IT Solutions Life Cycle Management (ITSLCM) Framework Narrative

Pension Benefit Guaranty Corporation

ITSLCM v1.2

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Revision History

Version	Date	Change Description	Author
V 2011-1.0	08/22/2011	Version approved by the ITSLCM Core Team	IT&BMD PMD
V 1.1	03/13/12	Updated with changes approved by ITSLCM CCB	IT&BMD PMD
V 1.2	11/01/12	Updated with changes approved by ITSLCM CCB	IT&BMD PMD

PART I: Overview

1.0 Introduction

1.1 What is the Purpose of This Document?

The Information Technology Solutions Life Cycle Management (ITSLCM) Framework Narrative document is a resource to assist Pension Benefit Guaranty Corporation (PBGC) federal staff and contractors in navigating the PBGC's ITSLCM framework. This document presents a detailed overview of the ITSLCM framework, the roles applicable to executing the framework, and details relating to the tasks, deliverables, and external processes required to properly execute the framework.

This document is developed and maintained by the Project Management Division (PMD), located with the Office of Information Technology's (OIT) IT & Business Modernization Department (IT&BMD).

1.2 What Legislation Authorizes the ITSLCM?

The ITSLCM supports PBGC's effort to ensure compliance with federal mandates and policies. The table below provides an overview of legislative authorities that influence the ITSLCM.

Legislative Authority	Description
Clinger–Cohen Act of 1996	Supports streamlining Information Technology acquisitions and emphasizes life cycle management as a capital investment.
E-Government Act of 2002	Supports the use of the Internet to provide citizens with access to the Government and technology to improve agencies' success.
Federal Acquisition Regulation Part 39	Requires representation from the agency's technical, supply, and procurement communities to balance competing interests to provide the best value product or service to meet the customer's needs.
Federal Acquisition Streamlining Act of 1994, Title V (FASA V)	Requires agencies to establish cost, schedule, and measurable performance goals for all major acquisition programs, and achieve on average 90 percent of those goals.
Federal Information Security Management Act	Requires federal agencies to develop, document, and implement an agency-wide program to secure information and information systems.
Government Paperwork Elimination Act of 1998	Supports the use of electronic records and signatures as valid, legal, and enforceable records of transactions.
GPRA Modernization Act of 2010	Requires agencies to document and disseminate a strategic plan that includes a mission statement and a prioritized set of goals and objectives.
NIST Special Publication 800-53	Provides recommended security controls for Federal Information Systems and Organizations. Guidelines call for the following: An organization should include Information Security considerations in their Systems Development Life Cycle (SDLC) methodology (SA-3). An organization should obtain or at minimum attempt to obtain administrator and user documentation for its information systems (SA-5).

Legislative Authority	Description
OMB Circular A-130	Prescribes the requirements for management and planning practices of information systems and technology.
OMB Circular A-11	Prescribes the requirements for Enterprise Architecture (EA), Information Security, Acquisition, Project and Systems Development Life Cycle (SDLC) management.
OMB Circular A-123	Requires agencies to establish and assess the adequacy of internal controls in Federal programs and operations.
Privacy Act of 1974	Requires agencies to give public notice of their systems of records through publication in the Federal Register.

1.3 What Background Information Must I Know?

This document is the culmination of a collaborative effort by IT&BMD's PMD and representatives from most of the PBGC's business areas: Chief Financial Officer (CFO), Deputy Director of Policy - Office of Policy and External Affairs (DDP), Deputy Director of Operations (DDO), Chief Management Officer (CMO), and Chief Information Officer (CIO). Together, this group comprised the ITSLCM Core Team.

PBGC issued its first Systems Development Life Cycle (SDLC) methodology on March 30, 2001. The methodology provided guidance for all system development efforts and major enhancements to existing systems. Since that time, PBGC has implemented a series of updates and enhancements to ensure that the methodology continues to support the evolving needs of PBGC users. The table below offers insight into the history and background of the ITSLCM.

Date	Description
July 1996	The Clinger-Cohen Bill is signed into law. It streamlines IT acquisitions and emphasizes life cycle management as a capital investment.
March 1999	An audit report from the Office of Inspector General's Financial Statement finds that the lack of a formal SDLC methodology impacts the consistency of systems development initiatives.
March 2001	The PBGC SDLC methodology is issued to meet the requirements identified in the March 1999 Office of Inspector General's Financial Statement Audit.
March 2002	The SDLC is renamed the Systems Life Cycle Methodology (SLCM) and the scope is expanded to include all acquisition, development and enhancement efforts related to information systems.
July 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.
FY 2004	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."

Date	Description
Spring 2005	PBGC initiates a project to update the SLCM with standard industry models such as the Capability Maturity Model Integration (CMMI), and Project Management Body of Knowledge (PMBOK). Requirements development and requirements management were the first areas of focus.
October 2005	The Chief Technology Officer (CTO) signs the SLCM Corporate Policy.
March 2006	SLCM v2006.1 is released and training is conducted throughout PBGC. This release includes a detailed Requirements Development (RD) process, Requirements Management (REQM) process, and their supporting sub-processes (Business Process Model process, Peer Review process, Submit Artifacts for Approval process).
Summer 2006	The SLCM is updated in conjunction with the creation of the Project Management Life Cycle (PMLC). 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).
February 2007	ITSLCM v2007.1 is approved for release.
April 2007	The Chief Management officer (CMO) signed the Order (Directive), 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.
March 2010	A PBGC Corrective Action Plan (CAP) is delivered in response to OIG information security audit findings. This CAP serves as a key driver for modernizing the ITSLCM to ensure continued compliance with NIST 800-53 Rev 3 (specifically, SA-3 and SA-5). The CAP's implementation schedule identified January 2011 to initiate an ITSLCM modernization effort.
April 2011	The ITSLCM v2007.1 is updated with minor clarifications primarily to the Project Tailoring and Compliance section. ITSLCM v2007.1.1 is approved for release by the OIT Governance Coordination Board (GCB).

1.4 How Do I Use this Document?

This document is organized into three parts:

- **Part I: Overview** - provides readers with a description of the document's purpose, as well as background and foundational information about the ITSLCM that will assist the readers in further understanding the structure of the framework and why the framework exists.

- **Part II: ITSLCM Framework** - provides phase-by-phase details and guidance for navigating the ITSLCM framework.

