



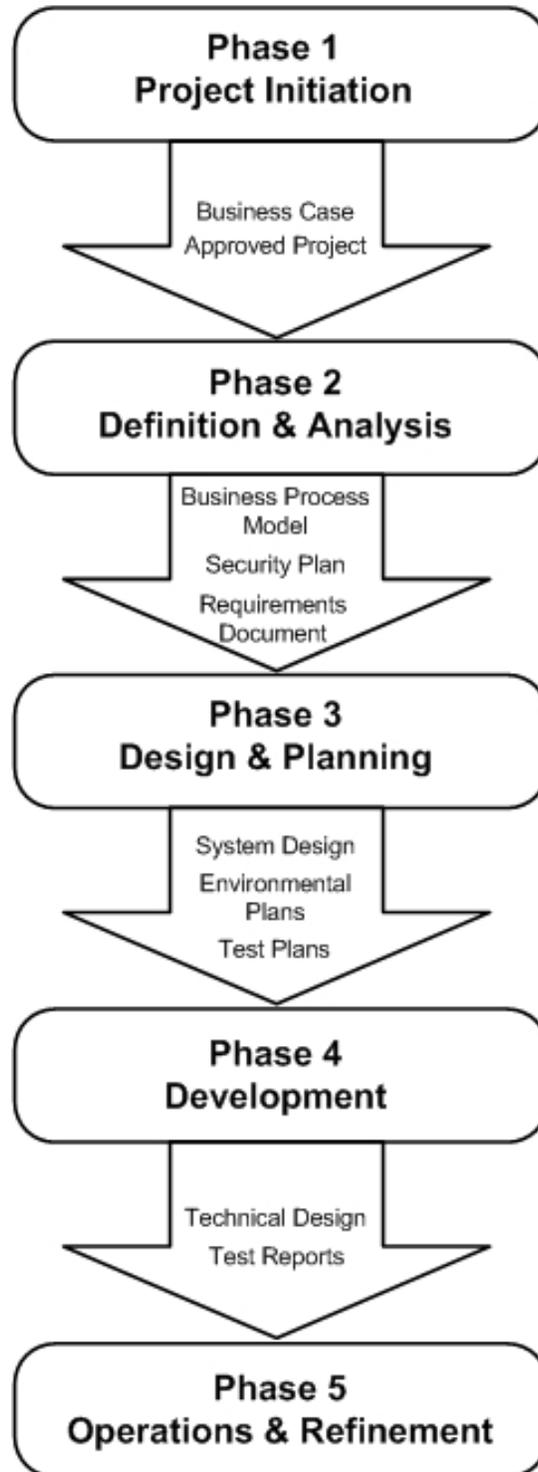
Corporate
Systems Life Cycle Methodology
(SLCM)

