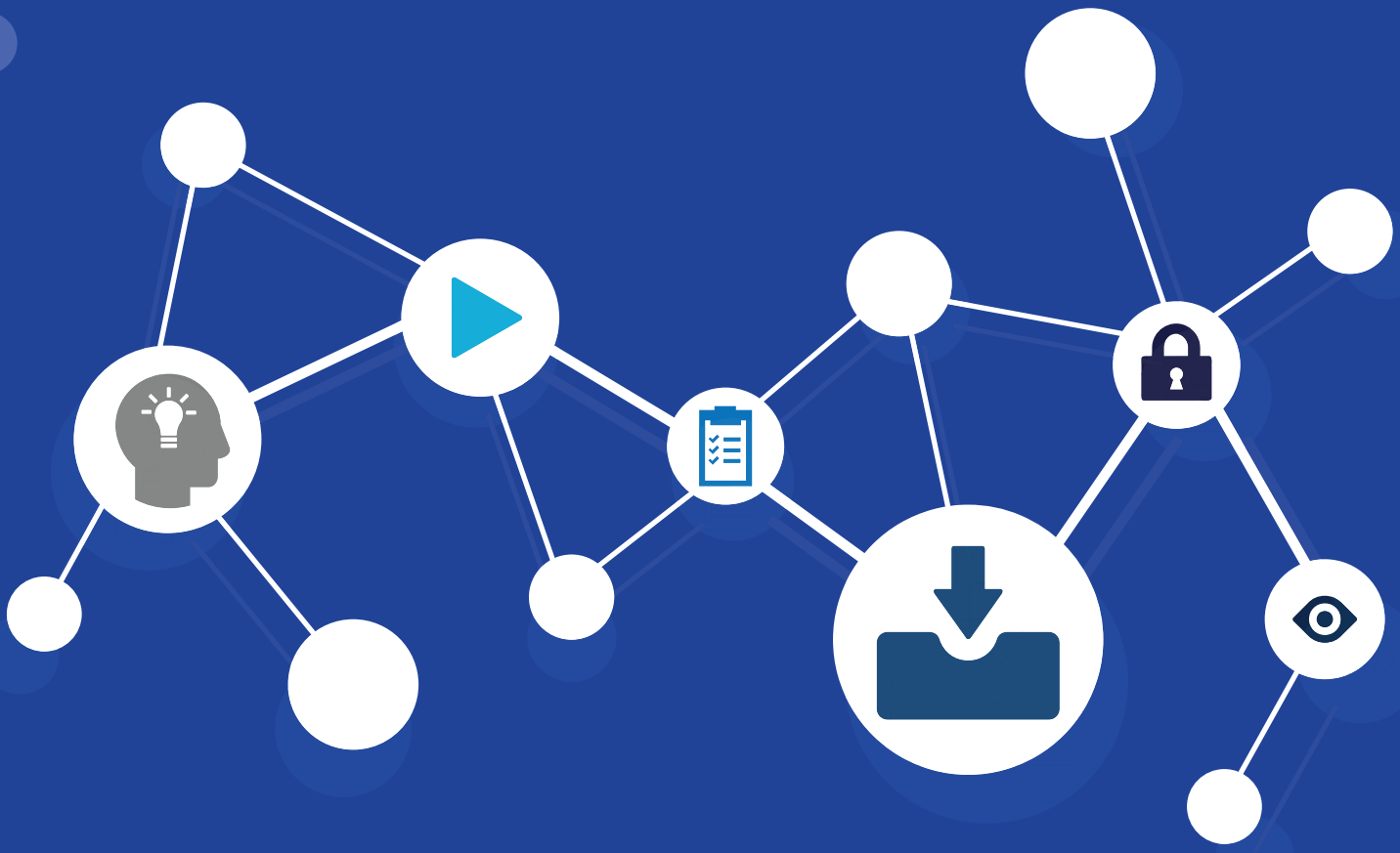
State of California



Project Management

Framework

California Department of Technology
California Project Management Office

Contents

Overview

3 Overview of the CA-PMF
9 Document Structure and Convention Guide
16 Discussion of Lifecycles

Templates

3 Approach
6 CA-PMF Templates
13 Additional Templates
14 Recommended Use

Contents

Concept

3 Approach
16 Process Phase Checklist

Initiating

3 Approach
23 Project Charter
32 Stakeholder Register
38 RACI Matrix
42 Process Phase Checklist

Contents

Planning

4 Approach
33 Complexity Assessment
36 Project Management Plan (PMP)
40 Plans Subordinate to the PMP
182 Process Phase Checklist

Executing

3 Approach
27 Deliverable Expectation Documents
31 Surveys
34 Process Phase Checklist

Contents

Closing

3 Approach
14 Lessons Learned
19 Process Phase Checklist

Additional Resources

3 Approach
24 Framework Resources
122 Framework References
125 Glossary

Version History

Document history and version control is used to record detail of minor and major changes to the California Project Management Framework (CA-PMF).

Version #	Date	Author	Changes
1.0	5.02.2016	CDT	Initial Publication
1.1	5.13.2016	CDT	Minor Edits
1.2	6.24.2016	CDT	Minor Edits
2.0	7.18.2017	CDT	Updated content to incorporate user centered best practices, updated PAL information, updated PMLC reference to Organizational Change Management (OCM) and Business Process Reengineering (BPR), and minor edits.
2.1	4.15.2018	CDT	Updated content to incorporate A Guide to the Project Management Body of Knowledge (PMBOK Guide) 6th edition, updated PAL information, and minor edits.

Overview

This chapter provides an overview of the California Project Management Framework, its purpose and use, and how it will help you with your projects.

In this chapter...

1

Overview of the CA-PMF

Page 3

1.1 Purpose and Use of the Framework
1.2 Varying Project Sizes and Complexity
1.3 The Value of the CA-PMF
1.4 A Thoughtful Approach to Project Management

2

Document Structure and Convention Guide

Page 9

2.1 Colors and Icon Conventions
2.2 Chapters
2.3 Key Navigation Elements
2.4 Call-Out Boxes

3

Discussion of Lifecycles

Page 16

3.1 Project Management Lifecycle (PMLC)
3.2 System Development Lifecycle (SDLC)
3.3 Project Approval Lifecycle (PAL)
3.4 Relationship Between Lifecycles

Overview of the CA-PMF

The California Project Management Office (CA-PMO) has designed the California Project Management Framework (Framework or CA-PMF) to provide California organizations with a solid foundation for project success. This new Framework replaces the project management guidance and tools that were previously included in the California Project Management Methodology (CA-PMM).

The CA-PMF offers guidance and insight on project management methods and approach (through the use of resources, tools, and templates), as well as narratives detailing the justifications for why specific activities should be performed. Icons, colors, and other graphic elements throughout the Framework are intended to promote ease of use.

1.1 Purpose and Use of the Framework

The CA-PMF is a practical and useful guide to lead a Project Manager and team through the Project Management Lifecycle (PMLC) for projects of all sizes, so that they achieve expected outcomes and thereby project success. The Framework focuses on Information Technology (IT) projects, but it can be used by project teams for other types of projects as well.

The Framework highlights important project management priorities. It offers recommended practices and lessons learned regarding method and approach (through the use of resources, tools, and templates). The Framework supports project management practices that conform to industry standards as defined by the Project Management Institute (PMI) and adapted to the context of California State government. For deep dives into a particular project management discipline discussed in the CA-PMF, refer to PMI's A Guide to the Project Management Body of Knowledge (PMBOK Guide).

The intended audience for the Framework is Project Managers and project team practitioners who are responsible for directly performing or overseeing project management processes and activities, however, the CA-PMF also contains useful information for Project Sponsors, project participants, and Stakeholders regarding the effective and efficient management of projects. The guidance and

advice contained in the Framework emphasizes the importance of people skills, good judgment, and effective communications in the successful delivery of projects. These are critically important and relevant to all project Stakeholders.

The Framework includes all major project processes and activities, from initial project definition to project closing. This will equip the Project Manager with the tools necessary to consider the needs of the project and how its organization can be structured and managed to deliver the intended result.

