Project Management Framework

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Revision History

Date	Revision	Revision Description	Section(s) Affected	Change Type
9/1/2023	000	Initial release	All	

Introduction

The establishment of the LBNL Project Management Framework is the responsibility of the LBNL Project Management Office (PMO). This responsibility is derived from the Lawrence Berkeley National Laboratory (LBNL) Project Management Policy (14.01.001.000) requiring that all LBNL Mission Critical Projects be managed to the highest standards of performance, whether they involve scientific research, facilities construction, or systems development. That policy mandates the PMO to ensure the existence and utilization of a project management Framework fostering an outcome of successful project delivery, and for the PMO to identify, establish, and ensure the utilization of appropriate methodologies, tools, processes, and templates to ensure project success.

Because no single standard can adequately define a process for project delivery that will satisfy all stakeholders, the LBNL PMO has developed this flexible project management Framework that identifies the basic project management model and approach for successful project management at LBNL. The Framework allows tailoring and grading of the approach without compromising the basic project management principles that make up the Framework. Notably, the specific requirements for successful project delivery are not captured in this document and are captured in other documents based on the criticality of the project to the LBNL mission. For example, all LBNL DOE-funded projects >$50M are required to meet the requirements specified in DOE Order 413.3B, while projects <$30M owned by the LBNL Projects and Infrastructure Modernization Division (PIMD) are required to use the PIMD Project Management Governance Framework for <$30M (Threshold 1-3) Projects. This Project Management Framework has been informed by DOE Order 413.3B and is coordinated with the PIMD PM Framework.

In addition, the LBNL PMO has developed a series of "Project Management Guides" for many of the needed elements embedded within this Framework and has also identified a portfolio of methodologies, processes, tools, and templates to assist projects and facilitate a disciplined approach to meeting the appropriate project requirements. As specified in the Project Management Policy, the PMO has the responsibility to identify, establish, and ensure the utilization of appropriate methodologies, tools, processes, and templates, in close coordination with PIMD for projects under PIMD's line of responsibility.

Applicability

This high level Framework is specifically applicable to Mission Critical Projects deemed to be under the LBNL PMO purview. The LBNL PMO defines "Mission Critical Projects" as those projects that meet at least one of the following criteria:
- Falls under requirements of DOE Order 413.3
- Total cost exceeds $50M
- Deemed of strategic importance to/by Laboratory Director, or Deputy Directors to either the Laboratory, University of California, or Agency based on:
  - Multiple funding source complexity
  - Multiple collaborating institution complexity
  - Project portfolios critical to Laboratory mission support
  - Recommendation of an ALD or Division Director

While this Framework is specifically applicable to Mission Critical Projects, the LBNL PMO has developed this Framework to be applicable and useful to all projects, regardless of budget or complexity.

Additionally, this Framework is fully coordinated with the two key project governance documents currently relevant to projects at LBNL:

1. DOE Order 413.3B "Program and Project Management for the Acquisition of Capital Assets"
2. Projects and Infrastructure Modernization Division (PIMD) Project Management Governance Framework for <$30M (Threshold 1-3) Projects

The LBNL PM Framework: The Basic Project Management Model

The LBNL Project Management Framework is based on the basic project management model that captures the five core processes that make up all projects according to the American National Standards Institute (ANSI) and Project Management Institute (PMI) Project Management Body of Knowledge (PMBOK) Guide 6th Edition, ANSI/PMI 99-001-2017:
- Initiation
- Planning
- Execution
- Monitoring and Controlling
- Closeout

Simple definitions of the basic project management processes in the Framework are:
- **Initiation -** The processes performed to propose and define a new project (or a new phase of an existing project) by defining the mission need and obtaining authorization to begin.
- **Planning -** The processes required to establish the scope of the project, refine the objectives, identify the risks, and plan the course of action required to attain the objectives that meet the mission need of the project/phase.
- **Execution -** The processes performed to accomplish the work defined in the project plan to satisfy the project specifications and meet the mission need.
- **Monitoring and Controlling -** The processes required to track, review, and regulate the progress and performance by identifying variances from the project plan; identifying areas in which changes to the plan are required so that changes can be made when necessary.
- **Closeout -** The processes performed to formalize acceptance of the project, finalize all activities, transition the project to operations, and formally close the project/phase.