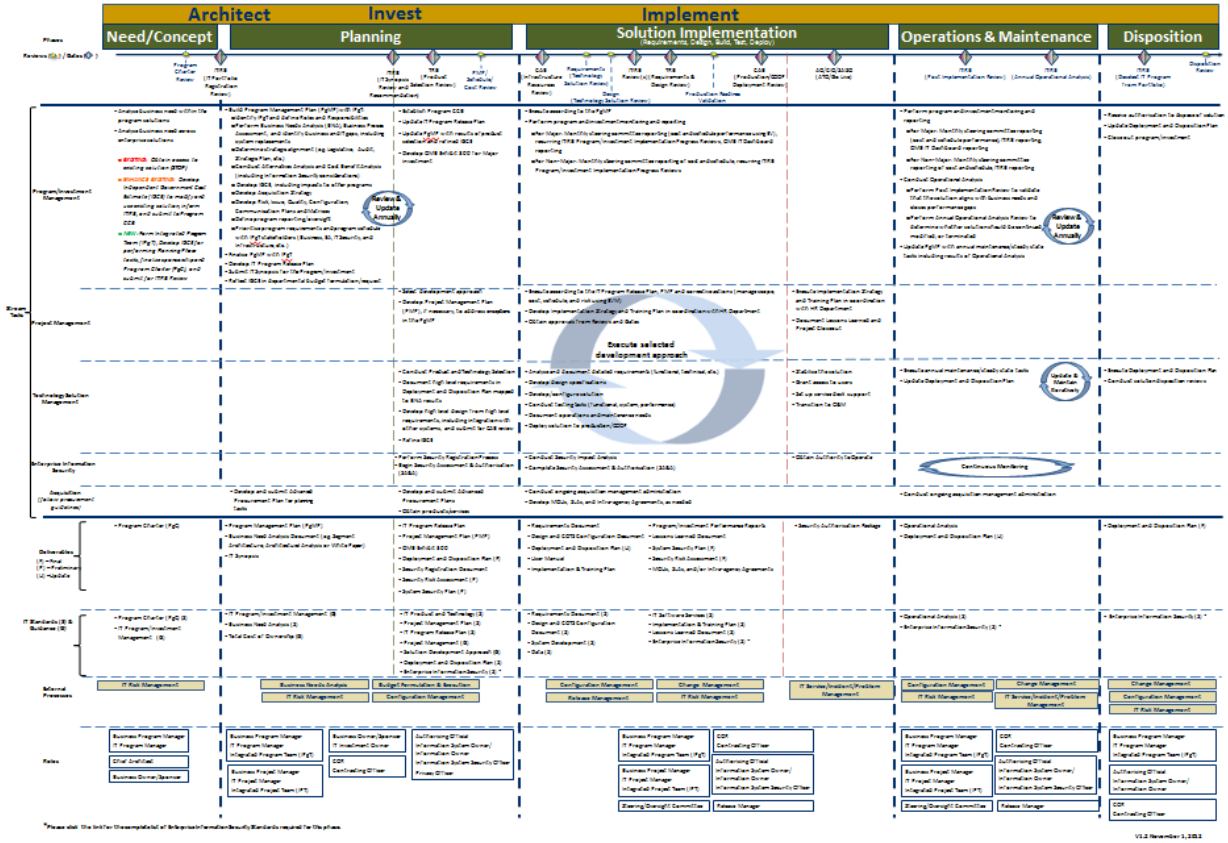
- **Part III: Appendices** - provides supplemental information related to the execution of the ITSLCM framework.

2.0 Framework Highlights

2.1 What is the ITSLCM Framework?

The ITSLCM framework is a solutions management framework that provides for the identification, planning, implementation, maintenance, and disposition of IT solutions throughout their life cycle. PBGC's ITSLCM Directive requires that all federal and contractor staff involved in delivering and managing the delivery of new and existing IT solutions follow the ITSLCM.

The ITSLCM is comprised of five phases, which incorporate tasks and deliverables that satisfy requirements of applicable federal mandates and regulations, as well as government and industry best practices. In addition to the tasks and deliverables, the ITSLCM incorporates gates and reviews, IT standards and guidance, key roles, and related external processes into each of the five phases. The ITSLCM is designed to provide flexibility while also providing standards to ensure that all federal requirements are met and the appropriate due diligence and documentation occurs for all PBGC IT initiatives. The ITSLCM allows users to leverage IT Program level artifacts to reduce the number of project artifacts required. Adherence to the ITSLCM framework will allow PBGC to reduce overall project risk by improving the quality of IT project planning, implementation, and management.



IT Solutions Life Cycle Management (ITSLCM) Framework[1]

The ITSLCM is designed to align with the Office of Management and Budget's (OMB) Performance Improvement Life Cycle, which is comprised of three phases: *Architect*, *Invest* and *Implement*. The Performance Improvement Life Cycle establishes

[1] The ITSLCM Framework PDF is available on the ITSLCM website. In addition, the individual components of the ITSLCM can be explored in the ITSLCM Tour.

a framework for aligning goals to results and is used by federal agencies to close performance gaps and improve overall performance. The "Architect" phase focuses on the identification of both enterprise performance gaps and the capabilities needed to fill the gaps. The "Invest" phase focuses on defining the implementation and funding strategy for individual gaps identified during the "Architect" phase and ensures the alignment of project selections to the goals and objectives set forth. The "Implement" phase focuses on ensuring the design for the solution is executed to close the performance gap and that the initiatives are executed and operating according to plan.

By leveraging the Performance Improvement Life Cycle as a basis for the ITSLCM, PBGC has enabled the IT solution management infrastructure to effectively select, implement, manage, and monitor IT initiatives. When the ITSLCM is executed properly and consistently, IT investments address capability gaps and deliver the performance improvements that are being sought.

2.2 What are ITSLCM Framework Phases?

The ITSLCM is comprised of five phases, each with a distinct purpose, yet interconnected with the other phases within the framework. The table below provides an overview of the five phases.

ITSLCM Phase	Phase Description	OMB Phase(s)
Need/Concept	During the Need/Concept Phase, new business needs are analyzed within individual program areas and across the enterprise to determine if the business need can be met using an existing IT solution, through enhancing an existing IT solution, or if a new IT solution or program needs to be established.	Architect
Planning	During the Planning Phase, the detailed program and project planning activities are conducted and documented. Planning elements, such as the establishment of the Program Management Plan (PgMP), IT Program Release Plan, Project Management Plan (if needed), product selection, and selection of development methodology, are all completed in this phase. The tasks and deliverables in this phase are produced to ensure that a budget, scope, and schedule are in place so the solution meets the intended business need, as well as to ensure that IT resources are being planned and managed in accordance with all applicable federal policies and mandates and internal PBGC policies and directives.	Architect & Invest
Solution Implementation	During the Solution Implementation Phase, the technology solution is implemented and deployed. The Solutions Implementation Phase offers opportunities for streamlining tasks and deliverables and for leveraging existing documentation for distinct solution/project types, such as Commercial Off-The-Shelf (COTS), Hosted, or Enhancement. It is in this phase that the technology solution identified (regardless of the type) is deployed to production. This phase of the ITSLCM provides maximum flexibility during solution development and steady state (maintenance).	Implement
Operations & Maintenance	During the Operations and Maintenance Phase, IT solutions are monitored and evaluated to ensure they are being effectively managed and maintained in the agency's production environment. Tasks performed within the Operations and Maintenance Phase are predictive and aimed at preventing failures or a decline in performance, efficiency, and/or reliability.	Implement

ITSLCM Phase	Phase Description	OMB Phase(s)
Disposition	The purpose of the Disposition Phase is to efficiently dispose of IT solutions that are at the end of the useful life and no longer meet the business needs. 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.	N/A

2.3 What are ITSLCM Framework Reviews and Gates?

ITSLCM reviews represent an informal program and/or project assessment or evaluation that can occur at any time. Reviews are usually conducted by the Integrated Program Team (IPgT), Integrated Project Team (IPT), or those directly involved with the effort. Gates represent a formal, scheduled review -- while not necessarily a Go or No-Go decision -- with an IT Governance Board or Authorizing Official. Together, the reviews and gates combine to provide the governance and checks and balances needed to ensure that IT programs/projects are being properly managed and are in compliance with the ITSLCM.

The table below provides an overview of the IT Governance Boards and Authorizing Officials involved in the ITSLCM gates. In Part II of this document, the reviews and gates applicable to each of the ITSLCM phases are represented in the "Reviews and Gates" section of each phase.