The Framework also provides models for the management tools and plans used to document and manage the project. Project management practitioners are encouraged to leverage the tools and templates by modifying them for the needs of their respective projects. Each plan describes some aspect of how the project team conducts its work. This includes how to control the operation of the project team, assess project progress, and evaluate the quality of products created by the project.

The CA-PMF aligns with state policy, identifies the connections to the project oversight and project approval processes, and directs practitioners to the appropriate resources for further information on those processes.

A key objective of the CA-PMO is to keep the Framework relevant over time by updating it with additional guidance and tools as they become available for the state's project management community to leverage in future projects. This is one of the reasons that the CA-PMF included templates under the broader term "tools"; because although many of the CA-PMF tools are currently templates, a range of different kinds of tools will be added to the CA-PMF toolset over time. This objective also highlights the importance of state Project Managers and teams having easily available and current reference material for project management.

1.2 Varying Project Sizes and Complexity

Information technology projects vary in size, type, and complexity. Sponsoring organizations embark on projects with varying levels of project skills, experience and process maturity. A project may impact a small number of Stakeholders, or it can affect the lives of millions.

No matter what a project's size or complexity, the project management objective to work through each project management discipline is consistent. For example, not every project needs a stand-alone governance plan. As long as the Project Manager includes a clear description of how decisions will be made in the Project

Management Plan (PMP), the project management objective of documenting a governance process is met. The Project Manager and project team should address all of the industry standard project management disciplines, but at the same time adjust the level of complexity and rigor to match the needs of the individual project. The CA-PMF framework provides guidance and adaptability for what is required relative to each project management discipline.

The Framework focuses on a product development and service delivery approach that follows a traditional waterfall methodology, which is presently the predominant methodology used by the state for projects. However, the use of an iterative or adaptive lifecycle strategy, such as Agile development, still requires the Project Manager and the project team to work through the project management disciplines and determine how the processes should be adapted to the needs of the development approach. To help with this adaptation, the CA-PMF includes guidance on what types of projects are suited for an Agile delivery approach, how to assess the readiness of organizations for an Agile delivery effort, and recommended practices related to Agile. An ongoing development effort will provide guidance for how the Framework elements can be adapted for efforts that use an Agile delivery approach.

1.3 The Value of the CA-PMF

As projects vary, so does the training and experience of Project Managers. However, regardless of the Project Manager or project team experience, the Framework is intended to offer an opportunity for the state's project management community to strive for a level of efficiency and consistency in the way projects are managed.

The Framework provides a number of benefits, including:

1. A project management "how-to" guide for Project Managers and project teams across a range of experience levels, using practical language that is easy to understand and use.

2. A project management framework, nomenclature, and toolset with templates, examples, and instructions that are flexible to account for differences in project needs, but are structured to be consistently applicable across a wide range of project types, sizes, and complexities.

3. Guidance that is compliant with current project management standards and policies, and is based on industry best practice and lessons learned.

4. A statewide project management perspective that addresses the relationships between high level project activities, the project approval process, procurement activities, and system development activities.

1.4 A Thoughtful Approach to Project Management

The Framework is a standards-based guide that includes all of the key elements a Project Manager needs to consider for success. However, he or she must adjust their use of the Framework to the specific conditions and needs of each project undertaken. This is why the soft skills and good judgment of the Project Sponsor, Project Manager, and project team members are key ingredients for successful project management. Good project management consists of equal parts science, good judgment, and people skills, including effective communication, as indicated in Figure 1-1.

The Framework provides much of the science of project management in the form of a sound process for project teams to follow. It offers a set of useful tools and techniques to provide a structured, disciplined, and repeatable approach to project management based on industry standards and best practices. These components provide the foundation for project success. However, project management is more than building a schedule, assigning tasks, and monitoring progress. Project management is about communicating effectively with Stakeholders, finding solutions within given constraints, continuously improving, and adding value to the organization and users by addressing the needs of the business.

Proper use of the CA-PMF tools and techniques will help make success more likely. However, the ultimate success of a project depends on the experience, skills, and sound judgment of the Project Manager, project team, and the Project Sponsor, as they are responsible for ensuring that the work is completed and all project pieces come together as planned. Since delivering project outcomes is usually a team effort, people skills and effective communication are key inputs for success. In any project, the unexpected will happen and risks will become issues. Success comes to those who exercise good judgment as they anticipate and plan for these possibilities, deal with issues as they arise, and work effectively as a cohesive team.

Every project team consists of a group of people enlisted to work together towards a common goal. In managing any project team, the Project Manager has to communicate a clear vision and a plan for the work. He or she also needs to ensure that the work is progressing as scheduled and that the plan is adapted to new and changing information. The Project Manager should diligently develop a collaborative relationship with all Stakeholders that stresses objectivity, balance, and support. The objective is to provide focus, daily management, and proactive communication to help ensure the success of the project.

Sound Process

A project management framework offers project teams a uniform set of supportive processes, tools, and techniques for achieving valued project results.

Good Judgment

Positive project results depend on good judgment by project leadership as the project team navigates project risks and complexities.

People Skills

Project teams consist of groups of people enlisted to work together towards a common project goal. A Project Manager's people skills are essential to guiding project teams to successful outcomes.

Effective Communication

Proficient project team management relies on effective communication from the Project Manager, as he or she enlists action by conveying the project's strategic, operational and tactical elements, and promotes progress and accomplishment.

Figure 1-1

1.4.1 Incorporating a User-Centered Approach

Successful projects traditionally have been judged on whether they deliver the planned scope (everything the project promised to do), are on time, and stay on budget. But scope, time and budget aren't the only way to judge the success of a project. For example, scope, time and budget do not measure whether a completed project successfully makes a task simpler, clearer, and faster for a user.

Because of this, successful private and public sector projects now prioritize making sure that the needs of users are understood and met. This shifts the focus of project delivery from merely meeting a pre-determined set of requirements, to delivering technology that helps people get their jobs done more simply, effectively, and quickly.

Considering and meeting user needs increases the likelihood that the project will achieve its objectives. New techniques and practices have been added to the traditional project management processes described in the CA-PMF to help project teams better understand and meet user needs throughout the project management lifecycle (PMLC).

Gathering requirements is often an upfront project activity that involves many users and collecting and sorting a lot of feedback in a short period of time. Projects can be more successful by regularly and frequently talking with users about their requirements throughout the project. This is also known as ongoing user research. This approach allows for requirements that are gathered at the start of the process to become better understood and refined over time as the team works with users to better understand and deliver those user requirements. An evolving understanding of what users need means more time can be spent on ensuring that what is being developed will work for them.

Keeping user needs in the forefront also should significantly improve how project decisions are made. Understanding user needs provides context and direction to the various options presented during a project. Decisions can then be made based upon data about what will deliver the most value to users.

Another feature of a user-centered approach is to deliver working products as fast as possible. Doing so requires the project team to use the idea of incremental or modular delivery that focuses on taking the project's overall scope and breaking it into smaller pieces, or modules. Each module will deliver functionality in a periodic or continuous manner, prioritized by what provides the highest value to the user. This approach reduces the time between project start and when users have value in hand, in contrast to the "Big Bang" approach where all functionality is provided at the end.

Through this user-centered and continuous approach to delivery, project teams have more frequent opportunities to learn and improve from module to module and release to release.

Note: A blue bar in the margin has been added to version 2.0 of the CA-PMF that denotes newly incorporated user-centered concepts.

Document Structure and Convention Guide

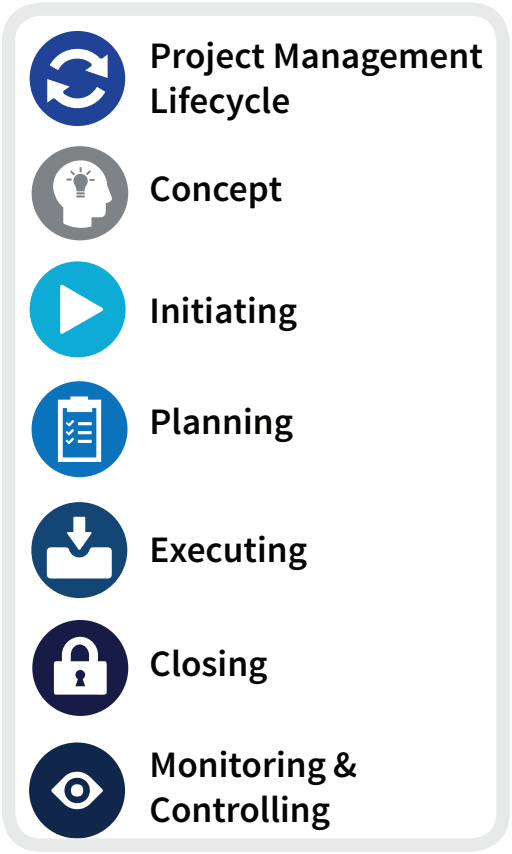
This section of the Framework describes its structure and the conventions used to present information. Graphic elements, including icons, strategic use of color, and call-out boxes, are used to clearly communicate practical project management concepts, as well as engage the reader's attention and improve information retention. The structure of the CA-PMF also organizes information into digestible portions through the use of chapters, lifecycles, and key navigation elements to guide the reader through the document.

