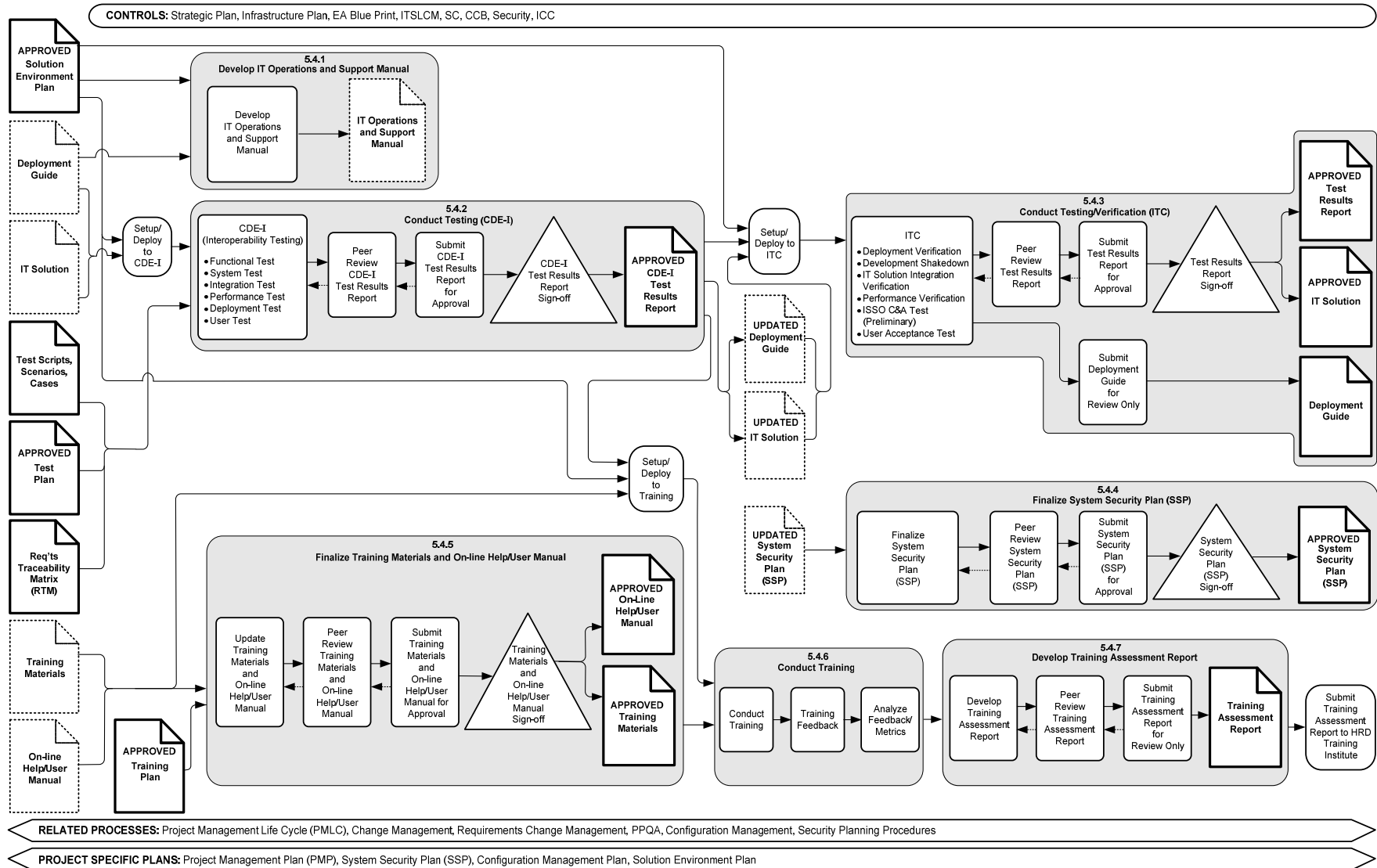


Figure 5-1 Test Phase Diagram

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## 5.2 TEST PHASE INPUTS

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- Approved Solution Environment Plan
- Deployment Guide (artifact in progress)
- IT Solution (artifact in progress)
- Test Scripts, Scenarios, Cases (Reviewed and Final)
- Approved Test Plan
- Requirements Traceability Matrix (RTM) ((Reviewed and Final)
- Training Materials (artifacts in progress)
- On-line Help/User Manual (artifacts in progress)
- Approved Training Plan
- Updated System Security Plan (SSP) (artifact in progress)

---

## 5.3 TEST PHASE OUTPUTS

---

- IT Operations and Support Manual (artifact in progress)
- Approved Test Results Report
- Approved IT Solution
- Deployment Guide (Reviewed)
- Approved System Security Plan (SSP)
- Approved On-Line Help/User Manual
- Approved Training Materials
- Training Assessment Report (Reviewed)

---

## 5.4 TEST PHASE NARRATIVE

---

The primary goal of the Test Phase is to thoroughly test the solution for: defects against the approved requirements and design specifications; integration with systems, solutions, and hardware in the intended environment; quality; usability; compliance to PBGC standards; and, to ensure it meets user expectations. Also during this activity, the Training Materials and On-line Help/User Manual for the solution are finalized and the training is delivered. The initial draft of the IT Operations and Support Manual is prepared. The System Security Plan is finalized and approved after the testing activities are completed.

---

### **5.4.1 Develop IT Operations and Support Manual**

---

#### **Develop IT Operations and Support Manual**

The purpose of this process is to prepare the IT Operations and Support Manual, which is a detailed instructional manual which provides complete details on operating and maintaining the solution in production and COOP environments. The IT Operations and Support Manual must be comprehensive and complete in order to facilitate hand-off to IT Operations and Support. Since the hand-off cannot occur unless there is an accompanying finalized IT Operations and Support Manual, the solution cannot be deployed to production without the IT Operations and Support Manual.

---

### **Set-up/Deploy to CDE-I**

---

The CDE-I environment is set-up and configured according to the Deployment Guide and Approved Solution Environment Plan. The IT solution is then deployed to the CDE-I testing environment using the draft of the Deployment Guide. The contents of the Deployment Guide are validated during this process.

---

### **5.4.2 Conduct Testing (CDE-I)**

---

#### **CDE-I (Interoperability Testing)**

The purpose of this process is ensure the solution interacts as intended with other software and hardware components of the intended environment through functional, system, integration, performance benchmarking, deployment, and user testing. Inconsistencies between the modules and components of the solution and other system, software, or hardware components are identified as solution defects. The activity executes the CDE-I instructions in the Approved Test Plan. CDE- I Testing cannot begin until the Test Plan is approved and the Test Scenarios, Scripts, and Cases are finalized. The RTM is updated with the related test scripts and cases. The test results are documented and approved in the CDE-I Test Results Report. The outputs of this activity are the Approved CDE-I Test Results Report, Updated Deployment Guide, and Updated IT Solution.

#### **Peer Review CDE-I Test Results Report and Submit CDE-I Test Results Report for Approval**

The results of the Conduct Testing (CDE-I) process are documented in the CDE-I Test Results Report. The report will be combined with the results of the ITC test activities to create the Test Results Report. In this activity, the CDE-I Test Results Report will be reviewed for adherence to PBGC integration testing standards and approved with signatures.