By definition, the Framework is high level. It provides structure and direction, but allows for tailoring without being too detailed or rigid. Given this flexibility, the five basic processes that constitute the Framework can serve as the basis for management of all projects at LBNL, regardless of budget or complexity.

FIGURE-1 - Project Management Framework
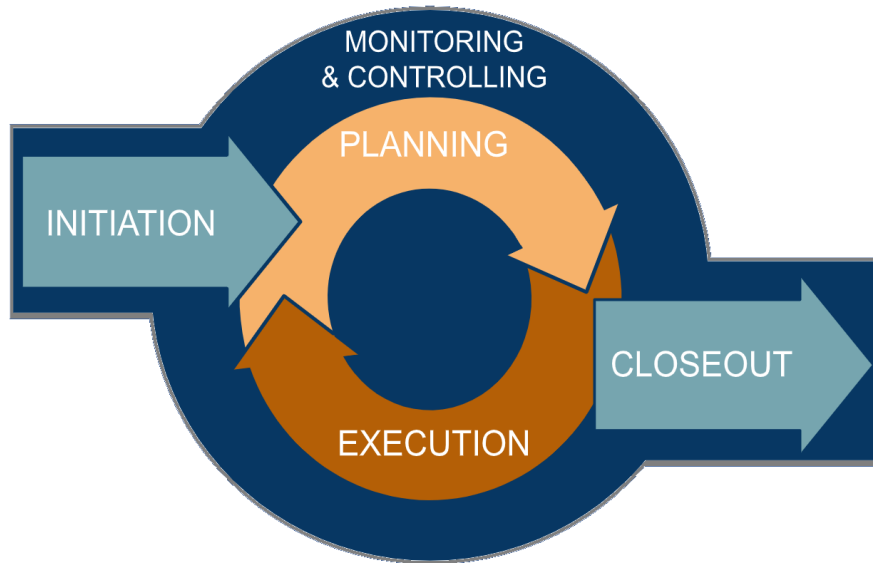
While it is tempting to align these basic processes with project phases (such as those defined by DOE Order 413.3B), it is important to emphasize that this alignment can be fluid. The actual processes within each of the 5 process groups may be repeated **within** each of the project's defined phases as shown in **FIGURE-2** below. Just as one example, it is very common for Planning processes to take place during the Execution phase of a project (like when projects need to re-plan work based on a new work approach being established).

FIGURE-2 - The Project Management Framework in Action in Various Phases

DOE Order 413.3B - Acquisition Management System Project Phases
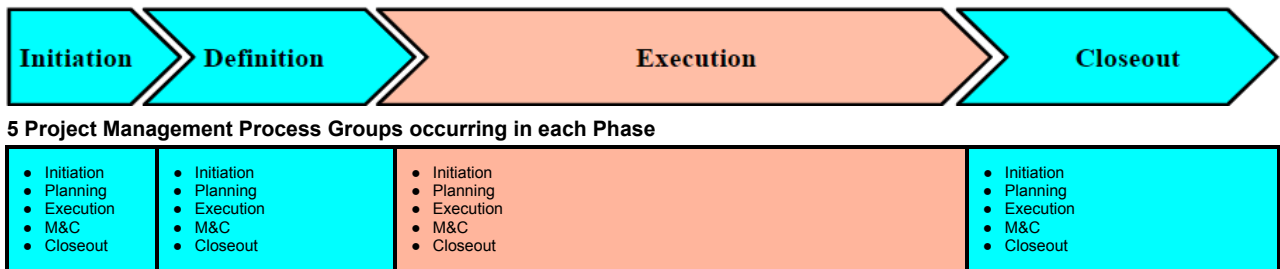
The Elements and Knowledge Areas of the PM Framework

The five basic processes that make up the Framework are in turn made up of the following elements and knowledge areas:
  - **Integration Management** - The activities to identify, define, combine, unify, and coordinate the various project activities necessary to control and execute a project through completion. Integration occurs throughout the life of the project and is in place to keep the project team and its various stakeholders focused on the same endpoint.