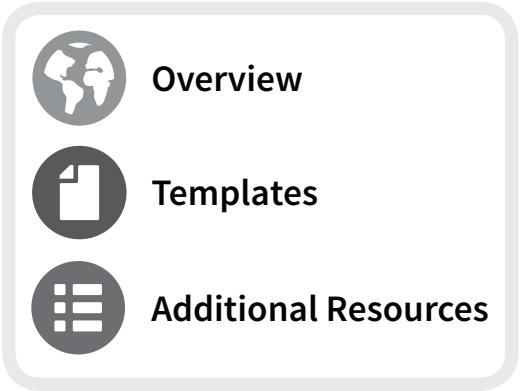
2.1 Colors and Icon Conventions

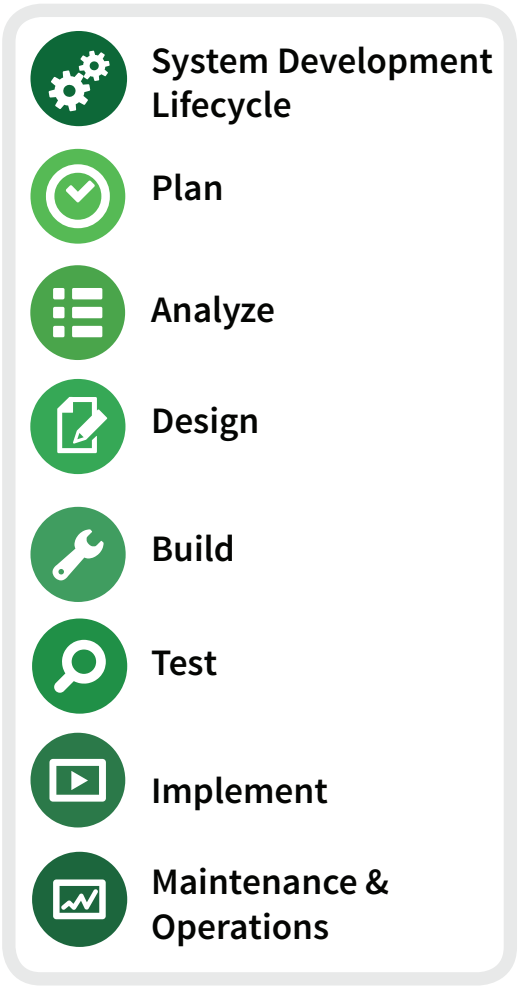
Each chapter of the CA-PMF is identified with a specific color and distinct icon. Those chapters that correspond to process phases of the PMLC follow the color used to denote the process phase. These chapter colors and icons are presented at the beginning of each chapter and then continue throughout each page of the chapter, as a bold visual reference within the page header. The color gray is used for this first process phase of the PMLC and is distinct from its blue-colored counterparts to indicate that these Concept Process Phase activities take place before the formal PMLC defined by PMBOK.

Additional icons and colors are employed to distinguish between each of the other lifecycles referenced within the CA-PMF. The methodical use of color is designed to help project managers more quickly and easily navigate the CA-PMF document.

Icons used throughout this framework are shown by grouping for your reference:







Recommended Practices

Roles

Processes

Activities

Tools

Outputs

Inputs

Skills

Project Approval Lifecycle

Stage 1

Stage 2

Stage 3

Stage 4

2.2 Chapters

The CA-PMF is comprised of eight chapters. The use of chapters is intended to group content into logical domains, helping make the information easily accessible as you navigate the document. The eight chapters of the CA-PMF include:

Overview

This introductory chapter provides an introduction to the CA-PMF, its purpose and use, and how it can help you with your projects. It shows how the Framework is structured with specific icons and colors for ease of navigation. It also offers a high-level overview of the lifecycles that are part of the Framework.

Templates

This chapter contains information about the collection of templates that are available as part of the CA-PMF to help a project team complete a project. Two versions of templates are available. They are, “templates with instructions,” which provide guidance and sample text, and “template shells,” which can be used by those who don’t require/desire much instruction or are more experienced project teams or team members.

Concept

This chapter guides project teams through the development of a strong business case. This chapter also provides an overview of the other activities that should take place before formally initiating a project.

Initiating

This chapter provides guidance and tools to ensure that project staff, the business organization, and external Stakeholders understand what is being undertaken, what to expect as the project takes shape, and what are each group’s roles and responsibilities to promote project success. At this time methods are established for monitoring and controlling the project.

Planning

This chapter helps guide completion of essential project planning. It demonstrates how to estimate and establish the scope of work, define and refine the project objectives, and develop the course of actions to attain those objectives. At this point in the Project Management Lifecycle (PMLC) the project team will begin creating project documents that identify all of the processes and activities necessary to successfully deliver the expected project outcomes.

Executing

This chapter describes the implementation of the project documentation that was developed earlier in the project. The team focuses on the production and quality of team deliverables, and ensures that the work is completed with the right level of discipline and rigor to reduce project risks and meet quality standards.

Closing

This chapter provides guidance for accepting and transferring the product to the support organization, or suspending or canceling the project. The team assesses the project to develop lessons learned and recommended practices to be applied to future projects.

Additional Resources

This chapter provides resources to support the Framework and ties into other California Department of Technology (CDT) processes or project management lifecycles. This chapter also contains links to information about traditional System Development Lifecycle (SDLC) and Agile delivery approaches.

2.3 Key Navigation Elements

The CA-PMF contains six categories of information to help Project Managers navigate the PMLC. The categories include:

Recommended Practices
Techniques or methods that, through experience and research, are proven to reliably achieve a desired result.

Roles
Responsibilities for project Stakeholders, including a list of key roles associated with the process phase activities.

Processes
Steps or procedures for the project team to follow.

Activities
Actions or activities for project team to undertake.

Tools
Templates or other resources to help create project outputs. Templates are documents that have been pre-developed for use on your project. There are two styles of templates: those that contain instructions and those that are just the template shells.

Outputs
Work products that are developed.

The Process graphics included in the CA-PMF reference the following two additional categories of information:

Inputs
Information and documents that feed into a process.

Skills
Special or unique human expertise that should be applied to achieve a successful project outcome.

2.4 Call-Out Boxes

Throughout the Framework, "call-out" boxes are used to bring attention to information that further supports the narrative guidance. These graphics have been integrated into the document to highlight useful information at a glance. Examples of how call-out boxes are used include:

- Categories within each phase of the Project Management Lifecycle (navigation elements: recommended practices to consider, roles involved, processes to follow, activities to undertake, tools available for assistance, and outputs to create)
- Skills that are helpful for a particular process
- Website links or other references for additional information
- Guidance on when to use a tool based on project complexity
- Quotes and tips that are called-out for greater emphasis
- Recommended practices that promote a user-centered approach

Discussion of Lifecycles

The CA-PMF PMLC is a model for managing all activities associated with a project from inception to completion. During the delivery of IT projects, the PMLC and the System Development Lifecycle (SDLC) are tightly integrated and must be simultaneously managed. The successful management of each lifecycle can greatly affect the other, and both directly determine the level of success of the overall project. Additionally, California has adopted the Project Approval Lifecycle (PAL) to improve the quality, value, and likelihood of success for technology projects undertaken by the State of California. The PAL is intended to ensure projects are undertaken with clear business objectives, accurate costs, and realistic schedules.