Revision History

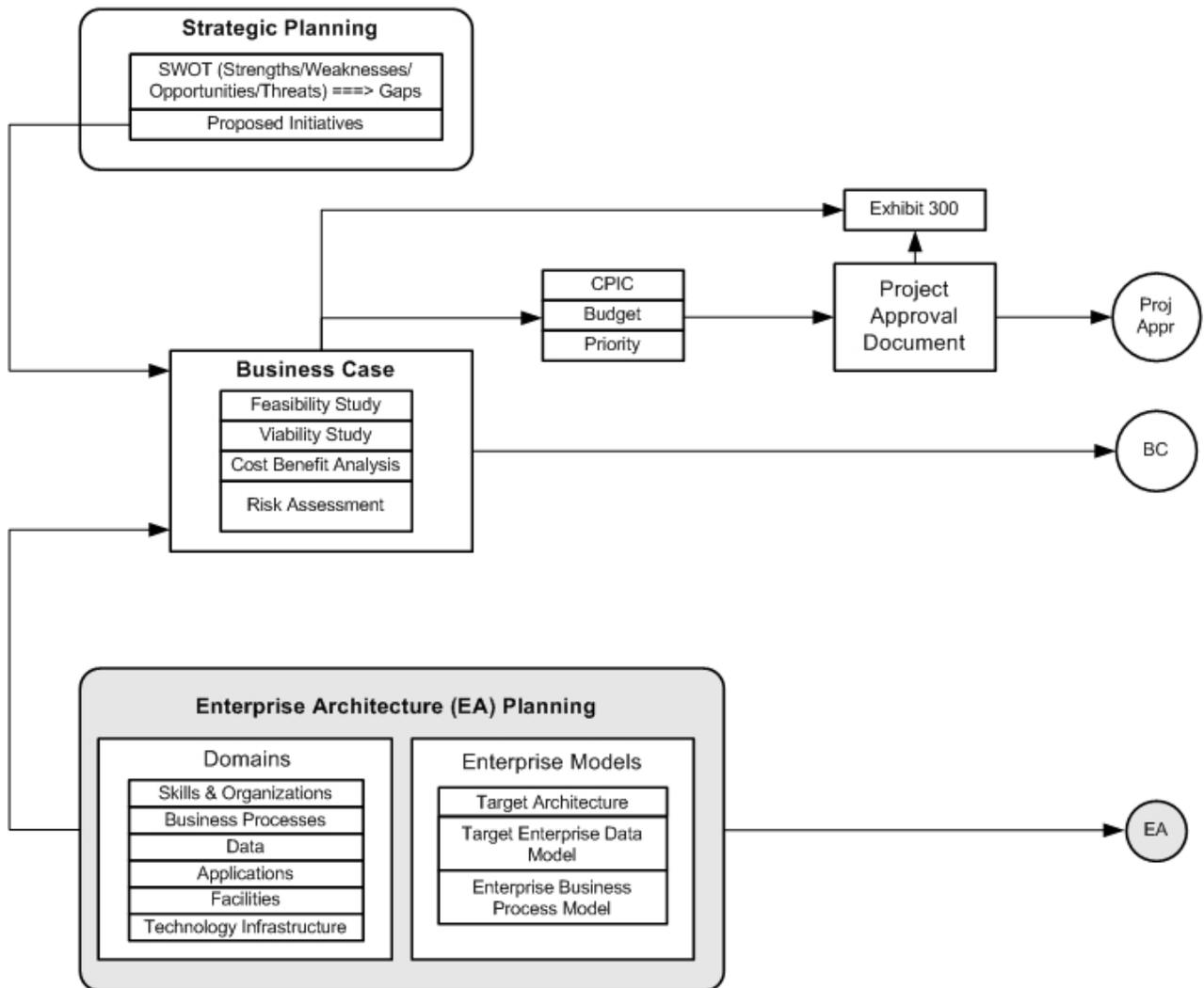
VERSION	DATE	REVISED BY	DESCRIPTION/COMMENTS
2002.1	March 2002	IRMD	Baseline SLCM
2003.1	July 02, 2003	IRMD	Date SLCM approved for use
	October 07, 2005	OIT	Policy signed
2006.1	February 2006	OIT	<p>Updated information to reflect the newly developed Requirements Development and Management Processes.</p> <p>Removed all reference to v2003.1.</p> <p>Replaced references to SLCM Methodologist with references to the PMO Program Manager.</p> <p>Replaced references to Steering Group with references to the Steering Committee.</p>

Note: Detailed processes & templates exist online for SLCM artifacts. Contact the PMO for the specific location of these artifacts.

Process Flow



Phase 1 - Project Initiation



Project Initiation

(Phase 1)