- ○ Some common elements can be the Project Charter, Mission Need Statement (MNS), Project Execution Plan (PEP), Project Management Plan (PMP), Configuration Management Plan (CMP), Change Control Process, and/or Transition to Operations (TTO) Plan.
- **Scope Management** - The activities required to ensure the project includes only the work required to complete the project successfully and meet the Mission Need. Scope Management creates a clear vision of what the project is so that all parties agree upon the ultimate deliverables.
  - ○ Some common elements can be the Scope Management Plan, Key Performance Parameters (KPP), the Work Breakdown Structure (WBS) and WBS Dictionary, Systems Engineering Plan, and/or Requirements Management Plan.
- **Schedule Management** - The activities required to manage the timely completion of the project. Schedule Management creates the project schedule that shows what activities must be completed and how they are interrelated.
  - ○ Some common elements can be the Schedule Baseline, Schedule Planning Process, Key Milestones, and Schedule Management Plan.
- **Cost Management** - The activities involved with planning, estimating, budgeting, financing, funding, managing, and controlling costs so the project can be completed within the approved budget.
  - ○ Some common elements can be the Cost Baseline, Cost Estimating Process, Basis of Estimate Documentation, Funding Profile, Earned Value Management (EVM), and/or the Budget Authority/Budget Obligation (BABO) Curve.
- **Quality Management** - The activities that determine the quality policies, objectives, and responsibilities so that the project will adequately meet the Mission Need.
  - ○ Some common elements can be the Quality Management Plan and/or Quality Assurance Process.
- **Resource Management** - The activities that organize, manage, and lead the project team.
  - ○ Some common elements can be the Organizational Breakdown Structure (OBS), Resource Management Plan, Project Governance (Roles and Responsibilities for Key Project Personnel), and/or Staffing Profile.
- **Communications Management** - The activities that are required to ensure timely and appropriate planning, collection, creation, distribution, storage, management, control, monitoring, and disposition of project information.
  - ○ Some common elements can be the Communications Management Plan and/or Project Reports.
- **Risk Management** - The activities required to plan, identify, analyze, respond to, and control risk.
  - ○ Some common elements can be the Risk Management Plan, Risk Register, and/or Quantitative Risk Analysis.
- **Procurement Management** - The activities required to acquire products, services, or results needed from outside the project team.
  - ○ Some common elements can be the Acquisition Strategy and/or Advanced Acquisition Plan.
- **Stakeholder Management** - The activities required to identify the people, groups, or organizations that may impact or be impacted by the project; analyze and understand
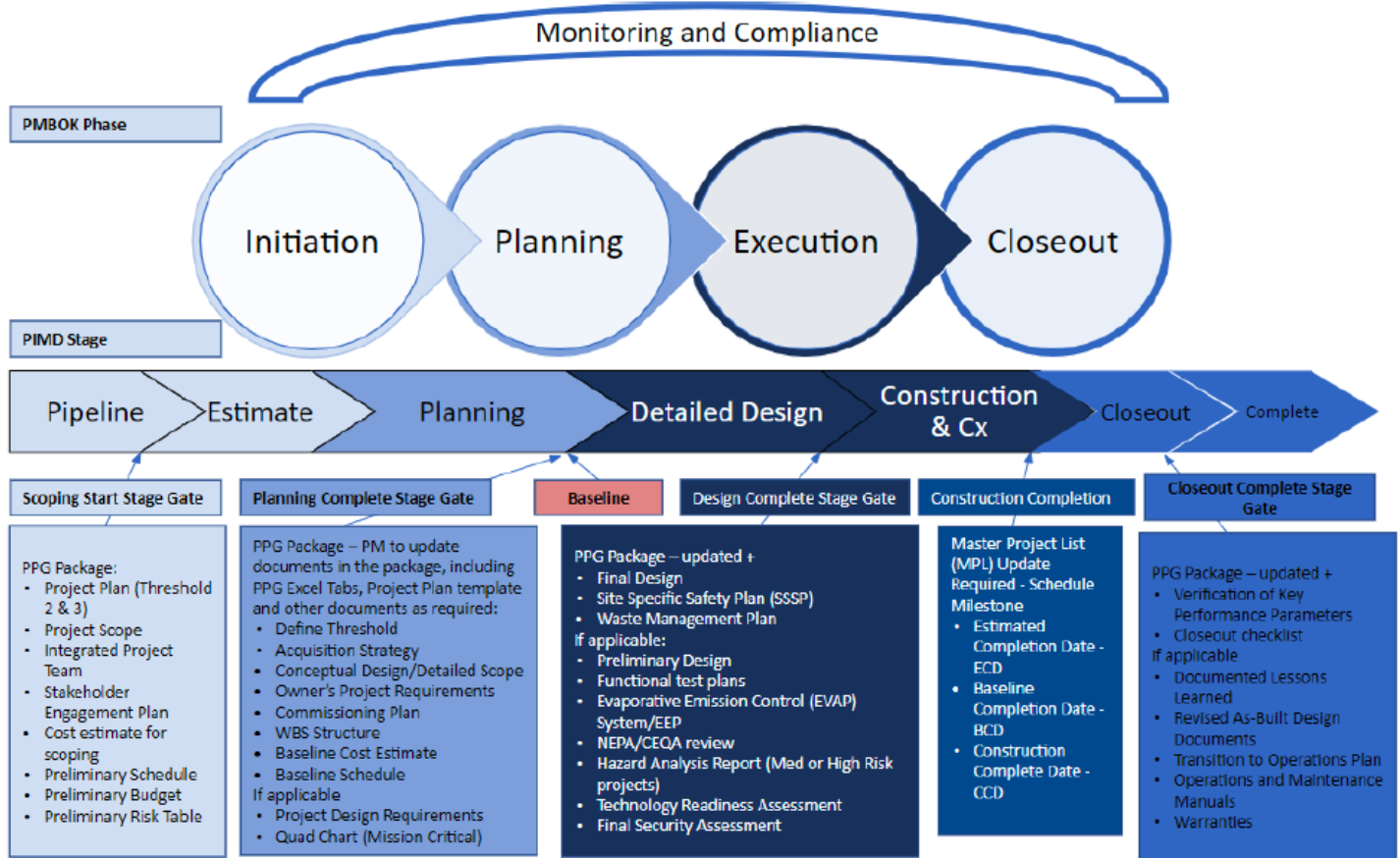
stakeholder expectations; and to develop management strategies for engaging stakeholders.