While the CA-PMF describes interactions with state policy, PAL, and SDLC, it does not focus on these interactions. Rather, the CA-PMF focuses on providing actionable guidance related to the PMLC, and linking project teams to existing state policy, PAL, and SDLC resources.

For More Info...

See the Additional Resources chapter for how the CA-PMF relates to other lifecycles and processes.

3.1 Project Management Lifecycle (PMLC)

The PMLC refers to a series of activities that are necessary to fulfill project goals or objectives. Projects vary in size, complexity, and type, but all projects can be mapped to the PMLC structure no matter how large or small. It is designed to be flexible, allowing it to accommodate projects that vary in size and complexity as well as the project team's experience. This takes into account that the range of activities a project team should undertake to successfully deliver a project will vary from project to project.

As shown in Figure 3-1, the purpose of following a PMLC is to create a repeatable process for managing projects that delivers significant value to the business and supports the organization's strategic goals and objectives. Within the PMLC, there are iterative groups of processes that a project team navigates to complete the project. The CA-PMF refers to PMBOK's process groups as process phases. The five CA-PMF process phases include: Concept, Initiating, Planning, Executing, and Closing. Monitoring and Controlling is also referenced as a collection of processes that occur throughout the project to maintain quality.

Figure 3-1

Project Management Lifecycle

The PMLC is a series of phases to ensure management and control over a project. During each phase, processes, activities, and tools are used to fulfill project goals or objectives. The PMLC is designed to accommodate projects that vary in size and complexity.

Process Phases in the Project Management Lifecycle

Concept

The Concept Process Phase encourages smart thinking, an open mind, and thoughtful work done prior to formally initiating a project. Long-term project success requires a healthy dose of optimism and a "can do" attitude, combined with the ability to confront challenges that present themselves during the course of a project.

Initiating

Identification and establishment of expected project objectives, roles and outcomes. The Initiating Process Phase shows how creating a good foundation leads towards project success. The project staff, business organization, and external Stakeholders must understand what is being undertaken, what to expect as the project takes shape, and what are each group's roles and responsibilities. In this process phase, the project is formally initiated through the completion of the Project Charter.

Planning

Organization, preparation, definition, and refinement of how objectives and outcomes will be achieved. The Planning Process Phase helps guide successful completion of essential project planning. Here, you will estimate and establish the scope of work, define and refine the project objectives, develop the course of actions to attain those objectives, and establish methods for managing and controlling the project.

Executing

Products and results designed and produced to deliver expected project outcomes. In the Executing Process Phase, the project team will be guided to execute tasks and generate deliverables described in the project documentation. The team is guided to pay particular attention to the production and quality of team deliverables, and to ensure that work is completed with the right level of discipline and rigor to reduce project risk and meet quality standards.

Closing

Evaluation and conclusion of project outcomes and activities. In the Closing Process Phase, the product is accepted and transferred to the support organization, or a decision has been made to suspend or cancel the project. This phase also provides the opportunity to assess the project and develop lessons learned and recommended practices to be applied to future projects. The completion of all Closing Process Phase activities signifies the formal ending of all project work.

Monitoring and Controlling occurs throughout multiple process phases to ensure that project tasks are continuously reviewed.

Monitoring & Controlling

The Monitoring and Controlling processes include all the tasks and metrics necessary to ensure that the approved project proceeds with minimal risk and is within scope, on time, and on budget. These processes involve comparing actual performance with planned performance and taking corrective action to yield the desired outcome when significant differences exist. The Monitoring and Controlling processes are continuously performed throughout the life of the project and are incorporated into the five PMLC process phases.

3.2 System Development Lifecycle (SDLC)

The SDLC, also referred to as the Application Development Lifecycle (ADLC), is a term used in systems engineering and information systems. It describes a process of clearly defined and distinct work phases used for planning, creating, testing, and deploying a high-quality application or information system.

System Development Lifecycle

This is a model used in project management that describes the stages involved in an information system development. The purpose is to meet user requirements in support of business strategic goals and objectives.

System Development Lifecycle Phases

Plan

Establish an initial view of the intended project and determine its goals. Plan the basic approach for the project and conduct a feasibility study.

Analyze

Refine the project goals identified in the planning phase and develop defined functions and specific requirements for the product.

Design

System and software designs are prepared based on the requirements gathered. Design documentation will be used in support of the build phase.

Build

The product is developed based on the system and software design specifications. Design documentation is updated as necessary based on the product as-built.

Test

The product is tested to validate that it functions as expected and that the requirements are satisfied. Product defects are reported, tracked, fixed, and re-tested until the product reaches the defined quality standards.

Implement

The product is delivered or deployed, and the system becomes operational and available to the end users.

Maintenance & Operations

Changes or updates to the product after it has been delivered or deployed are undertaken, and support is provided to the end user population.

3.3 Project Approval Lifecycle (PAL)

The State of California has a business need to improve the quality, value and likelihood of success for the State's technology projects. The PAL was created to serve this purpose.

Tools

For a complete list of all project Tools and a link to associated PAL templates see the Templates chapter.

Project Approval Lifecycle

California has adopted the PAL to improve the quality, value, and likelihood of success for technology projects undertaken by the State of California. The PAL is intended to ensure projects are undertaken with clear business objectives, accurate costs, and realistic schedules. The PAL includes various stages separated by gates that are specifically tailored for IT projects.

Project Approval Lifecycle Stages

1 Stage 1: Business Analysis

Provides a basis for project management, program management, executive management, and state-level control agencies to understand and agree on business problems or opportunities and the objectives to address them.

2 Stage 2: Alternatives Analysis

Provides a basis for how the proposal's business objectives will be achieved, the evaluation of multiple alternative solutions, determination of which alternative will yield the highest probability of meeting the business objectives, and development of an acquisition strategy/plan for procuring services, if needed.

3 Stage 3: Solution Development

Provides confirmation of the solution requirements needed to achieve the business objectives and development of the Request for Proposal (RFP) for the acquisition of services, if needed.

4 Stage 4: Project Readiness and Approval

Provides confirmation of project scope, resources (internal and external), and cost in support of requesting funding and project readiness to proceed with implementation.

3.4 Relationship Between Lifecycles

Figure 3-2 displays the relationship between the PMLC, OCM and BPR lifecycles, PAL, and the SDLC. Note that while OCM and BPR show their corresponding knowledge areas, there position within the graphic does not accurately portray when each knowledge area is to be conducted. Detailed guidance related to OCM and BPR is available for practitioners. The PAL and the SDLC are broken down into their respective phases/stages and overlaid on the PMLC process phases to show how they intersect. Crosswalks that describe the relationships between the PAL and SDLC in more detail can be found in the Additional Resources chapter.

For More Info...

See the Additional Resources chapter for information on how these lifecycles relate.