---

**Set-up/Deploy to ITC**

---

The ITC environment is set-up and configured. The CDE-I Approved solution is deployed to the ITC environment.

---

**5.4.3 Conduct Testing/Verification (ITC)**

---

**ITC**

In the Conduct Testing/Verification (ITC), the solution design and behavior is tested to ensure it meets user expectations. The Deployment Verification, Development Shakedown, IT Solution Integration Verification, Performance Verification, Development, EIS C&A Test, and User Acceptance Test (UAT) are conducted. The Deployment Guide is tested and updated during the deployment verification activities. The results of the tests are combined with the Approved CDE-I Test Results Report to create the Test Results Report. The Test Results Report is reviewed and approved for adherence to PBGC testing standards and approved with signatures. The approval of the Test Result Report is the approval for the IT Solution. The outputs of this process are the Approved Test Results Report and Approved IT Solution.

All testing must be completed and approved before the IT Solution can be considered production ready.

**Peer Review Test Results Report and Submit Test Results Report for Approval**

The ITC test results are combined with the Approved CDE-I Test Results Report generated in the Conduct Testing (CDE-I) activity. The updated Test Results Report undergoes the Peer Review and Submit Artifact for Approval processes. The Approved Test Results and Approved IT Solution are the outputs of this review process.

**Submit Deployment Guide for Review Only**

The Deployment Guide is tested and updated, if necessary, during the Set-up/Deploy to ITC process. After the verification and update, the Deployment Guide is submitted to the Submit Artifact for Approval process (Review Only). Although this is a formal review, signatures are not required. The review process confirms that the Deployment Guide has the necessary information to deploy the solution into the production and COOP environments. The output of this process is the Reviewed and Finalized Deployment Guide.

---

**5.4.4 Finalize System Security Plan (SSP)**

---

**Finalize System Security Plan (SSP)**

In this process the System Security Plan is updated and finalized with any changes to security-related risks, issues, design specifications, or resources that may have been identified during the Construction and Test Phases. The

SSP has to be finalized and completed before deployment of the solution into the production environments. The SSP is reviewed by the identified stakeholders and approved. The output of this activity is the Approved SSP.

#### **Peer Review System Security Plan and Submit System Security Plan Document for Approval**

The SSP are submitted to the Peer Review and the Submit Artifact for Approval processes to ensure the high level plan requirements have been addressed and to demonstrate agreement to the plan.

---

### **5.4.5 Finalize Training Materials and On-Line Help/User Manual**

---

#### **Update Training Materials**

In this process, the Training Materials are completed in preparation for the Conduct Training activity. The On-line Help or User Manual is also completed in preparation for distribution on or before deployment of the IT Solution to the production environments.

#### **Peer Review Training Materials and Submit Training Materials for Approval**

The Revised Training Materials and On-Line Help/User Manual are submitted to the Peer Review and Submit Artifact for Approval processes for high-level review and approval of completeness, comprehensiveness, and understandability.

---

### **Set-up and Deploy to Training**

---

The Training environment is set-up and configured in preparation for the deployment of the IT Solution. The environment is populated with data to use as examples and student exercises. The Pilot Training should be conducted to validate the Training Plan and to confirm that the Training Materials are adequate.

---

### **5.4.6 Conduct Training**

---

#### **Conduct Training**

In this process, the target audience is trained on the solution after testing and as close to deployment as possible to reduce the number of refresher courses needed once the IT solution is deployed to production.

#### **Training Feedback**

In this process, feedback on the training classes, materials, and presentation is solicited from the training participants and through instructor observation. The usual method of collecting this feedback is through an end of class survey.

### Analyze Feedback/Metrics

In this process, the training feedback information is evaluated and compared to training metrics and used for training improvement efforts.

---

#### **5.4.7 Develop Training Assessment Report**

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##### Develop Training Assessment Report

Develop the Training Assessment Report by reviewing and evaluating the training tests and feedback against previous tests or case studies, training instructor evaluations and remarks, lessons learned, and best practices. The report will be useful when planning future training efforts.

##### Peer Review Training Assessment Report and Submit Training Assessment Report Review Only

The Training Assessment Report is submitted to the Peer Review and Submit Artifact for Approval (Review Only) processes. The Training Assessment Report is also submitted to the Submit Artifact for Approval (Review Only) process and although this is a formal review signatures are not required.

---

#### **Submit Training Assessment Report to HRD Training Institute**

---

The Training Assessment Report is submitted to the PBGC Human Resources Department (HRD) Training Institute with a copy to the Project Business Representative. The information is used to support the HRD Training Institute's mission to provide PBGC with training programs for employment development and enables the Business Representative to assess effectiveness in post deployment.

---

## **5.5 TEST PHASE RELATED PROCESSES AND TEMPLATES**

---

The Test Phase is supported by the following detailed processes and templates:

- Peer Review/Submit Artifact for Approval Processes
  - Peer Review Process (PAL)
  - Submit Artifact for Approval Process (PAL)
- Develop IT Operations and Support Manual (See RM)
  - IT Operations and Support Manual Template (PAL)
- Set-up/Deploy to CDE-I Environment Processes (See RM)
- Set-up/Deploy to ITC Environment Processes
- Conduct Testing (CDE-I) Process
  - CDE-I Test Results Report Template (PAL)

- Conduct Testing/Verification (ITC) Process
  - Test Results Report Template (PAL)
- Set-up/Deploy to Training Environment Process (See RM and TI Rep)
- Finalize Training Materials and On-Line Help/User Manual Processes (See Federal PM and TI Rep)
  - User Manual Template (PAL)
- Conduct Training Process (See TI Rep)
- Develop Training Assessment Report (PAL)

Note: The PAL is updated regularly with new templates supporting the SDLC (Waterfall). Refer to the PAL first when trying to locate available templates.

## Overview

The purpose of the Deployment Phase is to deploy the IT solution to production (Headquarters and COOP) and to transition responsibility for the IT solution to Operations and Maintenance.