Review Boards	Responsibilities
IT Investment Review Board (ITIRB)	The IT Investment Review Board (ITIRB) is an interdepartmental group responsible for assuring alignment of data-related capital spending with corporate strategic plans.
Technical Review Board (TRB)	The Technical Review Board (TRB) is responsible for reviewing all TRB submissions for technology, technical feasibility and compliance with PBGC's IT standards. The TRB will determine adherence to technical standards and guidelines for IT projects, business cases and proposals and provide go/no-go decisions at the appropriate IT solutions life cycle decision points.
Change Advisory Board (CAB)	The Change Advisory Board (CAB) facilitates the change management process by reviewing and approving Request for Changes (RFCs) processed for CAB review to help ensure that changes to the production environment are implemented in a standardized manner and to minimize any negative impact of implemented changes to the delivery, availability, and continuity of the PBGC's production environment.
Authorizing Official/ Chief Information Officer/Senior Agency Information Security Officer (AO/CIO/SAISO) Gate Review	The Authorizing Official/Chief Information Officer/Senior Agency Information Security Officer (AO/CIO/SAISO) represents the Authority to Operate (ATO/Go Live) milestone and is a formal declaration by a Designated Approving Authority (DAA) that authorizes operation of a solution and explicitly accepts the risk to agency operations. The ATO is signed after a Certification Agent (CA) certifies that the system has met and passed all requirements to become operational. ATO is issued at the approval of Security Authorization Package.

2.4 What are ITSLCM Framework Tasks?

ITSLCM tasks identify the actions required to accomplish the objectives within a particular phase. Within each phase, the tasks are categorized into five functional categories or “streams.” The "streams" organize tasks that are performed by specific roles. The table below provides an overview of the ITSLCM stream tasks.

ITSLCM Streams Tasks	Stream Tasks Descriptions
Program/ Investment Management	The Program/Investment Management stream captures tasks associated with providing centralized, coordinated management of an IT program (which may consist of multiple IT projects or IT related initiatives) to achieve business goals and objectives. Program/Investment planning tasks include all activities associated with the Capital Planning and Investment Control (CPIC) process (select, control, and evaluate stages) and Enterprise Architecture (EA) requirements.
Project Management	The Project Management stream captures tasks associated with applying knowledge, skills, tools, and techniques to project activities in order to plan, execute, monitor, and control IT projects effectively by achieving cost, schedule, and/or performance goals.
Technology Solution Management	The Technology Solution Management stream captures tasks associated with the coordination of activities surrounding the initiation, planning, development, and long-term support and enhancement of a technology product. It encompasses the entire solutions development life cycle.
Enterprise Information Security	The Enterprise Information Security stream captures information security related tasks. This includes tasks associated with ensuring: (1) that security aligns with and supports business objectives; (2) compliance with information security related laws, regulations, and federal policies; and (3) internal controls and security risk management exist. Since the Enterprise Information Security Program has its own process, ITSLCM users should refer to the Enterprise Information Security Office (EISO) for supporting details and information.
Acquisition	The Acquisition stream captures tasks associated with processes and activities required to procure products or services. ITSLCM users should refer to the PBGC Procurement Department or PBGC's Acquisition Process for additional details.

2.5 What are ITSLCM Framework Deliverables?

Deliverables are the artifacts produced as a result of performing specific tasks within the ITSLCM. The deliverables identified in the framework are not exhaustive but serve as a general guide for the required baseline deliverables. The Integrated Program Team (IPgT) and/or Integrated Project Team (IPT) may determine that additional deliverables are needed based on a program’s and/or project’s specifications and variables.

In Part II of this document, the deliverables applicable to each of the ITSLCM phases are identified in the “Deliverables” section of each phase.

2.6 What are ITSLCM Framework IT Standards and Guidance?

ITSLCM IT standards provide the minimum requirements or criteria for ITSLCM deliverables, reviews, and gates without dictating a template. The intent of standards is to allow maximum flexibility in the development of deliverables, while ensuring that the appropriate level of due diligence and documentation occurs throughout the life cycle of IT solutions. ITSLCM guidance documents provide additional details relating to the development of ITSLCM deliverables.

In Part II of this document, the standards and guidance applicable to each of the ITSLCM phases are identified in the "Standards and Guidance" section of each phase.

2.7 What are ITSLCM Framework External Processes?

External processes are PBGC processes that are independent of the ITSLCM but serve as required "touch points" to the ITSLCM for the purpose of ensuring enterprise compliance. Not all processes apply to all phases, but are used as needed (e.g. The Business Needs Analysis process applies to the Planning Phase only). The external processes identified in the ITSLCM are described in the table below. In Part II of this document, the external processes applicable to each of the ITSLCM phases are identified in the "External Processes" section of each phase.

External Process	Description
Business Needs Analysis	Business Needs Analysis refers to the processes and activities needed to refine a business need, determine the performance gap, and begin taking steps toward identifying and implementing a solution. This process is owned and maintained by PBGC's IT & Business Modernization Department (IT&BMD).
Budget Formulation and Execution	Budget Formulation and Execution activities and processes address managing budget formulation and execution. These processes provide the technical budgeting due diligence needed to formulate and justify requests and execute appropriations.
Change Management	Change Management is a structured project management approach to formally introduce changes to the IT infrastructure. As an external process, change management activities ensure that the appropriate level of organizational preparation occurs as part of an IT solution implementation. This process is owned and maintained by PBGC's IT Infrastructure Operations Department (ITIOD).
Configuration Management	Configuration Management activities control the promotion of IT solutions to development, testing and production environments. It identifies the final location of all work products including software, code, documentation, plans, status reports, critical communications, action items, and meeting minutes. This process is owned and maintained by PBGC's IT Infrastructure Operations Department (ITIOD).
IT Risk Management	IT Risk Management focuses on identifying and evaluating the risks pertinent to the proposed IT program/project and identifying risk management and mitigation strategies. This process is owned and maintained by PBGC's OIT, Enterprise Program Management Division (EPMD) Manager.
IT Service/Incident/ Problem Management	IT Service/Incident/Problem Management is focused on ensuring timely and effective response to operational issues. These processes are owned and maintained by PBGC's IT Infrastructure Operations Department (ITIOD).
Release Management	Release Management activities and processes manage the deployment of changes in hardware and software to the infrastructure. This process is owned and maintained by PBGC's IT Infrastructure Operations Department (ITIOD).

2.8 What are the ITSLCM Framework Roles?

The ITSLCM identifies roles that are responsible for performing a specific task or providing a specific "service" relating to the identification, planning, implementing, maintaining, and/or disposing of IT solutions. In Part II of this document, the roles are listed in the "roles" section of each phase (While the roles listed represent the key individuals involved in a particular phase, other individuals or departments may be needed to provide additional guidance or support.).

PART II: *The Information Technology Solutions Life Cycle Management (ITSLCM) Framework*

1.0 Need/Concept Phase[2]

The Need/Concept Phase is the first phase of the ITSLCM. During the Need/Concept Phase, new business needs are analyzed within individual program areas and across the enterprise to determine if the business need can be met using an existing IT solution, through enhancing an existing IT solution, or if a new IT solution or program needs to be established.

The Need/Concept Phase begins with a business need, which can be identified by any individual within a business program area. The Business Program Manager (BPgM) will perform basic analysis to determine if an IT solution is needed to address the business need. If the BPgM determines the identified need does require an IT solution, the BPgM, IT Program Manager (ITPgM), and, in most cases, the Chief Architect collaborate to analyze the existing IT solutions within the program and across the enterprise. The goal of the analysis is to determine:

- If the business need can be met using an existing IT solution.
- If the business need can be met through enhancing an existing IT solution.
- If the business need requires establishing a new IT Solution.

The results of the analysis will set the course through the rest of the ITSLCM.

The business need can be met using an existing IT solution...
Where an IT solution already exists that will fulfill the business need, the users will submit an eLAN request to obtain access to the IT solution. No subsequent ITSLCM activities are required.

The business need can be met through enhancing an existing IT solution...
Where an IT solution exists, but needs to be modified or enhanced, the BPgM will identify the business requirements and conduct a preliminary analysis and market research to determine a reasonable cost estimate (Independent Government Cost Estimate [IGCE]) for enhancing the existing IT solution. When developing the IGCE, the BPgM should consider factors such as additional licenses and/or support required, cost of customization, resources required to operate, etc.[3] All cost, schedule, and scope changes are submitted to the program area's designated Change Control Board (CCB) for review and approval. The changes are than registered with the IT Investment Review Board (ITIRB) to ensure PBGC's IT Portfolio is updated and maintained.