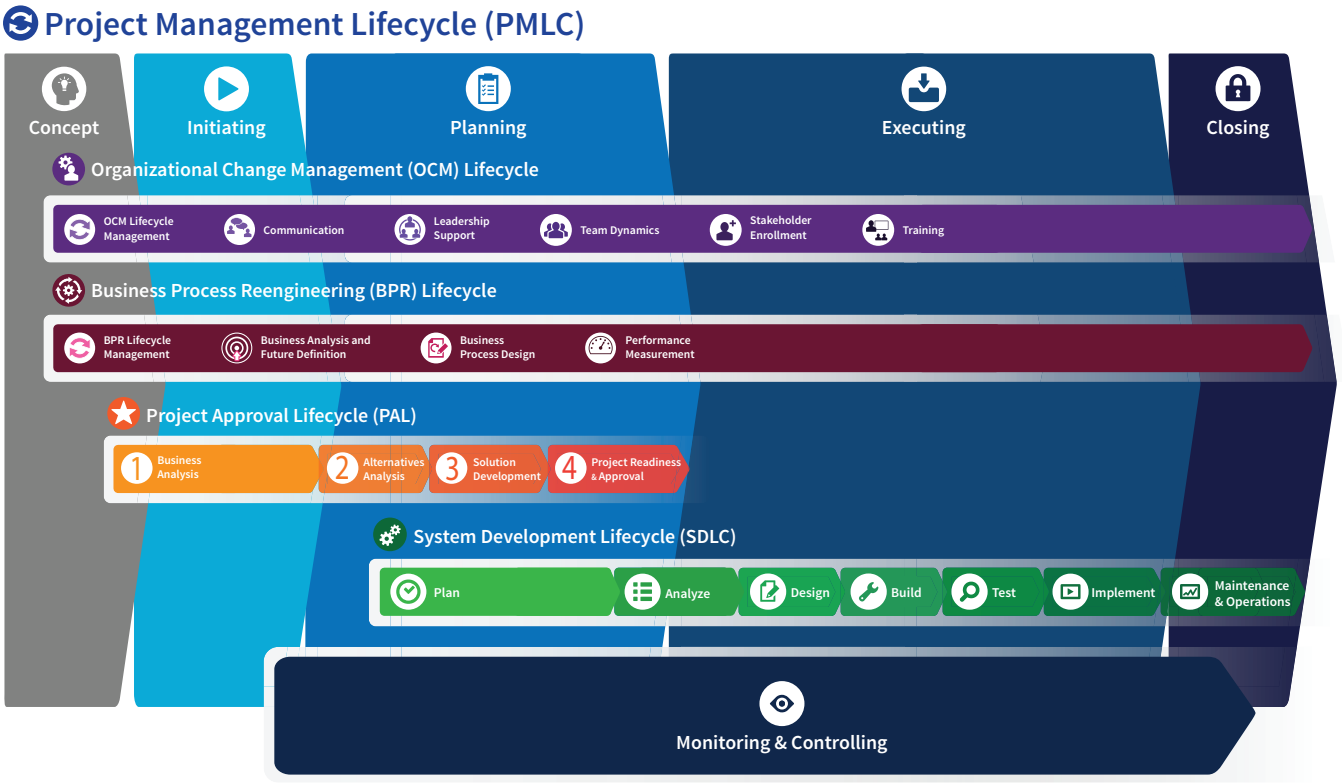


Figure 3-2

Templates

This chapter describes the collection of templates that are referenced in the California Project Management Framework (CA-PMF). These are designed to support the successful management of projects and guide project teams through the entire project lifecycle.

In this chapter...

1 Approach

Page 3

1.1 Advantages of Using Templates

1.2 Template Sources Referenced in the CA-PMF

1.3 CA-PMF Template Types

2 CA-PMF Templates

Page 6

2.1 Concept Process Phase

2.2 Initiating Process Phase

2.3 Planning Process Phase

2.4 Executing Process Phase

2.5 Closing Process Phase

3 Additional Templates

Page 13

3.1 Project Approval Lifecycle (PAL) Templates

3.2 Oversight Templates

3.3 SDLC Project Tools

4 Recommended Use

Page 14

4.1 Which Templates Should I Use and When?

5 Sample Library

Page 19

5.1 Introduction and Purpose

Approach

Project Management is a discipline of repeatable processes. Central to that discipline is the use of standardized templates to provide repeatable and consistent results. Therefore, templates are a key component of the California Project Management Framework (CA-PMF). In some cases, the CA-PMF refers to these templates as "tools." A template, just like any other tool, helps get the job done.

1.1 Advantages of Using Templates

Tools

To access the CA-PMF fillable templates visit the CA-PMF website.

Pre-developed templates help the Project Manager and project team gather and document project-related content in several key ways. For example, templates offer a standardized method for the collection and analysis of the material required throughout the project lifecycle. This standardization reduces the time to on-board new team members and complete project activities, increases transparency into project activities, reduces project risk, and may improve project outcomes. Finally, using standardized templates across an organization's project portfolio helps to create repeatable project management processes, increasing consistency and transparency more broadly.

Some organizations may already possess well-developed portfolios of project management templates. However, project teams may still benefit by supplementing their portfolios with templates referenced in the CA-PMF.

Templates are provided in the CA-PMF to assist in the planning and management of projects of all sizes and complexities. While it may be useful to review and consider all of the templates available to you, not every template may be necessary for your project. Ultimately, it is the responsibility of the Project Manager and team to determine which templates are the best fit for their project and the most appropriate.

Generally, the nature of the project will determine if planning should take place in a certain project management discipline. For example, some projects will not contract out for any services. In those cases, it is not appropriate for the Project Manager to plan for Contract Management. Alternately, a project team

may determine that planning is necessary across a range of project disciplines, however, they may find it most appropriate to aggregate individual plans as sections within the overall Project Management Plan rather than create a series of stand-alone plans.

To help project managers identify which templates may be most appropriate for their project, the CA-PMF provides a table recommending completion of various CA-PMF, PAL, and Oversight templates based on the complexity of the project. See section 4.1 in this chapter for more information.

Tools

A template is available:
SIMM 45 - Complexity Assessment (Oversight)

1.2 Template Sources Referenced in the CA-PMF

The CA-PMF references and links to a variety of supporting templates designed for a specific project management purpose and with the objective of guiding project teams through their projects. There are three main sources of templates referenced in the CA-PMF.

1.2.1 California Project Management Framework (CA-PMF) Templates

The CA-PMF templates were designed and developed by the California Project Management Office (CA-PMO) to support completion of each process phase of the Project Management Lifecycle described in the CA-PMF. A majority of the templates are provided in Microsoft Word format, with a few (where appropriate) generated in Microsoft Excel, allowing for customization and tailoring. These templates can be found on the CA-PMF website.

1.2.2 Project Approval Lifecycle (PAL) Templates

The Project Approval Lifecycle (PAL) templates were designed and developed by the California Department of Technology (CDT) Policy and Oversight area. These templates can be found on the CDT website. These templates are denoted in the CA-PMF by "Template Name (PAL)" in the Tools call-outs and other CA-PMF references.

Web Links

Project Approval Lifecycle (PAL)
Statewide Information Management Manual (SIMM 19)

1.2.3 Oversight Templates

CDT Project Oversight templates were designed and developed by the California Department of Technology (CDT) IT Project Oversight Division. These templates can be found on the CDT website within the state's Oversight Framework. These templates are denoted in the CA-PMF by "Template Name (Oversight)" in the Tools call-out boxes and other references.

Web Link

Oversight Templates (SIMM45) include:

- Complexity Assessment
- Risk Assessment
- Project Status Reports

1.3 CA-PMF Template Types

The CA-PMF templates have been developed to accommodate differences in the relative experience of project teams. As a result, the CA-PMF templates have been designed in two formats or types. The first format includes detailed instructions and example text, and the second format provides the template shell.

1.3.1 Templates with Instructions

The templates with instructions contain a significant amount of the base template as well as accompanying instructions describing how to complete the template. These templates with instructions are intended for less experienced project teams. The instructions serve as a guide and can be deleted as the template is completed. Many templates with instructions also contain examples and sample text that may be helpful. This text may also be deleted or modified to suit the needs of the project as the template is completed.

1.3.2 Template Shells

The template shells contain the same template structure and content headings as the templates with instructions; however, they do not include significant amounts of instructional text or examples. These template shells are intended to assist more experienced project teams and professionals who are already familiar with similar tools and prefer to use a shell template, and/or those that have previously worked with the template with instructions and prefer to now start with a template shell.

CA-PMF Templates

The CA-PMF templates are grouped by the five project process phases: Concept, Initiating, Planning, Executing, and Closing. A description of each template is included in the following list. To access the templates in a fillable format see the CA-PMF website's templates page at the following link: http://capmf.cdt.ca.gov/Templates.html or by clicking here.

Tools

To access the CA-PMF fillable templates visit the CA-PMF website.

2.1 Concept Process Phase

The following CA-PMF templates accompany the Concept Process Phase:

- **Concept Development and Readiness Assessment Template** - This template helps the project team determine (1) if an appropriate and complete business case has been developed, (2) if the associated project impacts have been identified, and (3) if the project should be undertaken. The template will also help to identify the business drivers, problems, opportunities, and objectives the project is intended to address. The written description of these factors outline the information so that it is clear how the project concept aligns with the strategic direction of the organization. The assessment also provides a determination of the sponsoring organization's readiness for undertaking and accepting the project results, and an analysis of possible organizational impacts.
- **Concept Process Phase Checklist Template** - Identifies the key activities that are to be completed during the Concept Process Phase.