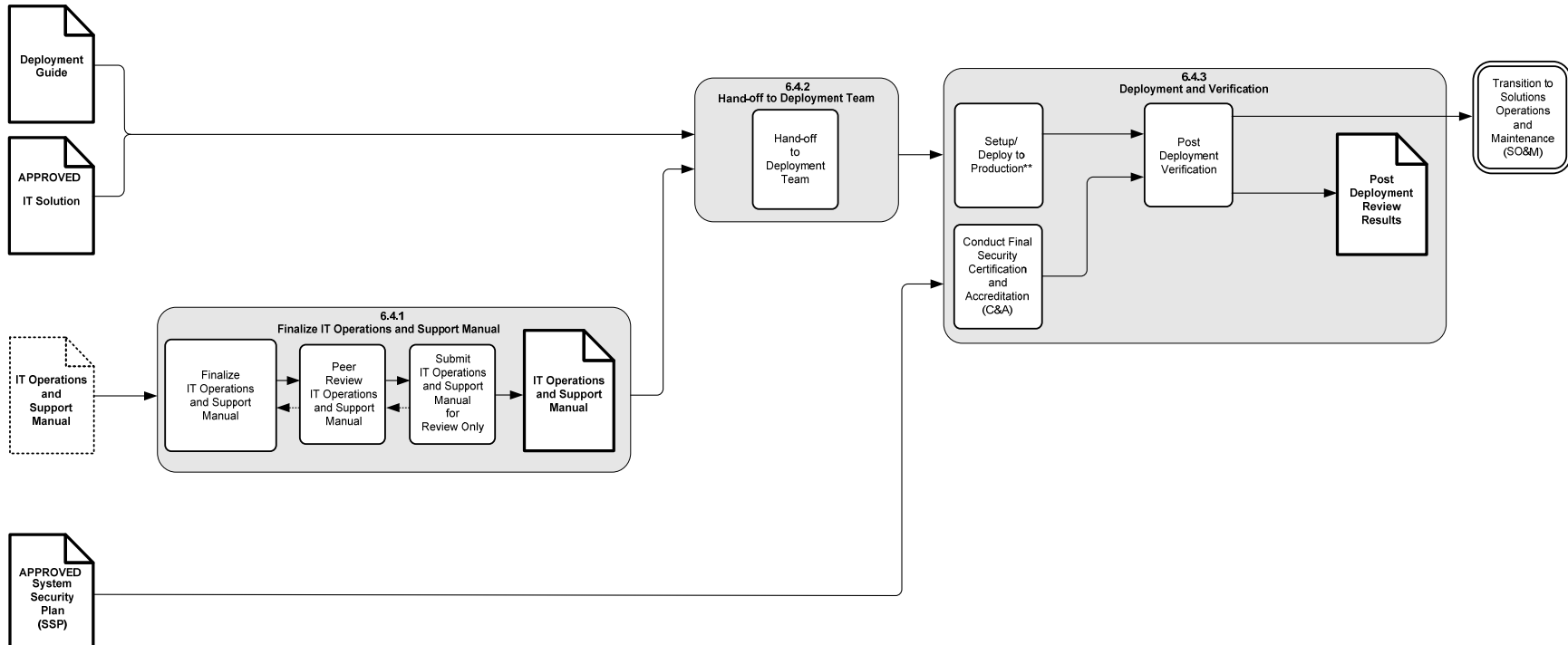
### Deployment Phase Activities

The Deployment Phase is comprised of the following activities:

- **Finalize IT Operations and Support Manual** – In this activity, the IT Operations and Support Manual is prepared for hand-off of the IT Solution to Solutions Operations and Maintenance. The output is the Reviewed and Finalized IT Operations and Support Manual.
- **Hand-off to Deployment Team** – In this activity, the IT Operations and Support Manual is delivered to the Deployment Team. The Deployment Team confirms that the IT Solution is ready for production and final transition to Solutions Operations and Maintenance.
- **Deployment and Verification** – In this activity, the solution is deployed to the Production environments and the Final Security C&A activity is completed. Post Deployment Review Results are prepared and captured for use in the project lessons learned. The output is a solution that has been transitioned to Solutions Operations and Maintenance, the Final Post Deployment Review Results, and the Final Accreditation Package.

## 6.1 DEPLOYMENT PHASE DIAGRAM

**CONTROLS:** Strategic Plan, Infrastructure Plan, EA Blue Print, ITSLCM, SC, CCB, Security, ICC



\*\* Production = Headquarters and COOP locations

**RELATED PROCESSES:** Project Management Life Cycle (PMLC), Change Management, PPQA, Configuration Management

**PROJECT SPECIFIC PLANS:** Project Management Plan (PMP), System Security Plan (SSP), Configuration Management Plan, Solution Environment Plan

**Figure 6-1** Deployment Phase Diagram



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## 6.2 DEPLOYMENT PHASE INPUTS

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- Deployment Guide (Reviewed and Final)
- Approved IT Solution
- IT Operations and Support Manual (artifact in progress)
- Approved System Security Plan (SSP)

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## 6.3 DEPLOYMENT PHASE OUTPUTS

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- IT Solution transitioned to Solutions Operations and Maintenance
- IT Operations and Support Manual (Reviewed and Final)
- Post Deployment Review Results (Final)

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## 6.4 DEPLOYMENT PHASE NARRATIVE

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During the Deployment Phase, the IT solution is deployed to the Production (Headquarters and COOP) environments and the transition to Solutions Operations and Maintenance is completed.

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### 6.4.1 Finalize IT Operations and Support Manual

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#### Finalize IT Operations and Support Manual

In this process, the IT Operations and Support Manual is completed and reviewed. It contains the software, hardware, configuration, database, Service Desk, and known issues and other information needed to support the IT solution in the production environments. Deployment of the IT Solution into Production (Headquarters and COOP) environments cannot happen until this manual is delivered to the Deployment Team. The output of this activity is the Reviewed and Final IT Operations and Support Manual.

#### Peer Review IT Operations and Support Manual and Submit IT Operations and Support Manual for Review Only

The IT Operations and Support Manual is submitted to the Peer Review and Submit Artifact for Approval (Review Only) processes for adherence to PBGC standards and to ensure, from a high-level, that the provided information will assist in IT Solution maintenance. Although the Submit Artifact for Approval (Review Only) process is a formal review signatures are not required.

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### 6.4.2 Hand-off to Deployment Team

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In this activity, the IT Operations and Support Manual is delivered to the Deployment for review and acceptance. The Deployment Team will review the document for completeness to ensure that it provides enough details to support the IT Solution in the production environments.

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### **6.4.3 Deployment and Verification**

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#### **Set-up and Deploy to Production**

The Production environments are set-up and configured for deployment of the Approved IT Solution. Any reference to the production environments refers to both Headquarters and the COOP site. The Continuity of Operations (COOP) site is in a site away from headquarters that houses mirror images of PBGC mission critical applications, systems, and data to ensure PBGC can continue its business in case of catastrophic interruption of service at Headquarters. Deployment to both the Production and the COOP environments should occur at the same time or as close in time as possible to ensure the mirror images are not out of synch.

#### **Post Deployment Verification**

After deployment, the Post Deployment Verification documents should indicate that the IT solution is working as intended in the production environments without any negative impacts on the integrated solutions, systems, or hardware; that the change control records have been appropriately updated; and that the business users have confirmed that the system is working as expected in production.

Also included in this process is the development and preparation of the Post Deployment Review Results document. This document must be completed and distributed within 30 days of the solution deployment to the production environments. The document contains final verification that the solution is working as expected in production, the appropriate and required signatures for the security documents, confirmation that all change records have been updated, and affirmation that all the required documents have been updated and stored in the designated repository.

#### **Conduct Final Security Certification and Accreditation (C&A)**

In this process the final Security Certification and Accreditation (C&A) tasks are completed in accordance with the PBGC Enterprise Information Security (EIS) processes and procedures. The deployment is not complete if this process has not been completed. If the IT Solution does not receive a Final Security C&A, the IT Solution must be removed from the production environments.

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### **Transition to Solutions Operations and Maintenance (SO&M)**

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This process is the official transition of responsibility to Solutions Operations and Maintenance (SO&M) using SO& M transition processes and procedures.