The business need requires establishing a new IT Solution...
Where no IT solution exists within the organization, and a new solution or program is needed to fulfill the business need, the BPgM will develop an IGCE for performing the necessary tasks in the Planning Phase. The BPgM will develop the Program Charter and finalize the program sponsorship. The Program Charter is than submitted to the ITIRB for review and IT Portfolio Registration.

1.1 Roles

This section identifies the key roles that are responsible for performing a specific task or providing a specific "service" within the ITSLCM Need/Concept phase. While the roles listed represent the key individuals involved in this phase, other individuals or departments may be needed to provide additional guidance or support.

- Business Owner/Sponsor
- Chief Architect
- Business Program Manager (BPgM)
- IT Program Manager (ITPgM)

1.2 Deliverables

The table below provides a description of the deliverable(s) applicable to the Need/Concept Phase.

[2] Explore the Need/Concept Phase on the ITSLCM website.
[3] Reference the Total Cost of Ownership Guidance for additional information.

Deliverable	Description
Program Charter	The Program Charter formally authorizes the establishment of an IT program and describes the business need for the effort and the product to be created by the effort. It provides the Business and IT Program Managers with the authority to apply up to a certain level of organizational resources to program activities. The Program Charter also documents the solution scope, Independent Government Cost Estimate, funding strategy for planning activities, high-level milestone schedule, and management support; and designates the Business and IT Program Managers.

1.3 Reviews and Gates

The table below provides a description of the Reviews and Gates applicable to the Need/Concept Phase.

Review/Gate	Description
Program Charter Review	The Business Owner/Sponsor reviews the Program Charter to ensure completeness, accuracy, and confirm documented governance and authorizations.
IT Investment Review Board (ITIRB) IT Portfolio Registration Review	The IT Investment Review Board (ITIRB) confirms IT Portfolio Registration for the IT solution (new or enhancement to an existing solution).

1.4 External Processes

The external process applicable to the Need/Concept Phase:

- IT Risk Management

1.5 Phase Highlights

- Solution Direction Determined – A decision on whether the business need will be addressed by an existing solution (as-is or enhanced) or a new solution.
- Sponsorship Finalized – A champion exists independent from the program manager.
- Program Approved – Program Charter has been developed in compliance with Program Charter standard
- ITIRB Informed – IT Portfolio changes reported to the ITIRB.
- Program CCB Informed *(if enhancing an existing solution)* - Cost, schedule and scope changes to an existing IT solution provided to the program area CCB.

2.0 Planning[4]

During the Planning Phase, the detailed program and project planning activities are conducted and documented. Planning elements, such as the establishment of the Program Management Plan (PgMP), IT Program Release Plan, Project Management Plan (if needed), product selection, and selection of development methodology, are all completed in this phase. The tasks and deliverables in this phase are produced to ensure that a budget, scope, and schedule are in place so the solution meets the intended business need, as well as to ensure that IT resources are being planned and managed in accordance with all applicable federal policies and mandates and internal PBGC policies and directives.

In the Planning Phase, the detailed program and project plans and baselines are developed and documented, which lay the groundwork for the effective and efficient deployment of the actual IT solution. The tasks in the Planning Phase are separated by an IT Investment Review Board (ITIRB) review of the IT Synopsis. Tasks on either side of the review may be referred to as Pre-ITIRB or Post-ITIRB.

Program/Investment Management stream tasks - During the Planning Phase, prior to the ITIRB's review of the IT Synopsis (Pre-ITIRB), the Business Program Manager (BPgM) forms an Integrated Program Team (IPgT) and defines the specific roles and responsibilities. The IPgT is comprised of individuals that encompass the skill sets and domain expertise required to perform program planning. Members include, but are not limited to, Enterprise Architect, Information System Security Officer, Capital Planning and Investment Control (CPIC) representative, Release Manager, Impacted Program Managers, Contracting Officer, and Budget Liaison Officer.

The IPgT will perform a Business Needs Analysis (BNA), Business Process Assessment, and identify business and IT gaps, including system replacements. The BNA may be conducted and documented by completing a Segment Architecture, Architectural Analysis, or White Paper.

The Program Management Plan (PgMP) is established to provide oversight for the IT program and document the results of the program analysis (i.e. business needs analysis, strategic alignment analysis, cost benefit analysis, and alternative analysis) and the program management strategies regarding acquisition, quality, risk, issue, configuration, communication, etc. (The components of the PgMP will provide the information needed to complete the IT Synopsis.). Program funding requests become part of the departmental budget formulation.

Once the PgMP is finalized, the necessary information will have been collected to populate the IT Synopsis that supports the Program/Investment. Once the IT Synopsis is reviewed by the ITIRB, the BPgM will establish a program Change Control Board (CCB), update the IT Program Release Plan, and update the PgMP as necessary with new information (i.e. results of product selection, refined IGCE, etc.). In addition, the IPgT develops the OMB Exhibit 300 (for Major investments), which is populated with the information documented in the Pre-ITIRB planning.

Project Management stream tasks – IT and Business Project Managers responsible for projects within the program's purview can leverage PgMP strategies at the project level. For example, a project can follow the same risk management strategy outlined in the PgMP. The IT and Business Project Managers may reference the risks outlined in the PgMP and does not have to document them separately in the Project Management Plan (PMP). Leveraging program documentation will reduce the amount of artifacts the project team has to produce.

At the project level, the Integrated Project Team (IPT) selects a development approach, such as waterfall, agile, iterative, etc. that will assist in making the project a success. The development approach may be one that is already identified at the program level and documented in the IT Program Release Plan; however, if the approach used is specific to the project, it should be documented in the project management plan (PMP).[5] The PMP is developed if there are deviations from the PgMP such as different members of the IPT vs. the IPgT, differences in the management strategies, etc.

[4] Explore the Planning Phase on the ITSLCM website.
[5] Reference the Solution Development Approach Guidance for additional information.

Technology Solution Management stream tasks – This stream focuses on selecting the product or technology to fulfill the business need, updating the IGCE based upon the selection, and documenting the high level requirements and design, including integration with other systems, to submit to the Change Advisory Board (CAB) for review.

Enterprise Information Security stream tasks - Security tasks begin in the Enterprise Information Security stream. Since the Enterprise Information Security Program has its own process, ITSLCM users should refer to the Enterprise Information Security Office (EISO) for supporting details and information.

Acquisition stream tasks - If contract support or products will need to be procured, the PBGC Acquisition process and procurement guidelines should be followed.

2.1 Roles

This section identifies the key roles that are responsible for performing a specific task or providing a specific "service" within the ITSLCM Planning Phase. While the roles listed represent the key individuals involved in this phase, other individuals or departments may be needed to provide additional guidance or support.

- Business Program Manager
- IT Program Manager
- Integrated Program Team
- Business Project Manager
- IT Project Manager
- Integrated Project Team
- Privacy Officer
- Business Owner/Sponsor
- IT Investment Owner
- Contracting Officer's Representative
- Contracting Officer
- Authorizing Official
- Information System Owner/Information Owner
- Information System Security Officer

2.2 Deliverables

The table below provides a description of the deliverable(s) applicable to the Planning Phase.