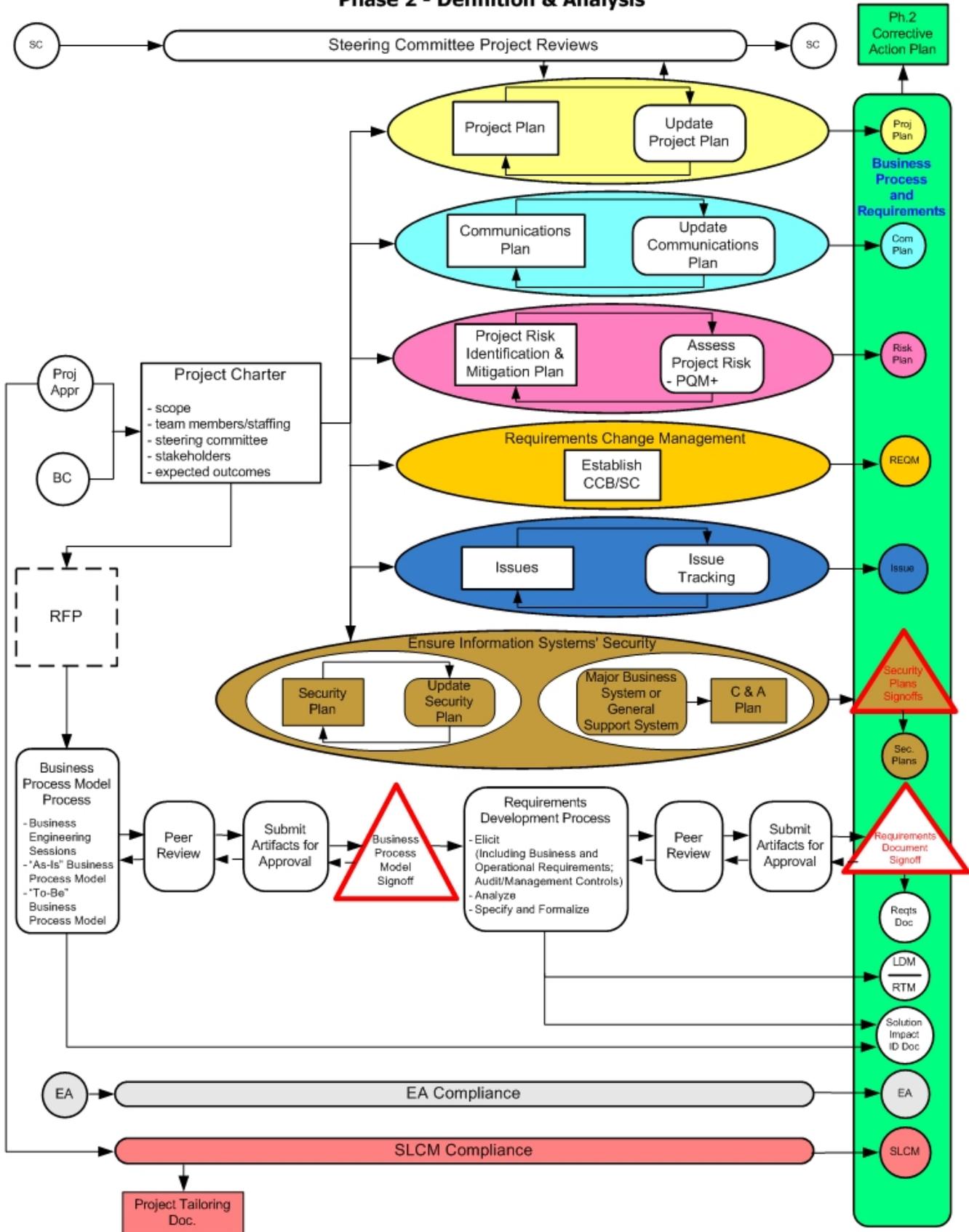
The Project Initiation phase of PBGC's SLCM takes ideas for improvement and validates them against business need and corporate values. A Business Case may be developed based on a need to fulfill a business initiative identified through corporate strategic planning or based on a recognized need to meet a technology initiative identified through Enterprise Architecture planning. Following positive assessments and ranking of a business case it may receive funding and approval to move forward into development.

Business cases are prepared and presented for proposed projects or corporate initiatives that support the agency's mission, and meet its strategic goals and objectives. The Corporation's Enterprise Architecture domains and models must be taken into consideration and satisfied for a business case to be approved. Business cases are evaluated for feasibility, viability, cost-benefit, and risk, by the Information Technology Investment Review Committee (ITIRC) for IT projects, and the Operations Integration Board (OIB) for non-IT projects, and are prioritized based on how well they satisfy Capital Planning and Investment Control criteria. Of those business cases that qualify, approval is granted based on the Corporation's budget. Approved projects may be required to prepare an OMB Exhibit 300 artifact.

The Project Initiation phase is composed of the following primary processes:

- Strategic Planning
- Enterprise Architecture (EA) Planning
- Business Case Development
- Project Approval

Phase 2 - Definition & Analysis



Definition and Analysis

(Phase 2)

Approved and funded business cases are entered into the Corporation's project portfolio tool, and assigned a PMO Program Manager or PMO designated representative. The PMO Program Manager meets with the project team to review the risk assessment, project scope, and provides SLCM tailoring/compliance guidance. A Project Tailoring Document is produced which identifies a project's required tasks for SLCM compliance. The PMO Program Manager also answers questions of framework process steps; provides basic guidance on producing artifacts that meet SLCM compliance; provides basic guidance on SLCM project management methods and measurement tools; reviews project plan, schedule, and artifacts for appropriate content and requirements traceability; evaluates and signs off on project SLCM compliance; and identifies and reports on areas of non-compliance.