2.2 Initiating Process Phase

The following CA-PMF templates accompany the Initiating Process Phase:

- **Project Charter Template** - Formally authorizes a project. It describes the business need for the project and the anticipated project results. It formalizes the existence of the project and provides the project with the authority to expend organizational resources to support project activities. Two versions of the Project Charter template are available- a standard

Charter template and a mini Charter template. The mini is designed for the smaller of the low complexity projects, pilot projects, and those who are exploring a proof of concept. The standard version is for all other projects.

- **Stakeholder Register Template** - Identifies the organizations and individuals with a role in the project. The Register provides important input for the planning of governance and communication for the project.
- **RACI Matrix Template** - Identifies the level of responsibility held by each owner in the creation, review, and approval of project products or documents during each project phase. Two versions of the RACI Matrix template are available- a standard RACI Matrix template and a mini RACI Matrix template. The mini is designed for the smaller of the low complexity projects, pilot projects, and those who are exploring a proof of concept. The standard version is for all other projects.
- **Project Priorities Assessment Template** - An assessment tool to be completed for key Stakeholders. The assessment serves to identify the priorities of the project.
- **Project Document Approval Template** - This document can be used to circulate documents for review and approval. Attach to those plans and documents that need to be reviewed or signed off. Use is dependent on the project size and scope and the needs of the project team.
- **Initiating Process Phase Checklist Template** - Identifies the key activities that are to be completed during the Initiating Process Phase.

2.3 Planning Process Phase

The following CA-PMF templates accompany the Planning Process Phase:

- **Project Management Plan (PMP) Template** - Documented processes and procedures for how the project will be managed. For smaller projects, the PMP may be a single integrated plan with sections that address each applicable project management topic. Larger and more complex projects may require development of individual subordinate plans, in addition to the PMP. Two versions of the PMP template are available- a standard PMP template and a mini PMP template. The mini is designed for the smaller of the low complexity projects, pilot projects, and those who are exploring a proof of concept. The standard version is for all other projects.

- **Change Control Management Plan Template** - Describes how changes will be identified, submitted, monitored, and controlled. Provides direction for managing the change control process, including a formal Change Control Board (CCB).

  Supporting documentation includes:

  - Change Request Form
  - Change Request Log

- **Change Request Form Template** - Documents and ensures that information captured relating to change is consistent throughout the project. Consistent information enables change approvers to make better, more informed decisions project-wide.

  The change request form includes an analysis report that is tied to a particular change request. This uses information from the change request form to begin populating the analysis.

- **Change Request Log Template** - Provides an at-a-glance view of the number and types of changes currently being considered by the project.

- **Communication Management Plan Template** - Identifies project communication needs and expectations based on Stakeholder requirements. Describes how this information will be communicated, when and where each communication will be made, and who is responsible for providing each type of communication.

  Supporting documentation includes:

  - Project Status Reports (Oversight)

- **Contract Management Plan Template** - Documents the activities and processes that need to be performed by the project team to ensure that the goods and services being contracted for are provided. This plan also discusses the various contractor interactions that must be managed and the associated roles and responsibilities.

- **Corrective Action Plan Template** - Documents processes to investigate the root cause of unanticipated problems and process issues encountered during the project lifecycle to prevent the causes from recurring during the project.

- **Cost Management Plan Template** - Describes how costs will be planned, structured, and controlled.

  Supporting documentation includes:

  - Cost Baseline

- **Governance Management Plan Template** - Describes the process for making project decisions. Provides the Project Manager and project team with the structure, processes, decision-making models, and tools for managing a project.

- **Implementation Management Plan Template** - Describes how the system developed by the project will be implemented in the target environment. In the event of statewide implementations, the plan addresses how the system will be implemented into each site and location.

- **Issue Management Plan Template** - Describes how issue management activities will be structured and performed.

  Supporting documentation includes:

  - Issue Log

- **Issue Log Template** - Documents project issues so that they may be managed to reduce negative impacts on the project.

- **Maintenance & Operations (M&O) Transition Management Plan Template** - Describes how project deliverables such as products or services are transferred to the operational environment and integrated into ongoing operations.

- **Meeting Agenda and Minutes Template** - Helps to document who will attend and what the planned items of discussion are to be. Once the meeting has concluded the minutes document what has been decided or agreed to and tracks action items including who is responsible and when the items that they are assigned are to be completed by.

- **Procurement Management Plan Template** - Describes how a project team will acquire goods. Describes how the procurement processes will be managed, from the development of procurement documents through contract closure.

  Supporting documentation includes:

  - Corrective Action Plan

- **Project Organization Chart Template** - Diagram that shows the structure of the project, including relationships and a command hierarchy.
- **Quality Management Plan Template** - Describes how an organization's quality policies will be implemented.

  Supporting documentation includes:

  - Process Improvement Plan
- **Requirements Management Plan Template** - Describes how requirements will be gathered, defined, analyzed, documented, and managed. Requirements Management is traditionally a component of Scope Management, but it is elevated in the CA-PMF, because lessons learned indicate this is a particularly difficult area for many project teams.

  Supporting documentation includes:

  - Requirements Traceability Matrix (RTM)
- **Requirements Traceability Matrix (RTM) Template** - Reusable tool for collecting and establishing requirements. It links each requirement to business needs and goals as well as project objectives.
- **Resource Management Plan Template** - Describes how the project resources will be structured. Includes equipment, hardware, software, services, staffing, facilities, etc., along with the project roles, responsibilities, reporting relationships, and staff management. Describes agreements on resources required to do the project work, when work commences, and for how long. This may include both state and contractor staff.

  Supporting documentation includes:

  - Project Organization Chart
  - Skills Assessment
- **Risk Management Plan Template** - Describes how risk management activities will be structured and performed.

  Supporting documentation includes:

  - Risk Register
  - Risk Assessment (Oversight)
- **Risk Register Template** - Documents and manages known risks in accordance with the Risk Management Plan (may be incorporated within the PMP). This includes tracking information such as probability, impact, triggers, mitigation plans, and contingency plans.

- **Schedule Management Plan Template** - Describes the criteria and the activities for developing, monitoring, and controlling the schedule.

  Supporting documentation includes:

  - Schedule Baseline

- **Scope Management Plan Template** - Describes how the scope will be defined, developed, monitored, and controlled.

  Supporting documentation includes:

  - Scope Baseline
  - Work Breakdown Structure (WBS)

- **Skills Assessment Template** - Assesses project team members' skills and identifies how those skills align with the project needs.
- **Stakeholder Management Plan Template** - Describes the processes, procedures, tools, and techniques to effectively engage Stakeholders in project decisions based on Stakeholder needs, interests, and requirements. For smaller projects, may be incorporated into the Communication Management Plan.

  Supporting documentation includes:

  - Stakeholder Register

- **Work Breakdown Structure (WBS) Template** - Decomposition (break down) of a project into smaller components in order to organize the project work into manageable work packages.
- **Planning Process Phase Checklist Template** - Lists specific milestones used to confirm completion of project process phases as part of the acceptance process.

2.4 Executing Process Phase

The following CA-PMF templates supplement the Executing Process Phase:

- **Deliverable Expectation Document (DED) Template** - DEDs provide a basis for the development and submission of deliverables. It is a tool to avoid miscommunication, to ensure that the state and contractor possess a mutual understanding about deliverable content and scope.

- **Work Authorization Template** - Used to authorize the contractor to complete work that is not specifically outlined in the contract, but is aligned with the overall scope of the contract. This work is unanticipated and discovered during the course of the contract, and funds must be available in the contract.
- **Process Improvement Plan Template** - Identifies quality management-specific standards and practices, assessment, monitoring, and correction of the core Project Management processes followed by the project.
- **Operational Readiness Assessment (ORA) Template** - Is part of the transition of the project's software release or other end product to Maintenance and Operations and the production environment. The assessment provides and documents a comprehensive analysis of all facets of readiness, including organizational readiness and contingency planning, prior to the implementation.
- **Formal Product Acceptance Template** - Used by project teams to document formal acceptance of a major deliverable, phase, or completion of the project.
- **Sponsorship Commitment Survey Template** - Used by project teams to assess the involvement and support provided by the Project Sponsor.
- **Team Effectiveness Survey Template** - Used by project teams to assess the effectiveness of how the project team works together.
- **Executing Process Phase Checklist Template** - Identifies the key activities that are to be completed during the Executing Process Phase.