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## **6.5 DEPLOYMENT PHASE RELATED PROCESSES AND TEMPLATES**

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The Deployment Phase is supported by the following detailed processes and templates:

- Peer Review/Submit Artifact for Approval Processes
  - Peer Review Process (PAL)
  - Submit Artifact for Approval Process (PAL)
- Finalize IT Operations and Support Manual Process (See Federal PM, RM, and Service Desk Rep)
  - IT Operations and Support Manual Template (PAL)
- Set-up/Deploy/Submit Artifact for Approval Process (See Federal PM and RM)
- Post Deployment Verification Process (See Federal PM and RM)
  - Post Deployment Review Results Template (PAL)
- Security Certification and Accreditation (C&A) Processes (See EIS Rep)
- Hand-off to IT Operations Process (See Federal PM and RM)
- Transition to Operations and Maintenance Process (See Federal PM and RM)

Note: The PAL is updated regularly with new templates supporting the SDLC (Waterfall). Refer to the PAL first when trying to locate available templates.

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Information Technology  
Solutions Life Cycle Methodology  
(ITSLCM)

Appendix A

Glossary of Terms

Last Updated Date: 05/28/2008

### Revision History

Version	Date	Author	Section(s) Changed	Description/Comments
V2007.1	12/31/2006	OIT PMO	NA	Initial release
V2007.1	01/16/2007	OIT PMO	All	Changes were made as per the PMC review – Final release
V2007.1	02/07/2007	OIT PMO	NA	Approved by PMC and signed by PMC Chair
V2007.1	02/08/2007	OIT PMO	NA	Approved and signed by Acting Chief Information Officer
V2007.1	01/31/2008	PMC Process Development Team	All	Added changes based on new ITIO Organization and roles. PI #154
			All references	Updated references to QA as suggested in PI #168
			Page 14	Updated definitions of Test Cases, Scripts, and Scenarios based on suggestions submitted for PI #169
V2007.1	03/13/2008	PMC Process Development Team	All	Added ITIL terminology.
V2007.1	03/20/2008	PMC Process Development Team	All	Replaced references to ITIRC with CPIT per PI #170.
V2007.1	5/28/2008	PMC Process Development Team	Page 6	Changed ‘User Support’ to ‘Service Desk’ in the Level of Effort definition.

Note: Detailed processes and templates are available on the OIT’s Process Assets Library portal site.

The Office of Information Technology’s Process Management Committee (PMC) members reviewed and approved this ITS LCM Version 2007.1.

**Cheryl Ringel**

\_\_\_\_\_  
PMC Chair

Approval Date: **Signed February 7, 2007**

**Jon Baake**

\_\_\_\_\_  
Acting Chief Information Officer

Approval Date: **Signed February 8, 2007**

## **A**

### **Acceptance Criteria**

The criteria that a product must satisfy to be accepted by a user, customer, or other authorized entity. It should be used to confirm that the product meets the needs and expectations of the end user/customer.

### **Acceptance Testing**

See User Acceptance Testing

### **Artifact**

A document, product, or service created by a process.

### **Artifact and Review and Signoff Worksheet**

Document listing all artifacts to be delivered by the project cross-referenced against the names of the person(s) responsible for peer reviewing, reviewing and providing feedback, or signing-off for each project artifact.

### **Availability**

The ability of a configuration item or service to perform its required function as expected at a stated instant or over a stated period.

### **Availability Management**

The ITIL operational process used to ensure that the IT infrastructure and supporting organization delivers cost-effective and sustainable levels of availability that enable business users to meet their objectives.

## **B**

### **Budget at Completion (BAC)**

The sum of the total budgets for a project.

### **Business Case**

The Business Case presentation document validates the business problem, links to the corporate strategic plan and outcomes, provides proof of feasibility and viability with acceptable level of risk, and provides alternatives to solving the business problem, which allows the CPIT Group to select the best alternative to solve the business problem in the most cost effective manner. Input for this document can be from: Strategic Plan and LOE Document, including LOE contributors.

The CPIT Lead/Members review business cases, provide guidance for improvement, evaluate against corporate mission, goals, and objectives, and determine appropriate level of funding against the project scope.

### **Business Process Model**

The Business Process Model consists of the As-Is Model and the To Be Model. The As-Is model is a diagram of existing business processes (activities and decisions) as they relate to each other. The To-Be model is the IDEF model of improved and desired business processes (activities and decisions) as they relate to each other.



### **Business Requirement**

A specification the business needs or wants instead of the specific functions the solution must perform. Design elements are not documented as part of the Business Requirements.

## **C**

### **Capability Level**

In the context of CMMI, it is the achievement of process improvement within an individual process area. A capability level is defined by the appropriate specific and generic practices for a process area.

### **Capability Maturity Model Integrated (CMMI)**

CMMI is a framework consisting of best practices that addresses the development and maintenance of products and services covering a product's life cycle from conception through delivery and maintenance.

### **Capacity**

The maximum throughput a configuration item or service can provide while meeting established service level agreements.

### **Capacity Management**

The ITIL operational process used to plan and deliver a cost-effective IT infrastructure to sustain adequate capacity to meet user demands.

### **Causal Analysis and Resolution (CAR)**

The process area in CMMI that addresses identifying causes of defects and other problems and taking action to prevent them from occurring in the future.

### **Change**

The addition, modification, or removal of approved, supported, or base-lined hardware, network, software, application, environment, and system, desktop build, or associated documentation.

### **Change Management**

The ITIL operational process used to ensure that standardized methods and procedures are used for efficiently handling all changes to configuration items in order to anticipate and control the risks and impacts of change.

### **Change Control Board**

A committee of project stakeholders, or their representatives, which manage the project requirements changes that do not affect the project scope, cost, and schedule. It decides whether or not a proposed change to an IT Solution project should be implemented. Although, the authority of the change control board may vary from project to project, but decisions reached by the change control board are often accepted as final and binding.

### **Configuration Items (CIs)**

Any document or technical component that is used, or required, by IT to deliver solutions and services. CIs are normally identified at the smallest unit that can be changed independently of other CIs.

### **Configuration Management**

The ITIL operational process used for maintaining information about configuration items and relationships between them.

At a lower level, ITSLCM uses the term Configuration Management for establishing and maintaining the integrity of project work products using configuration identification, configuration control, configuration status accounting, and configuration audits under the control of the organization's documented configuration management process.

### **Configuration Management Plan**

This plan identifies methods and tools for promoting deliverable items within development, testing, and production environments. Identifies the final location of all work products including software, documentation, plans, status reports, critical communications, action items, and meeting minutes.

### **Construction Phase**

In the Construction Phase the IT Solution is built to meet the specifications in the Approved Design Document and the requirements in the Approved Requirements Document.

### **Controls**

In IDEF models, controls impose rules or constraints that regulate how, when, and if an activity is performed and which outputs are produced. Controls are often in the form of rules, regulations, policies, procedures, or standards.

### **Core Project Team**

The team members primarily responsible for performing the work.

### **Corrective Action**

A corrective action is defined as anything done to bring expected future project performance in line with the Project Management Plan.