- ○ Some common elements include the Stakeholder Register, Stakeholder Engagement Plan, Project Governance Framework, Memorandum of Understanding (MOU), and/or Integrated Project Team.
- **Safety Management** - The activities required to ensure that all project work prioritizes safety, security, and environmental concerns appropriately.
  - ○ Some common elements can be the Hazard Analysis, Site Specific Safety Plan, and/or Security Assessment.
- **Climate and Sustainability Management -** The activities required to ensure that the planning, design, and construction of projects reduce environmental impacts and carbon emissions.
  - ○ Some common elements can be Leadership in Energy and Environmental Design (LEED) Gold certification, Environmental Management National Environmental Policy Act (NEPA) determination, California Environmental Quality Act (CEQA) determination, and/or Memo Documenting Compliance with DOE's Climate Adaptation, Resilience and Sustainability
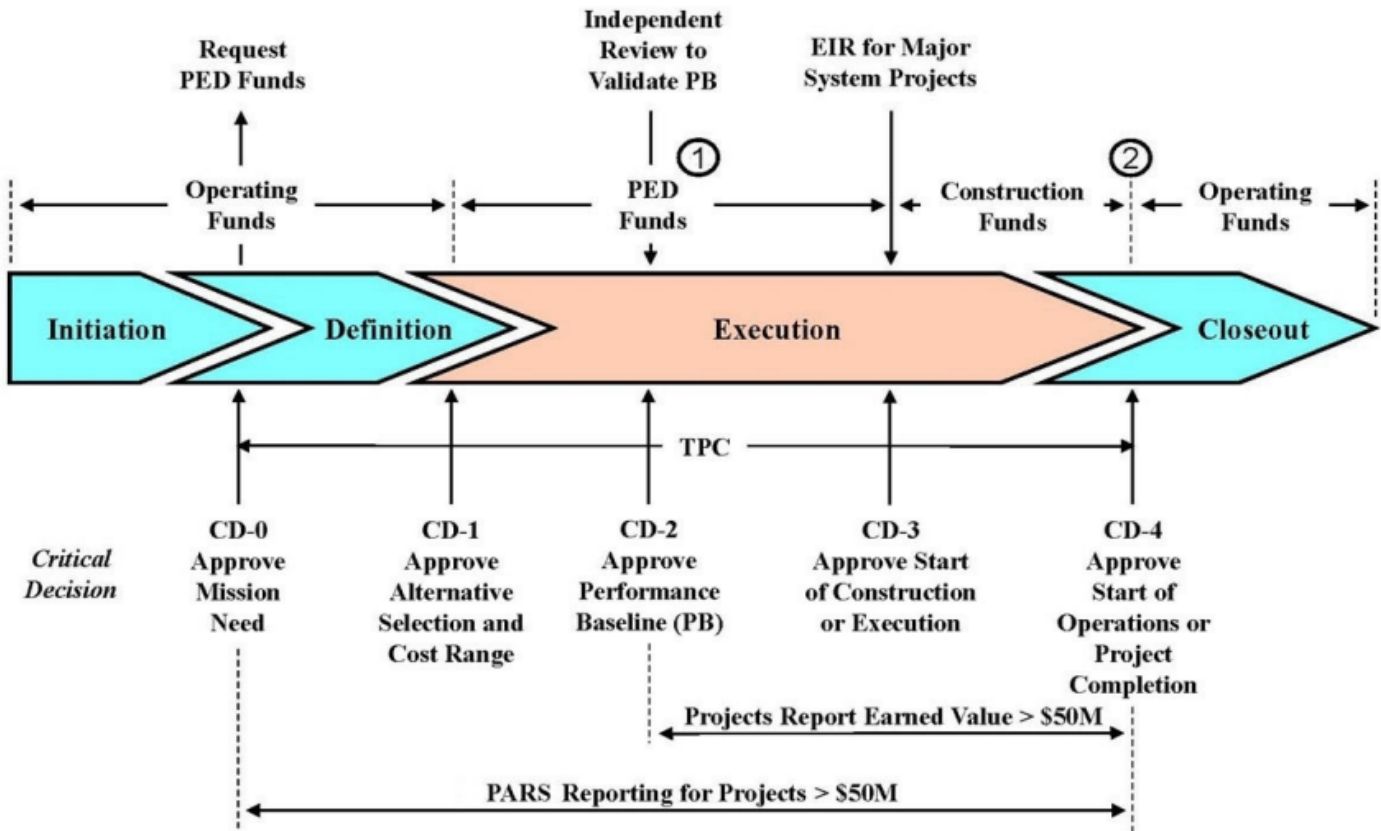
This Framework, and the associated elements and knowledge areas, define the underlying structure that all LBNL project management methodologies, processes, and templates are based on.