Deliverable	Description
Program Management Plan (PgMP)	The Program Management Plan (PgMP) is a roadmap that describes the purpose, goals, and objectives of a program, as well as the approach that will be taken to accomplish those goals and objectives. The PgMP is a dynamic document and also provides the guidelines for how the program will be executed, monitored, and controlled. Information in the PgMP may be used as inputs into the IT Synopsis.
Business Needs Analysis Document	The Business Needs Analysis (BNA) combines the federal best practices with lessons learned from the IT planning activities of PBGC projects and programs. The BNA ensures that a business need or performance gap is considered in the context of the corporation or business area as a whole.
IT Synopsis	The IT Synopsis (business case) is a documented, structured proposal for business improvement that is prepared to facilitate a selection decision for all proposed IT investments or programs by organizational decision makers, which is the Executive Management Committee (EMC). It describes the reasons and justification for the investment or project in terms of business process performance, needs and/or problems, and expected benefits. A business case identifies the high-level requirements that are to be satisfied, an analysis of proposed alternative solutions (with reasons for rejecting or carrying forward each option), assumptions, constraints, a risk-adjusted cost-benefit analysis, a preliminary acquisition strategy, a project plan, a risk management plan, enterprise architecture, and an IT security plan.

Deliverable	Description
IT Program Release Plan	The IT Program Release Plan is a logical roadmap for the incremental delivery of functionality that closes Information Technology program performance gaps. The IT Program Release Plan shows the releases that are scheduled for implementation over the period of time that covers the current year through Budget Year +1 (as indicated in OMB Exhibit 53 and 300). Each release is composed of one or more projects, which in total address one or more performance gaps. For each release, the IT Program Release Plan provides a description of the functionality to be included, the timeline that the release will span, its major deliverables, and any dependencies on other projects.
Project Management Plan (PMP)	The Project Management Plan (PMP) may serve as a supplement to the Program Management Plan (PgMP). The PMP documents project deviations from the PgMP, such as different Integrated Project Team (IPT) members verses Integrated Program Team (IPgT) members, cost, schedule, project specific risks, solution development approach, etc.
OMB Exhibit 300	The OMB Exhibit 300 is a documented, structured proposal for business improvement that is prepared to facilitate a selection decision for a proposed major IT investment or program by organizational decision makers. The OMB Exhibit 300 describes the reasons and justification for the investment or program in terms of business process performance, needs and/or problems, and expected benefits, as well as the reasons and justification for the investment or program in terms of business process performance, needs and/or problems, and expected benefits.
Deployment and Disposition Plan (Preliminary)	The Deployment and Disposition Plan (DDP) is a consolidated artifact that documents the planning, solution implementation, operations and maintenance, and disposition activities of new and existing solutions within PBGC managed environments.
Security Registration Document	The Security Registration Document provides the information required to clearly identify any weaknesses in the proposed solution and to support future assessments of the solution.
Security Risk Assessment (Preliminary)	The Security Risk Assessment (SRA) documents the analysis of the risks and threats towards a system's confidentiality, integrity, and availability of data or information.
System Security Plan (Preliminary)	The System Security Plan (SSP) provides an overview of the security requirements of the system, and to describe the controls that are in place or being planned for meeting those requirements. The SSP also delineates responsibilities and expected behavior of all individuals who access the system. The SSP should be viewed as documentation of the structured process for planning adequate and cost-effective security protection for a system.

2.3 Reviews and Gates

The table below provides a description of the Reviews and Gates applicable to the Planning Phase.

Review/Gate	Description
Technology Review Board (TRB) Product Selection Review	The Technology Review Board (TRB) reviews and approves the Product Selection.
IT Investment Review Board (ITIRB) IT Synopsis Review and Recommendation	The IT Investment Review Board (ITIRB) reviews the IT Synopsis and makes a recommendation to the Budget Planning and Integration Team (BPIT).
Project Management Plan/Schedule/Cost Review	The Integrated Project Team reviews the Project Management Plan (PMP), cost, and schedule for the IT solution project.

2.4 External Processes

The external processes applicable to the Planning Phase include:

- Business Needs Analysis
- Budget Formulation and Execution
- Configuration Management
- IT Risk Management

2.5 Phase Highlights

- Integrated Program Team in place.
- Program Management Plan, including program analysis and strategies, is baselined.
- ITIRB Review of the IT Synopsis.
- TRB review and approval of product selection – The TRB must have reviewed and approved the product selected before it can be used in development/configuration.
- Solution Development Approach selected and Project Management Plan/Schedule/Cost reviewed and approved by the IPT.

3.0 Solution Implementation Phase[6]

The Solution Implementation Phase is the third phase in the ITSLCM. During the Solution Implementation Phase, the IT solution is implemented and deployed. The Solutions Implementation Phase offers opportunities for streamlining tasks and deliverables and for leveraging existing documentation for distinct solution/project types, such as Commercial off-the-shelf (COTS), Hosted, or Enhancement. It is in this phase that the technology solution identified (regardless of the type) is deployed to production. This phase of the ITSLCM provides maximum flexibility during solution development and steady state (maintenance).

Program/Investment Management stream tasks - Program performance monitoring and reporting to the Federal IT Dashboard, IT Investment Review Board (ITIRB), and Steering Committees occur throughout this phase.

Project Management stream tasks - Project execution, monitoring, and control occur in this phase. During the development of the Implementation Strategy and Training Plan, there should be coordination with the Human Resource Department (HRD) to ensure identification and coordination of labor issues and training tasks. One of the primary tasks of the Project Management stream is the coordination of Review/Gates reviews and approvals.

Technology Solution Management stream tasks - Implementation of the selected development approach occurs in the Technology Solution Management stream. This is where all of the solution development life cycle tasks occur (requirements, design, build, test, and deploy). The Integrated Project Team (IPT) will engage the release and change management processes to move the solution through the Solution Implementation phase into production.

After the solution has been deployed into production, the IT Project Manager (ITPM) must receive Authority to Operate (ATO) from the Authorizing Official/Chief Information Officer/Senior Agency Information Security Officer (AO/CIO/SAISO). Upon receiving ATO, the IPT may commence stabilizing the solution, granting access to users, establishing service desk support, and transitioning the system into the Operations and Maintenance Phase.

Enterprise Information Security stream tasks – Security tasks continue in the Enterprise Information Security stream. Since the Enterprise Information Security Program has its own process, ITSLCM users should refer to the Enterprise Information Security Office (EISO) for supporting details and information.

Acquisition stream tasks - If contract support or products will need to be procured, the PBGC Acquisition process and procurement guidelines should be followed.

3.1 Roles

This section identifies the key roles that are responsible for performing a specific task or providing a specific "service" within the ITSLCM Solution Implementation Phase. While the roles listed represent the key individuals involved in this phase, other individuals or departments may be needed to provide additional guidance or support.

- Business Program Manager
- IT Program Manager
- Integrated Program Team
- Business Project Manager
- IT Project Manager
- Integrated Project Team
- Steering/Oversight Committee
- Contracting Officer's Representative
- Contracting Officer
- Authorizing Official
- Information System Owner/Information Owner
- Information System Security Officer
- Release Manager

[6] Explore the Solution Implementation Phase on the ITSLCM website.

3.2 Deliverables

The table below provides a description of the deliverable(s) applicable to the Solution Implementation Phase.