### **Corrective Action Plan**

Corrective Action Plans are used to assess why a target milestone has not been met and to define a plan of action for getting the project back on track.

### **COTS**

Items that can be purchased from a commercial vendor. (COTS stands for "commercial off the shelf.")

### **Crashing**

Taking action to decrease the total project duration after analyzing a number of alternatives to determine how to get the maximum duration compression for the least cost.

## **D**

### **Decision Analysis and Resolution (DAR)**

The process area in CMMI that addresses analyzing possible decisions using a formal evaluation process that evaluates identified alternatives against established criteria.

### **Deployment Guide**

A document that describes the scope, approach, resources, and schedule for all deployment activities associated with the IT Solution.

### **Deployment Phase**

The phase in which the IT Solution is deployed to the production and COOP environments and transitioned to Solutions Operations and Maintenance.

### **Derived Requirements**

Requirements that are not explicitly stated in the customer requirements, but are inferred (1) from contextual requirements (e.g., applicable standards, laws, policies, common practices, and management decisions) or (2) from requirements needed to specify a product component. Derived requirements can also arise during analysis and design of components of the product or system. CMMI

### **Design Document**

The Design Document is a collection of design artifacts that includes the following:

- Functional Design
- Technical Design
- Architecture Design
- Security Design
- LDM (Appendix)
- Physical Data Model (Appendix)

### **Design Phase**

In this phase of the SDLC, the IT Solution Design Document is developed and approved.

## **E**

### **Earned Value**

The physical work accomplished plus the authorized budget for this work. The sum of the approved cost estimates (may include overhead allocation) for activities (or portions of activities) completed during a given period (usually project-to-date).

## **F**

### **Facilitator**

The member of the peer review team responsible for conducting the peer review meeting.

### **Fast Tracking**

Compressing the project schedule by overlapping activities that would normally be done in sequence, such as design and construction.

### **Financial Management**

The ITIL strategic process used to plan and control the costs associated with the planning, development, delivery and support of the IT infrastructure, and, if appropriate, the recovery of those costs from the user organization.

## **Functional Requirement**

The Functional Requirements describe what the system, process, or product/service must do in order to fulfill the business requirement(s). The business requirement often can be broken up into sub-business requirements and many functional requirements.

## **G**

## **H**

## **I**

### **IDEF**

A process modeling system based on the US Air Force's Integrated Computer Aided Manufacturing (ICAM) program. IDEF is short for ICAM definitions.

### **Incident**

An event that is not part of standard operation of a system component (hardware, software, infrastructure) resulting in an interruption of service or reduction in quality of service.

### **Incident Management**

The ITIL operational process used to restore normal service operation as quickly as possible following an incident to minimize the adverse effect on agency operations.

### **Information Technology Infrastructure Library (ITIL)**

A framework of best practices designed to promote quality IT services within an organization. ITIL provides a systematic approach to the provisioning and management of IT services, from inception through design, implementation, operation and continuous improvement.

### **Information Technology Solutions Life Cycle Methodology (ITSLCM)**

The PBGC corporate methodology used to provide a consistent approach for acquiring, developing, enhancing, and maintaining information systems and information technology at PBGC.

### **Input**

In IDEF models, a resource changed or consumed by the process.

### **Institutionalization**

The ingrained way of doing business than an organization follows routinely as part of its corporate culture.

### **Integrated Project Management (IPM)**

The process area in CMMI that addresses establishing and managing the project and the involvement of the relevant stakeholders according to an integrated and defined process that is tailored from the organization's set of standard processes.

### **Integrated Supplier Management (ISM)**

The process area in CMMI to address proactive identification of sources of products to satisfy a project's requirements, and managing selected suppliers while maintaining a cooperative project-supplier relationship.

### **Integrated Teaming (IT)**

The process area in CMMI that address forming and sustaining an integrated team for the development of work products.

### **IT Service and Support Delivery Manual**

A comprehensive manual used for successful transition from Solutions Delivery to Service Delivery to ensure that the delivered solution is available and supported for the intended users. The manual provides complete details on operating and maintaining the solution in production and COOP including helpdesk access request process, multi-tier TAR process support, day-to-day administration on all tiers (front-end, middle-tier and back-end) by users, helpdesk, project team, infrastructure team, and costs associated with day-to-day operations and administration.

### **IT Solution**

This is the solution developed or obtained to meet the specified business and design requirements – this is not a document.

## **J**

## **K**

### **Known Error**

A fault in a Configuration Item identified by the successful diagnosis of a Problem and for which a temporary workaround and/or a permanent solution has been identified.

## **L**

### **Level of Effort (LOE)**

The Level of Effort (LOE) is a planning and estimating document that documents a high-level estimate of hours and/or costs for both delivering a solution (new, modernization, enhancement or maintenance) and service delivery in support of the solution in Solution Operations and Maintenance. The LOE must take all aspects of cost – hardware, software, labor from core and extended teams, EA compliance, Process and Product Quality Assurance (PPQA) audits, licensing costs for all environments (CDE, ITC, Prod/COOP, Training, etc.) into consideration. It also compares other alternatives for solving the business problem/need. In case of unavailable funding, the LOE is an input to developing a strong business case document. Input for this document can be from: Project Team, Contract negotiated funding, EA needs, PPQA needs, IT Infrastructure Operations Department needs, impacted project teams, Service Delivery from Service Desk, CCM, etc.

### **Lessons Learned**

Documenting the outcome of a facilitated lessons learned session that captures project information, documents what worked and what needs improvement, documents recommendations for what should be continued to be followed and what should be changed in future projects.

### **Logical Data Model (LDM)**

The LDM is a database model that has not yet been normalized. These models are built strictly on the data as it relates to business entities.

## **M**

### **Maturity Level**

The CMMI term that describes the degree of process improvement across a predefined set of process areas in which all documented goals are attained.

### **Measurement and Analysis (MA)**

The process area in CMMI that addresses developing and maintaining a measurement capability that is used to support management information needs.

### **Mechanisms**

In an IDEF model, mechanisms are physical resources that perform the activity. Mechanisms could be the important people, machinery, and/or equipment that provide and channel the energy needed to perform the activity.

### **Meeting Agenda/Minutes**

Document used to capture meeting agenda, attendees, meeting highlights, meeting outcomes, and meeting action items.

## **N**

## **O**

### **Online Helpfile**

An Online Helpfile (typically integrated as part of the IT Solution) or a stand alone User Manual that provides instructions to users on accessing/performing functions and self-help provided by the IT solution. Either an Online Help or User Manual is developed, not both. A viewable and printable Online Helpfile is preferred over a stand alone user manual.

### **Organizational Environment for Integration (OEI)**

The process area in CMMI that addresses providing an Integrated Product and Process Development (IPPD) infrastructure and managing people for integration.

### **Organizational Innovation and Deployment (OID)**

The process area in CMMI that addresses selecting and deploying incremental and innovative improvements that measurably improve the organization's processes and technologies.

### **Organizational Process Definition**

The process area in CMMI that addresses establishing and maintaining a usable set of organizational process assets.