2.5 Closing Process Phase

The following CA-PMF templates accompany the Closing Process Phase:

- **Lessons Learned Template** - The lessons learned documentation represents knowledge and experience gained during the project. It documents how project events were addressed, and how they should be addressed in the future, with the purpose of improving future performance.
- **Project Closeout Report Template** - The project closeout report documents the final and remaining activities of the project.
- **Closing Process Phase Checklist Template** - Identifies the key activities that are to be completed during the Closing Process Phase.

Additional Templates

The California Department of Technology templates related to the Project Approval Lifecycle (PAL) process and Oversight processes are not part of the CA-PMF, but are referenced since they are key elements in the state's project management processes. Additional information about these templates and links are included in this section.

3.1 Project Approval Lifecycle (PAL) Templates

The PAL includes four stages, separated by gates that are specifically tailored for IT projects. The stages include specific entrance criteria, activities within each stage, and exit criteria. Each has its own template, and instructions that can be found under the *Statewide Information Management Manual (SIMM) 19* at: https://cdt.ca.gov/policy/simm-19/

Web Link

PAL Templates (SIMM 19):
- Stage 1
- Stage 2
- Stage 3
- Stage 4

3.2 Oversight Templates

The Department of Technology's Project Approvals and Oversight (PAO) within the Office of Statewide Project Delivery (OSPD) has approval, suspension, termination, and oversight authority for California State information technology projects (*Government Code § 11546, et al*). This includes maintaining policies and procedures for the approval, management, oversight, and continuation of IT projects. Templates and other information related to oversight reporting requirements can be found at under the SIMM 45: https://cdt.ca.gov/policy/simm/

Web Link

Oversight Templates (SIMM 45) include:
- Complexity Assessment
- Risk Assessment
- Project Status Reports

3.3 SDLC Project Tools

A collection of Software Development Lifecycle (SDLC) plans and tools that are designed to adjust and scale to your project size and complexity have been developed by CDT and are available for use. For more information visit the website at: https://projectresources.cdt.ca.gov/sdlc/

Web Link

SDLC Tools

Recommended Use

4.1 Which Templates Should I Use and When?

While the Project Manager may use any combination of templates for the project, the following table provides a guideline for identifying which templates may be most appropriate. The templates are presented in alphabetical order by Process Phase with the checklist listed as the last template within the phase.

Each project's needs will vary, but the table suggests which level of project complexity may typically benefit most from the use of a specific template. The Department of Technology Information Technology Project Oversight Division has created a Complexity Assessment Template that may be helpful in determining the complexity level of a specific project.

To access the templates in a fillable format see the CA-PMF website templates page at the following link: http://capmf.cdt.ca.gov/Templates.html or by clicking here.

Tools

To access the CA-PMF fillable templates visit the CA-PMF website.

Tools

A template is available: SIMM 45 - Complexity Assessment (Oversight)

Templates by Process Phase

To access the templates in a fillable format see the CA-PMF website templates page at the following link: http://capmf.cdt.ca.gov/Templates.html or by clicking here.

Process Phase/ Template Name	Low Complexity	Medium Complexity	High Complexity
Concept Process Phase			
Concept Development and Readiness Assessment Template	X	X	X
Stage 1 Business Analysis Template (PAL) [1]	X	X	X
Concept Process Phase Checklist Template	X	X	X
Initiating Process Phase			
Project Charter Template *	X	X	X
Stakeholder Register Template	X	X	X
RACI Matrix Template *		X	X
Project Priorities Assessment Template	X	X	X
Project Document Approval Template	X	X	X
Project Status Report Template (Oversight) [2]	X	X	X
Initiating Process Phase Checklist Template	X	X	X
Planning Process Phase			
Complexity Assessment Template (Oversight) [2]	X	X	X
Project Management Plan (PMP) Template *	X	X	X
Change Control Management Plan Template		X	X
Change Request Form Template	X	X	X
Change Request Log Template		X	X

Process Phase/ Template Name	Low Complexity	Medium Complexity	High Complexity
Planning Process Phase Continued			
Communication Management Plan Template		X	X
Contract Management Plan Template		X	X
Corrective Action Plan Template			X
Cost Management Plan Template			X
Governance Management Plan Template			X
Implementation Management Plan Template		X	X
Issue Management Plan Template		X	X
Issue Log Template	X	X	X
Maintenance & Operations (M&O) Transition Management Plan Template		X	X
Meeting Agenda and Minutes Template	X	X	X
Procurement Management Plan Template		X	X
Project Organization Chart Template	X	X	X
Quality Management Plan Template			X
Requirements Management Plan Template		X	X
Requirements Traceability Matrix (RTM) Template	X	X	X
Resource Management Plan Template		X	X
Risk Management Plan Template		X	X
Risk Register Template	X	X	X

Process Phase/ Template Name	Low Complexity	Medium Complexity	High Complexity
Planning Process Phase Continued			
Risk Assessment Template (Oversight) [2]	X	X	X
Schedule Management Plan Template		X	X
Scope Management Plan Template		X	X
Skills Assessment Template		X	X
Stakeholder Management Plan Template	X	X	X
Work Breakdown Structure (WBS) Template		X	X
Stage 2 Alternatives Analysis Template (PAL) [1]	X	X	X
Stage 3 Solution Development Template (PAL) [1]	X	X	X
Stage 4 Project Readiness and Approval Template (PAL) [1]	X	X	X
Planning Process Phase Checklist Template	X	X	X
Executing Process Phase			
Deliverable Expectation Document (DED) Template	X	X	X
Work Authorization Template	X	X	X
Process Improvement Plan Template		X	X
Operational Readiness Assessment (ORA)			X
Formal Product Acceptance Template	X	X	X
Sponsorship Commitment Survey Template		X	X
Team Effectiveness Survey Template			X
Executing Process Phase Checklist Template	X	X	X

Process Phase/ Template Name	Low Complexity	Medium Complexity	High Complexity
Closing Process Phase			
Lessons Learned Template	X	X	X
Project Closeout Report Template	X	X	X
Closing Process Phase Checklist Template	X	X	X

* There are two versions of these templates available. A standard and a mini. The mini is designed for the smaller of the low complexity projects, pilot projects, and those who are exploring a proof of concept. The standard version is for all other projects.

[1] PAL documentation including templates and instructions can be found under the *Statewide Information Management Manual (SIMM) 19* at: https://cdt.ca.gov/policy/simm-19/

[2] Oversight templates and other information related to oversight reporting requirements can be found under the *Statewide Information Management Manual (SIMM) 45* at: https://cdt.ca.gov/policy/simm/

Sample Library

5.1 Introduction and Purpose

A Sample Library of project artifacts has been developed from actual State of California projects. The purpose of this library is to accompany CA-PMF guidance and templates and provide additional value for new projects as they navigate the Project Management Lifecycle (PMLC) and endeavor to complete key project outputs. The samples have been vetted for their value as an example of how other projects have completed key project activities discussed in the CA-PMF templates. Samples are mapped to key sections of the CA-PMF templates to provide an example of real-world project approaches for this type of content.

A range of samples is featured and drawn from projects of varying complexity. The samples are grouped by their content serving as an appropriate example for a project of a certain size including: small, medium, large, and mega-sized projects. Note that a Sample Library entry proposed for a medium sized project's Charter Scope Statement, for example, may actually point to content from a large sized, real-world project. We found that oftentimes larger projects included summary statements that would be useful as a smaller project's core content.

The Sample Library can be accessed on the CA-PMF website on the templates page at the following link: http://capmf.cdt.ca.gov/Templates.html or by clicking here. Then click on "Sample Library" to expand and view the library.

Web Link

Visit the CA-PMF website to access the Project Sample Library.

Concept

The Concept Process Phase chapter outlines the activities that should take place before formally initiating a project and developing a Project Charter. A key focus is confirming the business drivers, problems, and opportunities for the project, and aligning the project's objectives with the sponsoring organization's strategic direction.

In this chapter...