Deliverable	Description
Requirements Document	The Requirements Document is a comprehensive repository of all identified and agreed-to requirements. In formal statements, the requirements document articulates expected benefits, scope, assumptions and constraints, and solution interfaces. Requirements are 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, interface and integration. Requirements must be testable and in accordance with applicable PBGC standards.
Design and COTS Configuration Document	The Design and COTS Configuration Document describes the technical solution that satisfies the requirements for the business product/system. Either directly or by reference to other documents, the Design and COTS Configuration Document provides a high-level overview of the entire solution architecture and data design, including external interfaces, infrastructure, and preliminary application screen design as well as lower-level detailed design specifications for internal components of the solution that are to be developed. The Design and COTS Configuration Document is a collection of design artifacts that includes the following: functional design, technical design, architecture design, security design, logical data model, physical data model.
Deployment and Disposition Plan (Update)	The Deployment and Disposition Plan (DDP) is a consolidated artifact that documents the planning, solution implementation, operations and maintenance, and disposition activities of new and existing solutions within PBGC managed environments.
User Manual	The User Manual provides user instructions and user help guide to clearly explain how a business user is to use the established business product from a business function perspective. It also highlights troubleshooting techniques.
Implementation & Training Plan	The Implementation & Training Plan provides an overview of the targeted training and communications that may need to occur in support of organizational change management. The Implementation and Training Plan ensures that product training is addressed (what is being trained, how it is being trained, where the training will occur and who will do the training).
Program/ Investment Performance Reports	The Program/Investment Performance Reports provide information on the program's performance with regard to scope, schedule, cost, resources, quality and risk. Performance reports are created by the Integrated Program Team (IPgT) and detail activities, accomplishments, issues, and milestones of the Program/Investment. The reports are used to help monitor and control the progress of IT Programs/Investments including reports to OMB's IT Dashboard and other program/project oversight/advisory boards and committees, such as Steering Committees.
Lessons Learned Document	The Lessons Learned Document captures the outcome of a facilitated lessons learned session that includes project information, documents what worked and what needs improvement, and documents recommendations for what should be continued to be followed and what should be changed going forward.

Deliverable	Description
System Security Plan (Final)	The System Security Plan (SSP) provides an overview of the security requirements of the system, and to describe the controls that are in place or being planned for meeting those requirements. The SSP also delineates responsibilities and expected behavior of all individuals who access the system. The SSP should be viewed as documentation of the structured process for planning adequate and cost-effective security protection for a system.
Security Risk Assessment (Final)	The Security Risk Assessment (SRA) documents the analysis of the risks and threats towards a system's confidentiality, integrity, and availability of data or information. It includes the security functional requirements and identifies the protection requirements for the system using a formal risk assessment process. The risk assessment includes the identification of threats to and vulnerabilities in the information system; the potential impact or magnitude of harm that a loss of confidentiality, integrity, or availability would have on agency assets or operations and the identification and analysis of security controls for the information system.
Security Authorization Package	The Security Authorization Package provides the documentation that clarifies the extent to which a system ensures its confidentiality, integrity, and availability. The Package includes a security self-assessment report, a Plan of Action and Milestones, and the Authorization to Operate Letter.
MOUs, SLAs, and/or Intra-Agency Agreements	A Memorandum of Understanding (MOU) is an agreement of the duties and responsibilities between two parties. It is a legal document that outlines the terms and details of the agreement, including each parties requirements, responsibilities and period of performance. A Service Level Agreement(s) (SLAs) is a contractual agreement between a service provider and their customer specifying performance guarantees with associated penalties should the service not be performed as contracted. MOUs, SLAs, and/or Intra-Agency Agreements are most frequently associated with Hosted, Custom-Off-the-Shelf (COTS), or IT Services solutions.

3.3 Reviews and Gates

The table below provides a description of the Reviews and Gates applicable to the Solution Implementation Phase.

Review/Gate	Description
Change Advisory Board (CAB) Infrastructure Resources Review	The Change Advisory Board (CAB) reviews the required infrastructure resources (first CAB review in the Solution Implementation Phase).
IT Investment Review Board (ITIRB)	The IT Investment Review Board (ITIRB) conducts analysis of a program that has development/modernization/enhancement projects by reviewing program artifacts (Performance Metrics, Action Plans, Program Re-baselines, Obligation Rates, and Steering Committee Briefings and Minutes) and program data/reports (Earned Value Management (EVM) reports and PPM/P6 data) to determine if the funded program remains on schedule, within cost, and delivers the performance results expected. Based on the review, the ITIRB will work with the Business and IT Program Managers when issues are identified and provide IT

Review/Gate	Description
	Program assessment and recommendations for action to the Budget Planning and Integration Team (BPIT) and Chief Information Officer (CIO). The recommendations will guide the ITIRB during the ranking process when the ITIRB determines the inclusion/exclusion of a program within the IT Portfolio and develops the ITIRB Recommended List of Prioritized IT Programs.
Technical Review Board (TRB) Requirements and Design Review	The Technical Review Board (TRB) evaluates projects' compliance to IT technical standards.
Change Advisory Board (CAB) Production/COOP Deployment Review	The Change Advisory Board (CAB) reviews the completeness of the Deployment and Disposition Plan (DDP) and approves deployment to the production environment.
Authorizing Official/Chief Information Officer/Senior Agency Information Security Officer (AO/CIO/SAISO) ATO/Go Live	The Authorizing Official/Chief Information Officer/Senior Agency Information Security Officer (AO/CIO/SAISO) represents the Authority to Operate (ATO/Go Live) milestone and is a formal declaration by a Designated Approving Authority (DAA) that authorizes operation of a solution and explicitly accepts the risk to agency operations. The ATO is signed after a Certification Agent (CA) certifies that the system has met and passed all requirements to become operational. ATO is issued at the approval of Security Authorization Package.
Requirements Review	The Integrated Project Team (IPT) reviews the technology solution's requirements to ensure the requirements meet the business needs as well as each IPT member's domain's technical requirements and readiness for the TRB.
Design Review	The Integrated Project Team (IPT) reviews the technology solution's design to ensure the design supports the approved requirements as well as each IPT member's design concerns and readiness for the TRB.
Production Readiness Validation	The Integrated Project Team (IPT) reviews the technology solution to ensure it is ready for production deployment.

3.4 External Processes

The external processes applicable to the Solution Implementation Phase include:

- Change Management
- Configuration Management
- Release Management
- IT Risk Management
- IT Service/Incident/Problem Management

3.5 Phase Highlights

- Requirements and Design are approved by the TRB and IT Solution approved for production by the CAB.
- Security Authorization Package completed and Authority to Operate (ATO) granted by AO/CIO/SAISO.
- IT solution implemented and users granted access.

4.0 Operations and Maintenance Phase[7]

The Operations and Maintenance (O&M) Phase is the fourth phase of the ITSLCM. During the Operations and Maintenance Phase, IT solutions are monitored and evaluated to ensure they are being effectively managed and maintained in the agency's production environment. Tasks performed within the Operations and Maintenance Phase are predictive, and aimed at preventing failures or a decline in performance, efficiency, and/or reliability.

Although there are standard annual maintenance tasks that must occur, there may be instances when some maintenance tasks must be completed out of cycle to accommodate a system change, organizational change, or new business requirement. When new business requirements are identified to enhance an IT solution in production, an IT project is initiated and PMs will follow the tasks outlined in the Solution Implementation phase.

4.1 Roles

This section identifies the key roles that are responsible for performing a specific task or providing a specific "service" within the ITSLCM Operations and Maintenance Phase. While the roles listed represent the key individuals involved in this phase, other individuals or departments may be needed to provide additional guidance or support.

- Business Program Manager
- IT Program Manager
- Integrated Program Team
- Business Project Manager
- IT Project Manager
- Integrated Project Team
- Steering/Oversight Committee
- Contracting Officer's Representative
- Contracting Officer
- Authorizing Official
- Information System Owner/Information Owner
- Information System Security Officer
- Release Manager

4.2 Deliverables

The table below provides a description of the deliverable(s) applicable to the Operations and Maintenance Phase.

Deliverable	Description
Operational Analysis	The Operational Analysis is performed to evaluate system performance, user satisfaction with the system, adaptability to changing business needs, and new technologies that might improve the system.
Deployment and Disposition Plan (Update)	The Deployment and Disposition Plan (DDP) is a consolidated artifact that documents the planning, solution implementation, operations and maintenance, and disposition activities of new and existing solutions within PBGC managed environments.