### **Organizational Process Focus**

The process area in CMMI that addresses planning and implementing organizational process improvement based on a thorough understanding of the current strengths and weaknesses of the organization's processes and process assets.

### **Organizational Process Performance**

The process area in CMMI that addresses establishing and maintaining a quantitative understanding of the performance of the organization's set of standard processes in support of

quality and process-performance objectives, and to provide the process performance data, baselines, and models to quantitatively manage the organization's projects.

### **Organizational Training**

The process area in CMMI that addresses developing the skills and knowledge of people, so they can perform their roles effectively and efficiently.

### **Output**

In an IDEF model, something resulting from the process.

## **P**

### **Participating Project Team**

The team members that provide input to the Core Team consisting of representatives from different elements such as PPQA, Enterprise Architecture, Interface Team, IT Infrastructure Operations Department, Enterprise Information Security, etc.

### **Peer**

An individual in the same organization or an individual who provides the same function.

### **Peer Review**

The process of evaluating the correctness and completeness of the artifact. It should ensure that the artifact meets the needs and expectations of the users and confirms that the artifact was developed in accordance with appropriate standards.

### **Peer Review Team**

Team responsible for reviewing an artifact. The following roles should be represented on each team: Facilitator, Producer, Scribe, and Verifier.

### **Policy**

A guiding principle typically established by senior management, which is adopted by an organization or project to influence and determine decisions.

### **Post Deployment Review Results**

Documents results of deployment ranging from confirmation by the users that the solution was successfully deployed to the Production and COOP environments and critical functions are operating correctly. It captures whether/how technical glitches were encountered and resolved, use of back-out plan, and all activities conducted to stabilize the solution. This document must be completed no later than 30 calendar days from production and COOP deployment date and is a pre-requisite for transition to Service Delivery Division for SO&M activities. Additionally, CM confirms that the change control record has been updated and that any integrated system has not been negatively affected by the deployment. The document is an input to a larger Lessons Learned document.

### **Practice**

In CMMI, a practice is a description of an action that is necessary to enact a key element of a process area.

**Problem**

An unknown root cause of one or more incidents. (Note: Once the root cause is known, the 'problem' becomes a 'known error' until it is permanently fixed by a change.)

**Problem Management**

The ITIL operational process used to identify the root cause of one or multiple incidents, followed by implementation of a permanent solution to prevent future incidents.

**Process**

A sequence of steps performed for a given purpose, for example, the software development process; it may include tools, methods, materials, and/or people. Set of tools, methods, and practices used to produce a product.

**Process Areas (PAs)**

In the CMMI model, process areas are clusters of related practices performed collectively to achieve a set of goals. They are the major building blocks in establishing the process capability of an organization. Each process area has been defined to reside at a given maturity level.

**Process Asset**

Anything that the organization considers useful in attaining the goals of a process area.

**Process Asset Library (PAL)**

A repository of process assets for use by those who are defining, implementing, and managing processes. Process assets include process-related documentation such as policies, defined processes, checklists, templates, training materials, and lessons learned documents.

**Process Improvement**

A revision to a process that improves the organization's overall software process capability; a process improvement is usually related to time, cost, or schedule.

**Program Grouping**

Method used to logically group IT Solutions Delivery Projects. The four types of Program Groupings are:

- Financial Management Solutions – IT Solutions targeted to solve financial management business problems, such as CFS, PAS, PA, TIS, MyPAA, etc.
- Participant Services Solutions – IT Solutions targeted to solve participant processing and service to the participants business problems, such as PRISM, Spectrum, CRM, etc.
- Corporate Solutions – IT Solutions targeted to solve corporate processing, increase corporate efficiency, cross-cutting multiple departments and chiefs, such as, CAS/CMS, Analytics/DataMart, Risk Management & Early Warning, Common Services (CSS, eALG, IPS), etc.
- Infrastructure Solutions – IT Solutions targeted to solve infrastructure problems aimed to engineer/re-engineer infrastructure components that ultimately increases/enables/stabilizes IT Service Delivery, such as Database upgrades, server upgrades/replacements, telecommunications upgrades/replacements, etc.



### **Process Tailoring**

Making, altering, or adapting a process description for a particular end.

### **Producer**

On a peer review team, the individual that produced the artifact being peer reviewed.

### **Product Integration (PI)**

The process area in CMMI that addresses assembly of a product from the product components, ensuring that the product functions properly as integrated, and delivering the product for use.

### **Procurement Plan**

A planning document that contains the contract/hardware/software/licensing costs, contract vehicle, a short schedule of procurement activities such as market research, SOW, cost estimates, publishing RFP/RFI/RFQ, receipt and review of proposals, contract award, debriefs and contract transition. This document is only required if procuring services or goods in support of the project that may not already be in a place.

### **Project**

A temporary endeavor to create a unique product, service, or result.

### **Project Charter**

The Project Charter is the document used to formally authorize the start of a project by the sponsor who provides the funding. The purpose of the project charter is to clearly document the following key pieces – IT solution scope, cost and schedule, demonstrate management support for the project, assign the Federal Project Manager, and to provide the Project Manager with the authority, accountability and responsibility to apply organizational resources to successfully and efficiently complete the project.

### **Project ITSLCM Tailoring Plan**

A formal document that captures the results of tailoring the ITSLCM to the project type and size. The document sets the project scope – i.e. artifacts that must be delivered in compliance with the ITSLCM. It contains the scope of tailoring, list of artifacts applicable to be delivered, list of roles - producer, review only and approvers.

### **Project Manager (PM)**

The person(s) responsible for overall project coordination, performing project management functions, and producing project management artifacts throughout the project life cycle. PMLC

### **Project Management Plan (PMP)**

The Project Management Plan (PMP) integrates and coordinates the results of all the planning activities. The term Project Management Plan is a comprehensive term that refers to all of the plans that are used to manage the project. The PMP includes:

- Roles and Responsibilities
- Risk/Issue Management Plan
- Project Scope Management Plan
- Acceptance Management Plan
- Quality Management Plan

- Communication Management Plan
- Project Coordination Management Plan
- Schedule and Cost Management Plan

### **Project Modification Request**

Form used to document changes to project scope, cost, and schedule. This document is created only if there are changes to one of the triple constraint – scope, cost or schedule.

### **Project Monitoring and Control (PMC)**

The process area in CMMI that addresses providing an understanding of the project's progress so that appropriate corrective actions can be taken when the project's performance deviates significantly from the plan.

### **Project Notebook**

A Project Notebook is a complete documentation of a project's details. The term Project Notebook refers to both an electronic and physical storage place for project artifacts.

### **Project Plan**

A formal, approved document used to guide both project execution and project control. The primary uses of the project plan are to document planning assumptions and decisions, facilitate communication among stakeholders, and document approved scope, cost, and schedule baselines. A project plan may be summary or detailed.

### **Project Planning (PP)**

The process area in CMMI that addresses establishing and maintaining plans that define project activities.

### **Project Schedule**

The planned dates for performing activities and the planned dates for meeting milestones. Generally, it is considered part of the overall project plan though typically a separate document.

### **Project Scope**

The work that must be done to deliver a product with the specified features and functions.