In the Definition and Analysis phase of PBGC's SLCM, the primary goals are to begin project planning activities, and to develop a Business Process Model and a Requirements Document that reflect the needs of the business; and to begin the Requirements Change Management (REQM) process through the establishment of a Change Control Board (CCB)/Steering Committee (SC). Development of the Project Charter artifact kicks off this phase. The Project Charter outlines a development approach, team, assumptions, constraints, and key measurements to prove project success. Project team members and project steering committee members are identified and allocated. In addition, project management approaches and plans are defined here and actively managed (tracked and updated) throughout all other life cycle phases. These are:

- Project Planning
- Communication Planning
- Project Risk Planning
- Issue Tracking

Project security plans are initially defined here and actively managed (tracked and updated) throughout all other life cycle phases until security testing and certification is completed. The Security Plan and Certification and Accreditation Plan (for major business systems and general support systems) require review and sign-off before the project can proceed to the next life cycle phase.

Activities associated with developing the Business Process Model include reviewing the project scope against current business processes, and assessing if changes are required; reviewing, updating, and/or developing the "As-Is" and "To-Be" Business Process

Models; and obtaining sign-off. An approved Project Charter must exist prior to the completion of this step.

The artifacts produced from this activity include:

- “As-Is” Business Process Model
- “To-Be” Business Process Model
- Solution Impact Identification Document

The Requirements Development (RD) process is also completed during this phase of the SLCM. RD is the process of eliciting; analyzing; and specifying and formalizing the business, user, functional, and operational requirements. Please note that RD is an iterative process, and requirements may be identified or refined throughout a project’s lifecycle.

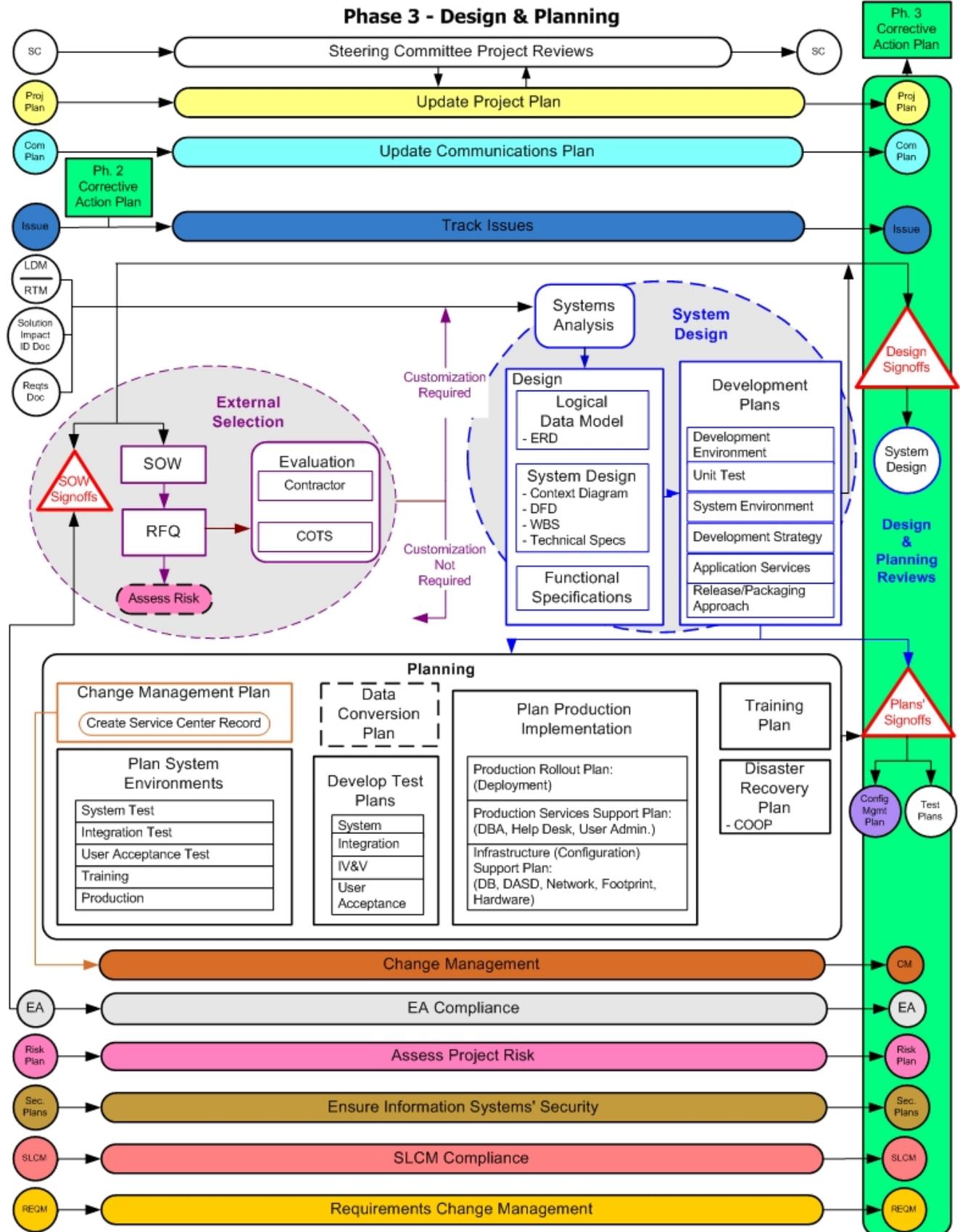
The artifacts produced from this activity include:

- Requirements Document
- Logical Data Model
- Requirements Traceability Matrix
- Solution Impact Identification Document

Two ongoing processes, Enterprise Architecture (EA) Compliance, and SLCM Compliance, occur throughout each succeeding phase. EA Compliance review occurs during the phase, and ensures the project has met Enterprise Architecture domain and modeling components. SLCM Compliance review and reporting occurs at the end of each phase, and ensures artifacts defined in the Project Tailoring Document for that particular phase are met.

A phase completion review is conducted, and any issues identified are captured in the Corrective Action Plan for the phase. The Corrective Action Plan becomes part of the Issue Tracking artifact for the project.

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Design and Planning (Phase 3)

The Design and Planning Phase of PBGC's SLCM updates artifacts from the Definition and Analysis phase; including the Project Plan, Communications Plan, Issue Tracking, Project Risk Plan, and Security Plans. EA Compliance and SLCM Compliance continue throughout this and the remaining life cycle phases. The Corrective Action Plan from the Definition and Analysis phase review is incorporated into the Issue Tracking artifact, and carried forward.

In addition to updates from the previous phase, the following processes are initiated:

- External vendor/software selection
- Requirements Change Management (REQM)
- Change Management
- Systems Design
- Development Planning
- Test Planning
- Production Rollout Planning

During the External Vendor/Software Selection, a Statement of Work is written, compared against the approved requirements and Enterprise Architecture components, reviewed and signed off, used to prepare a Request for Quotation, and a vendor or software package selected. An alternatives analysis is part of this process. A risk assessment may also be performed.

Requirements Change Management (REQM) is the process of managing changes to requirements; and establishing a change control process for accepting, rejecting, or deferring changes to approved requirements. The major activities involved in the REQM process include submitting a Change Request form, conducting an impact assessment, and implementing the change. REQM is an iterative process, and requirements may be identified or refined throughout the project lifecycle. Prior to starting these activities an approved Requirements Document must exist.

The artifacts produced from this activity include:

- Requirements Change Request
- Completed Requirement Change Impact Assessment Form
- Updated Affected Artifacts

If a commercial off-the-shelf (COTS) software package is purchased, and customization is not required, the project may proceed directly to planning. If the COTS software

requires customization, or if the system is built, the project proceeds to System Analysis and System Design. Additional artifacts produced from this phase include Systems Analysis and Design documents such as the Entity-Relationship Diagram, Context Diagram, Data Flow Diagram, Work Breakdown Structure, Functional Specifications, and Technical System Specifications; and Development Plans, such as the Development Environment, Unit Test, System Environment, Development Strategy, Application Services, and Release/Packaging Approach. Artifacts produced during Phase 2 require updating during this phase – they include the LDM, RTM, and the Solution Impact Assessment Identification Document.

During the Design and Planning phase, a change record is created, and the Change Management process is initiated. Other planning activities include the system environments, data conversion, test plans, production roll-out (including deployment steps, support services, and infrastructure support), training, and disaster recovery/continuity of operations.