4.3 Reviews and Gates

The table below provides a description of the Reviews and Gates applicable to the Operations and Maintenance Phase.

[7] Explore the Operations & Maintenance Phase on the ITSLCM website.

Review/Gate	Description
IT Investment Review Board (ITIRB) Post Implementation Review	The IT Investment Review Board (ITIRB) conducts a Post-Implementation Review (PIR) after an initial release to production or when an IT program achieves its initial operating capability. Additional PIRs are conducted when modernization efforts and significant enhancements that close performance gaps are completed. Based on the review, the ITIRB will work with the Business and IT Program Managers when issues are identified and provide IT Program Evaluation and recommendations for action (continue, modify, or terminate a program) to the Budget Planning and Integration Team (BPIT) and the Chief Information Officer (CIO). The recommendations will guide the ITIRB during the Ranking process when the ITIRB determines the inclusion/exclusion of a program within the IT Portfolio and develops the ITIRB Recommended List of Prioritized IT Programs.
IT Investment Review Board (ITIRB) Annual Operational Analysis Review	An Operational Analysis is conducted by the Business and IT Program Managers within 12 months of completing the Program's initial PIR and is updated annually. Based on the review, the ITIRB will work with the Business and IT Program Managers when issues are identified and provide IT Program Evaluation and recommendations for action (continue, modify, or terminate a program) to the Budget Planning and Integration Team (BPIT) and the Chief Information Officer (CIO). The recommendations will guide the ITIRB during the Ranking process when the ITIRB determines the inclusion/exclusion of a program within the IT Portfolio and develops the ITIRB Recommended List of Prioritized IT Programs.

4.4 External Processes

The external processes applicable to the Operations and Maintenance Phase include:

- Change Management
- Configuration Management
- IT Risk Management
- IT Service/Incident/Problem Management

4.5 Phase Highlights

- Maintenance and steady state tasks are done iteratively.
- Ongoing program and investment monitoring and performance reporting to steering committee, ITIRB, and OMB IT Dashboard.

5.0 Disposition Phase[8]

The Disposition Phase is the fifth and final phase of the ITSLCM. The purpose of the Disposition Phase is to efficiently dispose of IT solutions that are at the end of the useful life and no longer meet the business needs. 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.

In the Disposition phase, there may be a decision to end a program/investment or dispose of a solution within a program/investment. The Deployment and Disposition Plan is finalized to document how the program will be closed out and/or how the solution will be decommission with minimal impact to the business processes, other impacted solutions, or the infrastructure.

5.1 Roles

This section identifies the key roles that are responsible for performing a specific task or providing a specific "service" within the ITSLCM Disposition Phase. While the roles listed represent the key individuals involved in this phase, other individuals or departments may be needed to provide additional guidance or support.

- Business Program Manager
- IT Program Manager
- Integrated Program Team
- Authorizing Official
- Information System Owner/Information Owner

5.2 Deliverables

The table below provides a description of the deliverable(s) applicable to the Disposition Phase.

Deliverable	Description
Deployment and Disposition Plan (Final)	The Deployment and Disposition Plan (DDP) is a consolidated artifact that documents the planning, solution implementation, operations and maintenance, and disposition activities of new and existing solutions within PBGC managed environments.

5.3 Reviews and Gates

The table below provides a description of the Reviews and Gates applicable to the Disposition Phase.

Review / Gate	Description
Disposition Review	The purpose of the Disposition Review is to ensure that all the proper measures are taken to bring an IT solution to successful exit from its life cycle.
IT Investment Review Board (ITIRB) Deselect IT Program from Portfolio	The IT Investment Review Board (ITIRB) reviews a Program Deselect Notification and provides a Program Deselect Acknowledgement to Business and IT Program Managers.

[8] Explore the Disposition Phase on the ITSLCM website.

5.4 External Processes

The external processes applicable to the Disposition Phase include:

- Change Management
- Configuration Management
- IT Risk Management

5.5 Phase Highlights

- Deployment and Disposition Plan Completed.
- Solution De-Commissioned.

***PART III**: Appendices*

Appendix A: ITSLCM "Solution/Project Type" Views

The ITSLCM Framework accommodates all IT solution/project types and sizes. The Solutions Implementation Phase offers opportunities for streamlining tasks and deliverables for distinct solution/project types. The ITSLCM Framework includes three (3) "solution/project type views" that offer pre-customized guidance for the Solutions Implementation Phase. Opportunities to streamline solution development are offered by identifying scenarios where users may leverage existing documentation, omit non-applicable tasks, and/or leverage external resources. The views below provide guidance on three distinct solution/project types (those most used at PBGC):

- Commercial-Off-The-Shelf (COTS) Solutions
- Hosted Solutions
- Solution Enhancements

Each view provides an overview of the solution/project type, specific considerations, and a summarization of how to streamline tasks and deliverables. For more detailed guidance on tasks, deliverables, and roles, users are advised to turn to the IT Solutions Life Cycle Management Framework provided in Part II.

COTS Solution View

Commercial-Off-The-Shelf (COTS) solutions refer to the use of ready-made products from external manufacturers rather than the development of in-house, custom solutions. COTS solutions may offer lower risk and significant time and cost savings, as various solution components are acquired and licensed instead of being developed internally. This provides PBGC users with a proven solution that can be available in a relatively short amount of time.

To ensure the effective selection of COTS products, project teams should be well-versed on the latest market research regarding emerging products and technologies prior to product evaluation and selection. Consideration should be given to potential issues and challenges associated with vendor stability and the integration of the COTS solution. By placing an increased emphasis on these areas, teams can improve the likelihood of acquiring COTS products that provide long-lasting benefits to PBGC users.

Types of COTS Solutions

PBGC typically leverages two types of COTS solutions: (1) COTS Configuration and (2) COTS Customization (or COTS Based Software Development).

The term “COTS Configuration” is used to describe COTS solutions that are adapted (configured) to incorporate the business rules, workflows, mandates, and standard procedures required within PBGC. This category incorporates the COTS solutions commonly referred to as “COTS Out-of-the-Box,” which still require at least some minimal configuration to comply with PBGC standards.

COTS Customization refers to a COTS product that requires code modifications to deliver business functions that are not readily available within standard COTS Out-of-the-Box packages. While the degree of customization may vary from solution to solution, COTS Customization efforts all require a detailed analysis of requirements and customized design, development, and testing.

COTS – Applying the ITSLCM

The IT product/technology selection occurs during the ITSLCM Planning Phase. Once it has been determined that a COTS solution will be implemented, the "COTS View" can be used for the Solution Implementation Phase (activities in all other ITSLCM phases remain unchanged). The Project Management and Technology Solution Management streams within this phase are modified to account for tasks that may be completed by third party vendors.

The integration of COTS Configuration solutions requires project teams to document the custom design/configuration specifications for the solution, conduct testing activities, and deploy solutions to production. Depending on the size and scope of the COTS Configuration effort, the size and scope of the documentation of detailed business requirements and design/configuration may vary. The documentation may also be combined depending on the size and scope of the project. For example, the Requirements and the Design and COTS Configuration Documents could be combined for a very small project.

COTS View Deliverable Impact

The table below outlines the Solution Implementation Phase deliverables that may need to be given special considerations to determine how they are applicable in the COTS view.