Appendix A - PM Framework to PIMD Governance Framework

Figure 1 - Project Phases, Stage Gates and Documentation

Monitoring and Compliance

PMBOK Phase

| Initiation | Planning | Execution | Closeout |

PIMD Stage

| Pipeline | Estimate | Planning | Detailed Design | Construction & Cx | Closeout | Complete |

Scoping Start Stage Gate

PPG Package:
- Project Plan (Threshold 2 & 3)
- Project Scope
- Integrated Project Team
- Stakeholder Engagement Plan
- Cost estimate for scoping
- Preliminary Schedule
- Preliminary Budget
- Preliminary Risk Table

Planning Complete Stage Gate

PPG Package – PM to update documents in the package, including PPG Excel Tabs, Project Plan template and other documents as required:
- Define Threshold
- Acquisition Strategy
- Conceptual Design/Detailed Scope
- Owner's Project Requirements
- Commissioning Plan
- WBS Structure
- Baseline Cost Estimate
- Baseline Schedule

If applicable
- Project Design Requirements
- Quad Chart (Mission Critical)

Baseline

Design Complete Stage Gate

PPG Package – updated +
- Final Design
- Site Specific Safety Plan (SSSP)
- Waste Management Plan

If applicable:
- Preliminary Design
- Functional test plans
- Evaporative Emission Control (EVAP) System/EEP
- NEPA/CEQA review
- Hazard Analysis Report (Med or High Risk projects)
- Technology Readiness Assessment
- Final Security Assessment

Construction Completion

Master Project List (MPL) Update Required - Schedule Milestone
- Estimated Completion Date - ECD
- Baseline Completion Date - BCD
- Construction Complete Date - CCD

Closeout Complete Stage Gate

PPG Package – updated +
- Verification of Key Performance Parameters
- Closeout checklist

If applicable
- Documented Lessons Learned
- Revised As-Built Design Documents
- Transition to Operations Plan
- Operations and Maintenance Manuals
- Warranties

Appendix B - PM Framework to DOE O 413.3B

NOTES:
1. PED funds can be used after CD-3 for design.
2. Operating Funds may be used prior to CD-4 for transition, startup, and training costs.

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