Artifacts produced as part of the Planning Process may include:

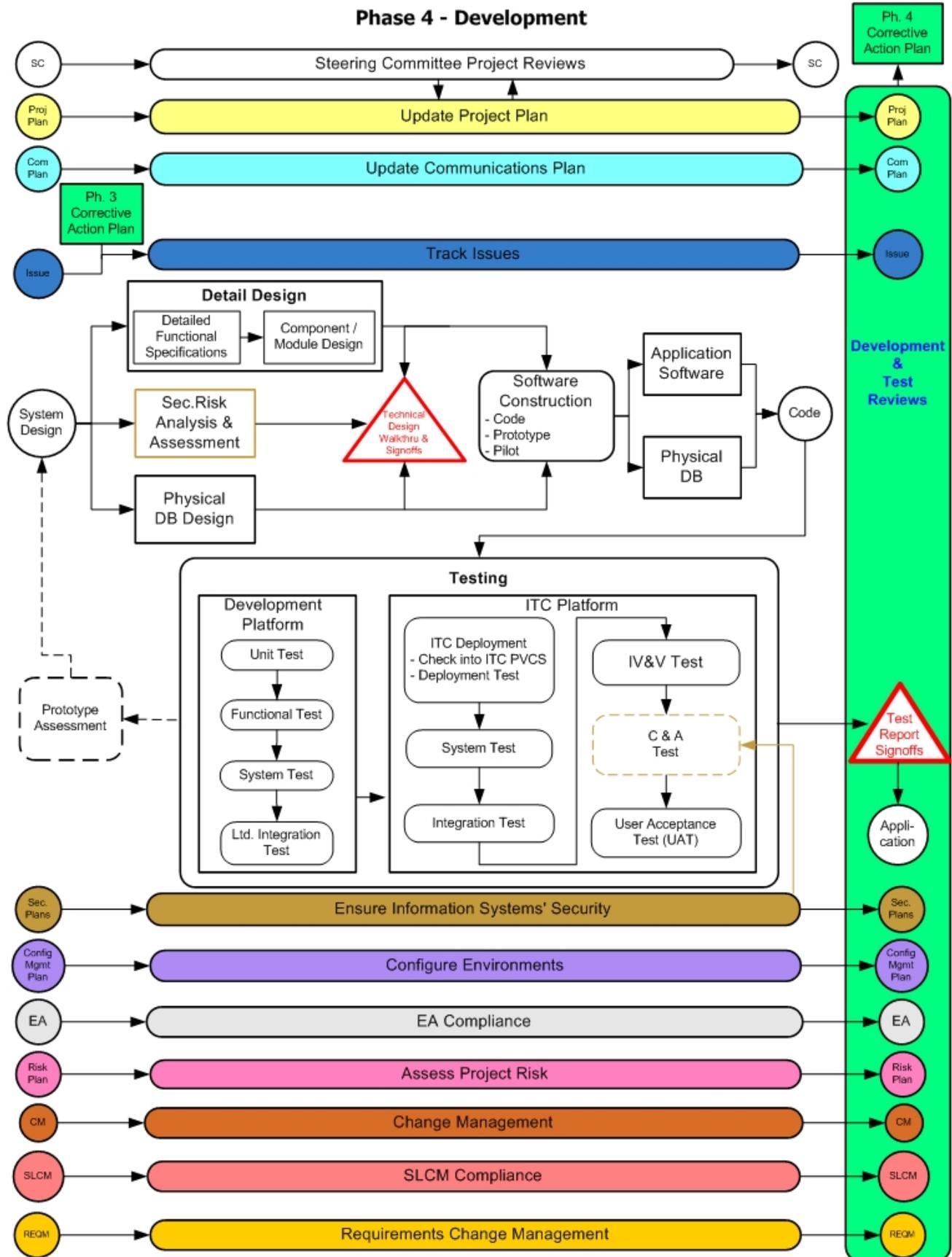
- System Environment Plans such as the Development, System, Integration, User Acceptance Test, Training, and Production Environment Plans
- Test Plans for system migration to include system, integration, Independent Verification and Validation, and User Acceptance
- Production Roll-out Plans addressing deployment steps, production support services, and infrastructure (configuration) support
- Data Conversion Plan
- Training Plan
- Configuration Management Plans
- Disaster Recovery and Continuity of Operation Plan

Those artifacts designated as key “go/no go” milestones that must be reviewed, approved, and signed off by responsible parties before the project can proceed to the next life cycle phase include:

- System Design artifacts
- Test Plans
- Training Plan
- Disaster Recovery Plan
- Production Implementation Plan

The System Design, Configuration Management Plan and Test Plans move forward to the next phase following successful review and sign-off.