COTS View Deliverables	COTS Deliverables Deviations
• Requirements Document • Design and COTS Configuration Document ***(If Applicable)*** • User Manual ***(If Applicable)*** • Deployment and Disposition Plan • Implementation & Training Plan ***(If Applicable)*** • Program/Investment Performance Reports	• Requirements Document may be combined with the Design and COTS Configuration Document for very small projects • User Manual may be developed by third-party vendor • Implementation & Training Plan may be required in the event that PBGC users require training and guidance on how to effectively leverage solution • Refer to your ISSO/IO and/or the EISO for information on

COTS View Deliverables	COTS Deliverables Deviations
• Lessons Learned Document • System Security Plan (F) ***(If Applicable)*** • Security Risk Assessment (F) ***(If Applicable)*** • Security Authorization Package ***(If Applicable)*** • MOUs, SLAs, and/or Intra-agency Agreements ***(If Applicable)***	whether the information security tasks and artifacts are applicable.

Hosted Solution View

Hosted solutions refer to use of an external service that assumes IT responsibilities for the constant operation of an IT product. Generally, a third-party vendor manages and maintains some or all components of a solution on a daily basis to ensure that the needs of an organization are met. Occasionally, this may also include extended services, such as help desk operations, training, etc.

In many instances, Hosted solutions serve as an outlet for lowering the start-up and maintenance costs associated with addressing business needs. By partnering with an external vendor, agencies gain access to knowledgeable staff with the hardware and software capabilities to ensure the availability and effectiveness of a solution.

The partnership associated with Hosted solutions require a degree of reliance on third-party vendors, as external hosts may have control over critical business functions. Vendor agreements must be carefully developed to outline specific parameters regarding user access and support. Furthermore, security considerations must be carefully assessed to ensure information security.

Types of Hosted Solutions

Hosted solutions are generally associated with three primary services: (1) Software as a Service (SaaS), (2) Infrastructure as a Service (IaaS), and (3) Platform as a Service (PaaS).

Software as a Service (SaaS) is accessed by users through the internet. Typically, SaaS providers use a pricing strategy that features a monthly or annual fee with predetermined restrictions regarding the number of users that can access an application.

Infrastructure as a Service (IaaS) is associated with the outsourcing of equipment used to support business operations such as storage, hardware, and servers. Typically, third party vendors are responsible for the maintenance and operation of these components, and they charge users on a per-use basis.

Platform as a Service (PaaS) refers to the ability to deploy a solution on a platform that is not managed or controlled by PBGC using tools provided by an external vendor. Generally, the user is responsible for the maintenance and configuration of the application utilized on the platform.

Hosted Solutions – Applying the ITSLCM

The IT product/technology selection occurs during the ITSLCM Planning Phase. Once it has been determined that a Hosted solution will be implemented, the "Hosted View" can be used for the Solution Implementation Phase (activities in all other ITSLCM phases remain unchanged). The Project Management and Technology Solution Management streams within this phase may be modified to account for tasks that are completed by third party vendors. The incorporation of Memorandum of Understandings (MOUs), Service Level Agreements (SLAs), and/or Intra-agency Agreements are also added to the view to account for potential acquisition considerations associated with Hosted solutions.

When integrating hosted solutions, project teams may also satisfy the detailed documentation of requirements by leveraging an existing MOU, SLA, or Intra-agency Agreement. Additionally, the design and configuration may be provided by the vendor. However, project teams are required to produce required documents if there is integration with PBGC's infrastructure.

Hosted Solutions also require unique consideration to the Continuity of Operations Plan (COOP). While hosted solutions are not deployed to production by the project team, mission critical solutions are still required to identify plans that comply with PBGC's COOP. These plans must ensure the ability to effectively mitigate risk to normal business operations during a wide range of potential emergencies.

Hosted View Deliverable Impacts

The table below outlines the Solution Implementation Phase deliverables that may need to be given special considerations to determine how they are applicable in the Hosted view.

Hosted View Deliverables	Hosted Deliverable Deviations
• Requirements Document • Design and COTS Configuration Document ***(If Applicable)*** • Deployment and Disposition Plan • User Manual ***(If Applicable)*** • Implementation & Training Plan ***(If Applicable)*** • Program/Investment Performance Reports • Lessons Learned Document • System Security Plan (F) ***(If Applicable)*** • Security Risk Assessment (F) ***(If Applicable)*** • MOUs, SLAs, and/or Intra-agency Agreements ***(If Applicable)*** • Security Authorization Package ***(If Applicable)***	• Design and COTS Configuration Document only required if solution is actually configured • User Manual may be developed by third-party vendor • Implementation & Training Plan required in the event that PBGC users require training and guidance on how to effectively leverage solution • Refer to your ISSO/IO and/or the EISO for information on whether the information security tasks and artifacts are applicable.

Solution Enhancement View

Solution enhancement refers to the practice of improving or modernizing existing PBGC solutions to address new business needs. Enhancements may be applied to solutions of all types, including Custom Developed, COTS, and Hosted solutions.

By enhancing existing solutions, project teams leverage the artifacts and tasks that were initially completed in the development of a PBGC program. This includes the development of a Program Management Plan, Change Control Board, and IT Program Release Plan. Furthermore roles such as the Business Program Manager and IT Program Manager are already defined to allow for continuity in addressing identified business needs.

Types of Solution Enhancements

Solution Enhancements may be presented in a variety of solution types, including COTS, Hosted, and Custom Development efforts. Regardless of the solution type, project teams are required to follow the Enhanced View guidance outlined for the execution of the Need/Concept and Planning Phases. In some scenarios, the execution of the Solution Implementation phase may defer to more detailed guidance offered for COTS and Hosted solutions below.

Solution Enhancements - Applying the ITSLCM

The enhancement of a solution follows a more simplified path than the development of a new solution, as many of the Program/Investment Management tasks are revisited and updated instead of being newly developed. From the Need/Concept Phase through the Solution Implementation phase, users are encouraged to add addendums and make updates to already existing program and project deliverables (i.e. Program Management Plan, IT Synopsis, Requirements Document, etc.).

While executing the selected development approach in the Solution Implementation Phase, Project Managers should add addendums to the existing Requirements Document and Design/Configuration Document. Updates should also be made to the Deployment and Disposition Plan and User Manual to reflect changes and impacts caused by enhancements.

If user interfaces are not changed by solution enhancements, an updated Implementation & Training Plan may not be required for an Enhancement View. The development of this deliverable should be determined based on whether users require additional education to allow PBGC to effectively leverage the solution.

Solution Enhancement View Deliverable Impact

The table below outlines the Solution Implementation Phase deliverables that may need to be given special considerations to determine how they are applicable in the Enhancement view.

Enhancement View Deliverables	Enhancement Deliverables Deviations
• Requirements Document ***(Update)*** • Design and COTS Configuration Document ***(Update)*** • Deployment and Disposition Plan • User Manual ***(If Applicable)*** • Implementation & Training Plan ***(If Applicable)*** • Program/Investment Performance Reports • Lessons Learned Document • System Security Plan (F) ***(If Applicable)*** • Security Risk Assessment (F) ***(If Applicable)*** Security Authorization Package ***(If Applicable)***	• Information in the Requirements Document and Design and COTS Configuration Document may need to be updated. • User Manual may be developed by third-party vendor. • Implementation & Training Plan required in the event that PBGC users require training and guidance on how to effectively leverage solution. • Solution Security information may need to be updated for Security Risk Assessment (P), System Security Plan (P), and Security Authorization Package

Appendix B: List of Supporting Artifacts and Tools

- ITSLCM Framework
- ITSLCM Framework Views
- Checklists

Appendix C: References

- A Guide to the Project Management Body of Knowledge (PMBoK Guide) by Project Management Institute – *December, 2008*
- Federal Acquisition Regulation (FAR) – Part 34-Major System Acquisition– *March 2005*
- NIST Special Publication 800-37 Revision 1 – *February, 2010*
- NIST Special Publication 800-53 Revision 3 – *August, 2009*
- PBGC Directive Number FM 15-1: Requisition, Acquisition and Payment for Goods and Services – *September, 2007*