### **Project Size**

The 4 defined project sizes for IT Solutions Delivery projects at PBGC are:

- Extra Small (X-Small) – less than \$25,000
- Small – \$25,000 to less than \$100,000
- Medium – \$100,000 to less than \$500,000
- Large – Greater than and equal to \$500,000

### **Project Team Members**

The entire project team including both core and participating members. See also Core Project Team and Participating Project Team.

### **Project Type**

There are 4 Project Types defined for IT Solutions Delivery projects at PBGC. They are:

- **New IT Solutions** – Create/deliver a new IT solution to the production environment, for the first time, to meet a business need or solve a business problem. The nature of these requests is typically evaluated by the CPIT Group and EA to ensure alignment with corporate goals and fulfillment of a business gap.
- **Modernizing existing IT Solutions** – Modernize/Re-engineer IT solutions that already exist in production, with the intent to replace with a modernized/re-engineered/new-technology solution, potentially impacting existing business processes and operations. The nature of these requests is typically a result of an IT solution that reach end-of-life or obsolete where maintenance/enhancements result in low ROI, or performing maintenance/enhancements are no longer feasible/viable/scalable to meet the business needs. Projects of this type typically entail disposing or decommissioning an existing IT solution being replaced.
- **Enhancing existing IT Solutions** – Change or group of changes to IT solutions that already exist in production, to provide for new, changed or deleted functionality, features or capabilities. The nature of these requests is typically a result of changes in federal mandates, changed business processes, major version upgrades, or enhanced business needs, but there is no intent to replace an existing IT solution.
- **Maintaining existing IT Solutions** – Change or group of changes to IT solutions that already exist in production, to enable them to operate according to the most recent set of approved requirements, and does not change functionality, features or capabilities. The nature of these requests is typically to fix defects/bugs, minor adjustments due to infrastructure changes, vendor patches/service pack releases, and minor version upgrades, but are not emergency/urgent, allowing for planning the activities.

## Q

### **Quantitative Project Management (QPM)**

The process area in CMMI that addresses quantitative management of a project's defined process in order to achieve the project's established quality and process and performance objectives.

## R

### **Release**

A collection of new and/or changed configuration items which are tested and implemented as a group into the production environments.

### **Release Management**

The ITIL operational process used to ensure that standardized methods and procedures are used to protect the production environments by controlling the release, distribution, implementation, and maintenance of configuration items into these environments.

### **Request for Quotation/Request for Proposal/Request for Information (RFQ/RFP/RFI)**

Request for Quotation, Request for Proposal, and Request for Information is a procurement package targeted towards receipt of competitive vendor proposals to award a contract that provides best value to the government. Procurement Department should be consulted on applicability and FAR regulations.

## **Requirement**

A condition or capability needed to solve a problem or achieve an objective. The main categories of requirements for PBGC include business, user, functional, technical, performance, security, infrastructure, usability, and interface/integration.

## **Requirements Development (RD)**

Requirements Development is the process of eliciting, specifying, analyzing and verifying requirements. The process area in CMMI that addresses producing and analyzing customer, product, and product-component requirements.

## **Requirements Document**

The Requirements Document is a formal statement of the expected benefits, scope, assumptions and constraints, and interfaces. It includes the functional, operational, business, user, technical, performance, security, infrastructure, usability, and integration requirements for the project. Requirements must be testable and in accordance with EA standards.

## **Requirements Phase**

During the Requirements Phase of the SDLC, the business needs that the proposed solution is to address are identified, analyzed, documented, and approved for implementation. The 'As-Is' and 'To-Be' business processes are documented in the Business Process Model. The business, operational, and security requirements are elicited, analyzed, and documented in the Requirements Document.

## **Requirements Management (REQM)**

The management of all approved requirements received by or generated by the project, including business, user, functional, technical, performance, security, infrastructure, usability, and interface/integration, as well as those requirements levied on the project by the organization.

## **Requirements Traceability**

The evidence of an association between a requirement and its source requirement, its implementation, and its verification.

## **Review**

A general term for an evaluation of a work product; peers, management, clients, or a quality group can conduct reviews.

## **Reviewer**

Any individual who reviews a work product or other documents.

## **Risk**

An uncertain event or condition that, if it occurs, has a positive or negative effect on a project's objectives.

## **Risk Management (RSKM)**

The process area in CMMI that addresses identifying potential problems before they occur so that risk-handling activities can be planned and invoked as needed across the life of the product or project to mitigate adverse impacts on achieving objectives.

## **S**

### **Scribe**

The peer review team member who transcribes review and finding information in addition to reviewing the artifact.

### **Security Management**

The ITIL operational process used to ensure that information security is aligned to business security requirements. Information needs to be available and usable, protected against unauthorized modification, used and transferred under controlled conditions, and disclosed only to those who are authorized to view that information.

### **Service Continuity Management**

The ITIL operational process used to ensure the protection and availability of IT services or rapid restoration of services in the event of a disaster.

### **Service Desk**

The ITIL function that provides a single point of contact for communications between the business users and the IT organization. The Service Desk owns the Incident Management process.

### **Service Level Management**

The ITIL operational process used to ensure maintenance and improvement of business-aligned IT service level agreements, through a constant cycle of negotiation, monitoring, reporting and reviewing IT service performance versus those agreements.

### **Solutions Delivery Life Cycle (SDLC)**

A component of the Information Technology Solutions Life Cycle Methodology (ITSLCM) that provides a common methodology for delivering solutions within PBGC uniformly and repeatedly so that consistent results can be achieved when developing IT solutions.

### **Solutions Delivery Life Cycle (Waterfall)**

A sequential IT Solutions delivery model that has five phases: Requirements, Design, Construction, Test, and Deployment.

### **Solution Environment Plan**

Document that describes the requirements of the environment that must be met to build the solution. The Solution Environment Plan includes information related to:

- CDE/I Environment
- CDE/T Environment
- Training Environment
- Production Environment
- ITC Environment
- COOP Environment

### **Solution Impact Identification Document**

This document identifies the impacts that the project will have on existing business processes, active production applications, and existing infrastructure requirements.

### **Solution Scope**

The features that characterize a solution or service.

### **Stakeholders**

A group or individual that is actively involved, affected by, or is in some way accountable for the outcome of a project. (e.g. sponsors, project team members, suppliers, end-users, and others.)

### **Standard**

Mandatory requirements employed and enforced to prescribe a disciplined uniform approach to software development.

### **Statement of Work (SOW)**

A document that clearly describes the work to be performed by contractors when procuring services. This document contains all standard OIT languages, policies, procedures, directives, and orders that may impact vendor proposals. This document is only required if procuring services and establishing a contract if one does not already exist.

### **Submit Artifact for Approval or Review Only Process**

The process of evaluating the correctness and completeness of the artifact. It should ensure that the artifact meets the needs and expectations of the users and confirms that the artifact was developed in accordance with appropriate standards. The process includes determining the approvers, conducting a formal walkthrough, and obtaining sign-off on the artifact.

### **Subject Matter Expert (SME)**

A person who has had extensive training or experience in a particular subject that enhances the team's understanding of that subject.

### **Supplier Agreement Management (SAM)**

The process area in CMMI that addresses managing the acquisition of products from suppliers for which there exists a formal agreement.