Enterprise Architecture (EA) Compliance, and SLCM Compliance, continues through this phase. A phase completion review is also conducted, and any issues identified are captured in the Corrective Action Plan for this phase. The Corrective Action Plan is used to update the Issue Tracking artifact.



Development (Phase 4)

The Development Phase of PBGC's SLCM builds on the outputs from the Design and Planning Phase. This phase requires a continued effort in the following processes:

- Project Planning
- Communication Planning
- Risk Planning
- Issue Tracking
- Security Planning
- Change Management
- Configuration Management
- Requirements Change Management (REQM)

Artifacts updated from these processes may include the Project Plan, Communications Plan, Project Risk Plan, Issue Tracking, Security Plan, change record, and Configuration Management Plan. The Corrective Action Plan from the Design and Planning phase review is incorporated into the Issue Tracking artifact, and carried forward.

The REQM process may be invoked during this phase and the work products listed in Phase 3 are completed each time the REQM process is activated.

The approved System Design artifact from the Design and Planning Phase initiates the Detail Design process, including creation of detailed functional specifications, component/module design, and physical database design. A Security Risk Analysis and Assessment is completed. These artifacts receive thorough review during a Technical Design Walkthrough, and sign-off is required before the project may proceed. Once approved, software construction commences and from this, the application software code and physical database evolve. Software code proceeds to development platform testing, following the test plans created during the Design and Planning phase. Development platform testing may include unit testing, functional testing, system testing, and limited integration testing. If a prototyping model is followed, the system is assessed, and modifications to system design and detail design may be required. If they are, the artifacts are updated, and another Technical Design Walkthrough may be warranted.

- Following successful development platform testing, the system is deployed to the Integration Testing Center (ITC), where the code is checked into PVCS and a deployment test is performed. Full system testing, integration testing, and Independent Verification and Validation testing is conducted based on the test plans created during the Design and Planning Phase. For those systems

receiving Security Certification and Accreditation, an independent C&A test will take place. Finally, the User Acceptance Test is conducted, and the results from all tests reported for review and sign-off.

Artifacts produced from the Development Phase include:

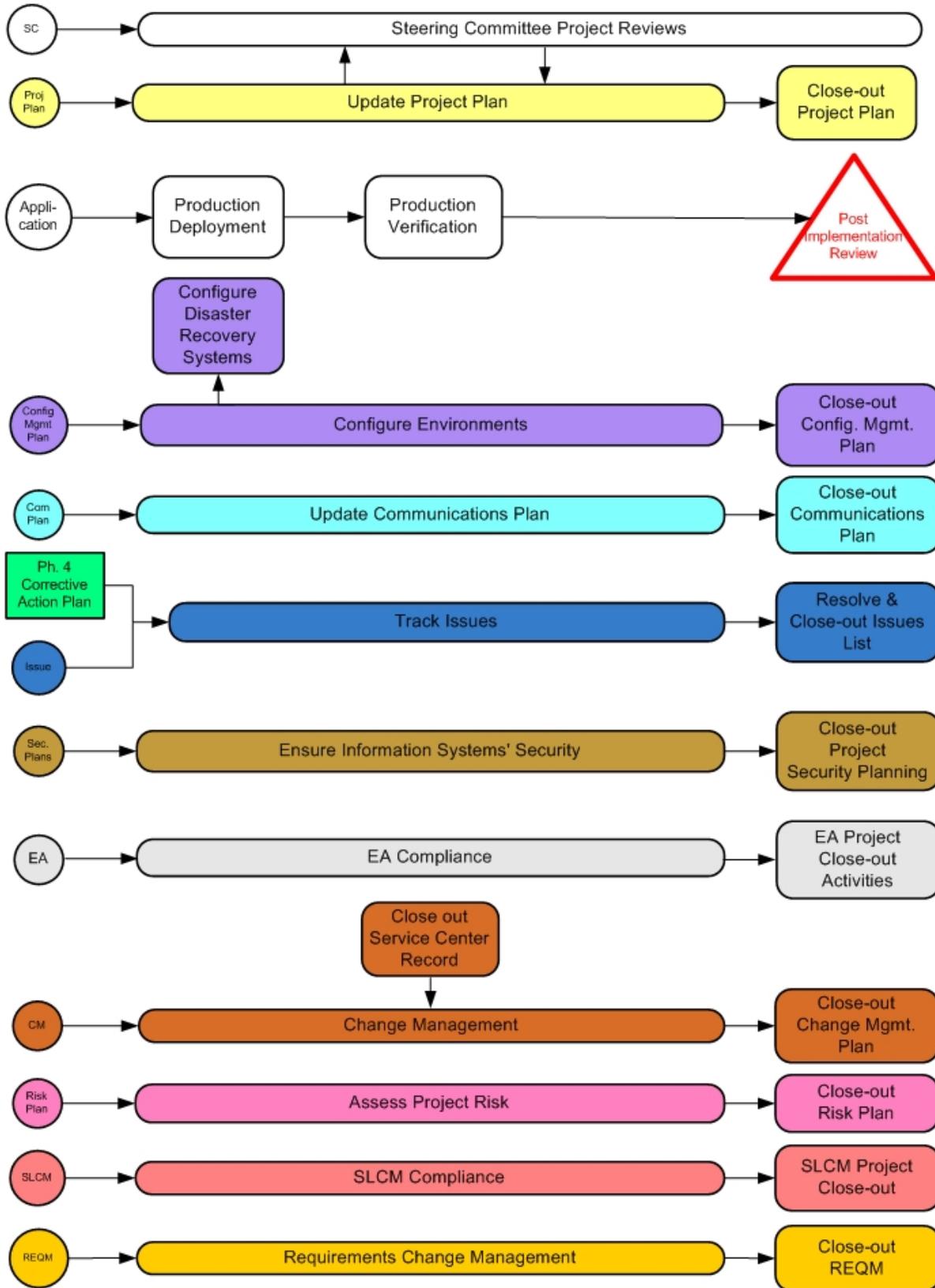
- Detailed Functional Specifications
- Component/Module Design
- Security Risk Assessment
- Physical Database Design
- Software
- Test Reports from unit, functional, system, integration, IV&V and UAT tests.

The two “go/no go” milestone decision points in this phase include Detailed System Design documents such as prototypes, physical database design, and Security Risk assessments, during the Technical Design Walkthrough and Sign-off; and all test reports during the phase completion process. These must be reviewed, approved and signed by responsible parties before a project continues to the final life cycle phase.

Enterprise Architecture (EA) Compliance, and SLCM Compliance, continues through this phase. A phase completion review is also conducted, and any issues identified are captured in the Corrective Action Plan for this phase. The Corrective Action Plan is used to update the Issue Tracking artifact.

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Phase 5 - Operations & Refinement



Operations and Refinement (Phase 5)

The Operations and Refinement Phase of PBGC's SLCM includes the following processes, following successful review and sign-off of the Technical Design and Test Reports:

- Production Deployment
- Production Verification
- Close down activities for all continued processes

Following production implementation and verification, a Post Implementation Review will be held and its results reviewed and signed by responsible parties.

The Corrective Action Plan generated during the Development phase completion review is used to update the Issue Tracking artifact.

Ongoing processes and their artifacts (in parentheses) that may require updating during this phase before being formally closed out include:

- Project Planning (Project Plan)
- Communication Planning (Communications Plan)
- Risk Planning (Project Risk Plan)
- Issue Tracking (Issue Tracking, including resolution of remaining issues)
- Security Planning (Security Plan and C&A Plan, if it applies)
- Change Management (including closing the Change Record)
- Configuration Management (Configuration Management Plan, including configuring disaster recovery systems)
- Requirements Change Management (including reviewing all Requirements Change Requests)

The REQM process may be invoked until the project has been closed and the work products listed in Phase 3 are completed each time the REQM process is activated. Upon project completion, the unresolved Requirements Change Requests are left open for the next project and are to be considered as possible requirements.

Finally, Enterprise Architecture (EA) Compliance, and SLCM Compliance, continues through this phase. A final Project Compliance Report is prepared by the PMO Program Manager and reported to the CTO and Project Manager.