### **System Security Plan (SSP)**

A plan that details the types of security required for a solution based on the type of information being processed and the degree of sensitivity. This plan also identifies whether the PBGC Security Office requires that a system be certified and accredited.

### **Systems/Solutions Life Cycle Methodology (SLCM)**

See ITS LCM

## **T**

### **Technical Solution**

The process area in CMMI that addresses designing, developing, and implementing solutions to requirements.

### **Test Cases**

A description of the aspects of the system that must be tested in order for the requirements (systems, functional, business, security, etc.) to be satisfied. These include pre-conditions, inputs, and expected outputs.

### **Test Scenarios**

A hypothetical narrative based on user experiences that help the tester work through the relevant components that should be tested. Scenarios are often based on the business process flows the system will be supporting.

### **Test Results Reports**

Document reporting the results and findings from testing. This document is intended to establish a level of confidence about how well the solution meets its requirements, identifies outstanding issues and defects, and defines the effect or consequences associated with a deployment decision for the solution.

### **Test Phase**

In this phase of the SDLC the IT solution is tested for defects against the approved requirements and design specifications; integration with systems, solutions, and hardware in the intended environment; quality; usability; and compliance to PBGC standards; and, to ensure it meets user expectations.

### **Test Plan**

This plan includes information describing the scope of testing, testing approach, resources, and schedule. It identifies the items and features to be tested, the types of testing to be performed, the personnel responsible for testing, the resources and scheduled required to complete testing, and the risk associated with the plan. The Test Plan is a collection of artifacts to include:

- Unit Test
- System Test
- Integration Test
- User Acceptance Test
- Certification and Accreditation

### **Test Scripts**

Automated or manual procedures that prescribe the specific steps required to execute test cases.

### **Training Assessment Report**

A report that documents the overall success of the training. It assesses student feedback, instructor observations, and compares the results against previous training sessions that were similar, or with case studies, Training Institute evaluations and remarks, lessons learned, and best practices.

### **Training Materials**

Training Materials are all of the tools required to conduct training. This includes instructor guides with instructor notes, student manuals with examples and exercises, and a comprehensive exam and/or performance case study.

### **Training Plan**

The Training Plan is a document that ensures product training is addressed. It includes what is being trained, how it is being trained, where the training will occur and who will do the training. The Training Plan should include consultation from the Training Institute. Note: Trainees include users, system administrators, operations personnel, infrastructure support members, helpdesk staff, LAN/WAN administrators, database administrators, etc.

## **U**

## **V**

### **Validation (VAL)**

The process area in CMMI that addresses activities to demonstrate that a product or product component fulfills its intended use when placed in its intended environment.

### **Verification (VER)**

The process area in CMMI that addresses ensuring that selected work products meet their specified requirements.

## **W**

### **Work Breakdown Structure (WBS)**

An arrangement of work elements and their relationships to each other and to the end product.

## **X**

## **Y**

## **Z**



## Acronyms

Term	Expansion
ALG	Automated Letter Generation
BAC	Budget at Completion
BOE	Basis of Estimate
C&A	Certification and Accreditation
CAS	Case Administration System
CCM	Configuration and Change Management
CCN	Customer Communication Network
CDE	Common Development Environment
CFO	Chief Financial Officer
CFR	Code of Federal Regulations
CI	Configuration Item
CIO	Chief Information Officer
CM	Configuration Management
CMMI	Capability Maturity Model Integrated
CO	Contracting Officer
COOP	Continuity of Operations Plan
COTS	Commercial Off-The-Shelf
COTR	Contracting Officer Technical Representative
CPM	Critical Path Method
CPIT	Capital Planning for Information Technology
CR	Change Request
CRM	Customer Relationship Management
CTO	Chief Technology Officer
DCIO	Deputy Chief Information Officer
DMC	Document Management Center
EA	Enterprise Architecture
eALG	Automated Letter Generator
ECB	Engagement Control Book
EIN	Employer Identification Number
EIS	Enterprise Information Security
EMC	Executive Management Committee
EVM	Earned Value Management
FAR	Federal Acquisition Regulation
FBA	Field Benefit Administration
FISMA	Federal Information Security Management Act
FOD	Financial Operations Department
FOIA	Freedom of Information Act
FTP	File Transfer Protocol
GERT	Graphical Evaluation and Review Technique
GOTS	Government Off-the-Shelf

<b>Term</b>	<b>Expansion</b>
GUI	Graphical User Interface
IA	(Obsolete) Infrastructure Administration
ICAM	Integrated Computer Aided Manufacturing
ICC	Internal Control Committee
IDEF	ICAM Definitions
IE	(Obsolete) Infrastructure Engineering
IICS	Image Import Common Service
IO	(Obsolete) Infrastructure Operations
IOD	Insurance Operation Department
IPS	Image Processing System
IT	Information Technology
ITC	Integration Testing Center
ITIL	Information Technology Infrastructure Library
ITIO	Information Technology Infrastructure Operations (Department)
ITIO SDD	ITIO Service Delivery Division
ITIO SSD	ITIO Service Support Division
ITIRC	(Obsolete) Information Technology Investment Review Committee
ITSLCM	Information Technology Solution Life Cycle Methodology
IV&V	Independent Verification and Validation
LDM	Logical Data Model
LOE	Level of Effort
MCU	Management Control Unit
MSI	Microsoft Installer
MyPAA	My Plan Administration Account
NIST	National Institute of Standards and Technology
OBE	Overtaken by Events
ODC	Other Direct Cost
OGC	Office of the General Counsel
OIT	Office of Information Technology
OMB	Office of Management and Budget
PA	Process Area
PAL	Process Assets Library
PAMT	Participant Applications Maintenance Team
PAS	Premium Accounting System
PBGC	Pension Benefit Guaranty Corporation
PDM	Physical Data Model
PDF	Portable Document Format
PEAD	Participant and Employer Application Department
PIT	Process Improvement Team
PM	Project Manager
PMC	Process Management Committee

<b>Term</b>	<b>Expansion</b>
PMLC	Project Management Life Cycle
PMBOK	Project Management Body of Knowledge
PMI	Project Management Institute
PMO	Program Management Office
PMP	Project Management Plan
PN	Plan Number
PPQA	Process and Product Quality Assurance
RCS	Remote Capture System
RD	Requirements Document
REQM	Requirements Management
RFI	Request for Information
RFP	Request for Proposal
RFQ	Request for Quotation
RM	Release Manager
ROI	Return on Investment
RTM	Requirements Traceability Matrix
SD	Solutions Disposition
SDD	Software Design Description
SDLC	Solutions Delivery Life Cycle
SDP	Software Development Plan
SLCM	Solutions Life Cycle Methodology
SOP	Standard Operating Procedure(s)
SO&M	Solutions Operations and Maintenance
SOW	Statement of Work
SQL	Structured Query Language
SRS	Software Requirements Specification
SSP	System Security Plan
STR	Software Trouble Report
TIFF	Tagged Image File Format
TPD	Trusteeship Processing Division
UAT	User Acceptance Testing
UID	Universal ID
WBS	Work Breakdown Structure