1

Approach

Page 3

1.1 Introduction
1.2 Recommended Practices
1.3 Roles and Responsibilities
1.4 Processes and Activities
1.5 Tools and Outputs

2

Process Phase Checklist

Page 16

2.1 Complete the Checklist

Approach

Figure 1-1

Both disciplined thinking and an open mind are important when beginning development of a project concept. Projects will vary in terms of complexity, but all require some level of concept definition. For some projects, this process may take only days; for others, it may take much longer. The effort spent to develop a project concept can bring great value by confirming the business drivers, problems, and opportunities for the project, aligning the project's objectives with the sponsoring organization's strategic direction, and assessing the readiness of the organization for the project. However long it takes, this process is critical to attaining the necessary buy-in to fund and launch the project.

1.1 Introduction

This chapter provides an overview of the activities that should take place before formally initiating a project and developing a Project Charter. This period within the PMLC is called the Concept Process Phase, the first process phase of the PMLC, as illustrated in Figure 1-1. The described activities are based on recommended practices, as well as lessons learned from previous State of California projects. The questions posed during this phase are designed to stimulate thinking by those developing a project concept. The overarching goal is to explore whether:

- A clear business case has been developed.
- The project will have impacts on the broader organization.

- The organization is prepared to take on the project.

The intent is to help project teams effectively develop a concept for a project. Figure 1-2, on the following page, shows the flow of project activity during the Concept Process Phase.

Concept

Figure 1-2

1.2 Recommended Practices

Recommended Practices

Review Recommended Practices at the start of the process phase.

A review of the following recommended practices will help focus your thinking around the project and avoid pitfalls that commonly occur during the Concept Process Phase.

Validate Your Concept for a Strong Foundation

Regardless of how a project concept emerges, thorough vetting and validation are necessary to improve the chances for future success. Ensure that Stakeholders are engaged early and buy-in to the project concept.

Have a Strong Business Case

Establishing a compelling business case will help solidify support and commitment from organizational leaders and external organizations. A business case captures the reasoning for initiating a project or task. It is often presented in a well-structured written document that justifies the organization expending resources and effort in support of a specific business need. A vague project objective risks the project's ability to deliver measurable benefits. Ensure that your Stakeholders understand and support the business case and project objectives.

Is Your Organization Ready for Change?

A vast majority of IT projects bring some form of organizational change. These changes can affect various processes, workflows, and job functions, and they may require new skills from workers. Organizations that fail to plan for change add major risk to the potential success of the project if, for example, users fail to adopt and utilize a new system or process.

It's never too early to consider the nature and impact of organizational change, and how the project team will effectively plan, manage, and navigate the project. Experienced State of California Project Sponsors and Project Managers have noted that Organizational Change Management (OCM) is often either missing or the level of effort is substantially less than ideal. Many projects consider addressing organizational changes and impacts too late in the PMLC and sometimes not at all. Ideally, organizational change considerations and activities should be addressed from the very beginning.

Don't Underestimate or Oversimplify User Research and Engagement

User research is the process of gathering feedback from users. The decision of whether or not to do user research can have serious implications for your project. Conducting user research early in the project is critical in defining the project scope and requirements. Additionally, ongoing user engagement is the most effective way to check whether the project is on the right track as project activities proceed.

For low complexity projects, teams may be able to learn and develop proper user research and engagement techniques as the project progresses. This can be achieved as part of training the team in agile techniques. Medium and high complexity projects should consider seeking out the appropriate expertise at the concept stage to guide the project team to successfully complete the activities (i.e. acquire an agile coach). User research and engagement may be a straight-forward concept, but don't underestimate or oversimplify the task.

User-Centered Approach

This recommended practice promotes a user-centered approach. For more information on this, see CA-Agile.

1.3 Roles and Responsibilities

The roles identified below are the primary participants during the Concept Process Phase. The project may have unique requirements that will make it necessary to incorporate additional roles into the process. Note that a Project Manager often is not involved at this stage of the project as that specific skill set is not yet required for the Concept Process Phase activities. The following table identifies the main roles and key responsibilities.

Roles

For a complete list of all project roles, see the Project Role Definitions in the Glossary.

Role	Responsibilities
Executive Sponsor(s)	• Provides agreement for funding the project. • Provides executive intervention to overcome organizational roadblocks. • Key to assuring the project goals and objectives align with the organization's strategic direction.
Project Sponsor	• Key to assuring the project goals and objectives align with the organizations strategic direction. • Key to allocating initial resources needed to complete the necessary tasks in the Concept Process Phase.
IT Sponsor	• Provides technical information that may be required to complete tasks in the Concept Process Phase.
Business Owner(s)*	• Provides information pertaining to a preferred product or solution. • Communicate high-level requirements.
Stakeholders	• Any person or group with an active interest in the project outcome or process and wishes to participate, or is invited to participate, in the tasks associated with the Concept Process Phase, including SMEs.

* May also be referred to as Business Sponsor.

1.4 Processes and Activities

Projects are temporary endeavors undertaken to create a unique product, service, or result *(A Guide to the Project Management Body of Knowledge, 6th Edition, Page 4)*. Therefore, projects require a carefully planned and designed collaborative effort to achieve the desired outcome(s).

Projects can originate from a variety of sources, including:

- New legislation
- New state or federal mandates
- Updates to the sponsoring organization's strategic business plan
- Influence of Stakeholders
- Opportunities to improve the sponsoring organization's efficiency and effectiveness through improved service delivery, increased revenues, cost avoidance, cost savings, and/or process improvements
- Program or business priorities when sponsorship, funding, and resources are available to support a project to achieve a specific outcome

Regardless of how a business need emerges, future success is highly dependent on developing a sound project concept. Schedule enough time for these high-value activities, which should be completed prior to initiating a project.

Web Links

To determine if your project is reportable, see State Administrative Manual (SAM) 4819.37

Activities

Be sure to schedule enough time to properly conduct project concept activities.

1.4.1 Identify the Project Sponsor(s) and Stakeholders

A Project Manager is normally not formally engaged at this early stage because the potential project is still just a concept. Therefore, the activities described in this chapter will most likely be performed by the sponsoring organization's leadership, which may include a potential Project Sponsor. Sometimes an organization may ask an existing Project Manager to assist with these Concept Process Phase efforts.

If your organization has a departmental Project Management Office or Information Technology (IT) Governance Process, check with the appropriate representatives to see if there is an internal process for proposing and approving project concepts.

Refer to the State Administrative Manual (SAM) Section 4819.35 and the Project Approval Lifecycle (PAL) for additional details on the state project approval process.

Roles

Project Sponsor engagement is key to developing a solid concept.

Web Links

State Administrative Manual (SAM)

Project Approval Lifecycle (PAL)

1.4.2 Conduct a Readiness Assessment

Identify the Specific Business Problem or Opportunity

Do you have a business problem or is there an opportunity to improve efficiency? State projects are conducted to address a business problem or legislation, seize an opportunity, or a combination of each. Therefore, the process of developing a project concept begins by clearly defining the business problem or opportunity. Distinctly defining the business problem at this early stage will support the process of getting the project funded.

A comprehensive and clearly defined project request should be completed in order to make a go/no go decision for a project concept. There should be a determination as to whether a particular business problem can be solved by allocating resources to generate a product, service, or solution.

Establish a Clear Business Case

Establishing a clear and compelling business case will help solidify support and commitment from organizational leaders, as well as support from external organizations such as the Department of Finance, Department of Technology, and the Legislature. If a clear business case cannot be made for committing organizational resources to a project initiative, it is better to identify this early in the process before engaging more resources and formally initiating a project.

Project leadership should be able to clearly answer the most fundamental questions about the project. If project leadership is unclear about the project's purpose, outcomes, and strategic alignment to the organization, not only will there be a struggle to develop the business case, but project leadership will also have trouble communicating clear directions to a project team. When the project purpose and desired outcomes are vague, the risk of project scope creep is very high. "Good ideas" quickly begin to affix themselves to the project. The project's scope can quickly expand if the Project Sponsor has no objective way to evaluate whether these "good ideas" support the project's core purpose and contribute to measurable outcomes.

"When the project purpose and desired outcomes are vague, the risk of project scope creep is very high."

When establishing the business case, take some time to answer key questions to help to develop the foundation for the project. If it proves difficult to develop a clear and compelling justification, consider recommending that the appropriate senior management determine if additional resources need to be invested to refine the business case.

The following are general areas to explore. Refer to the Concept Development and Readiness Assessment template for detailed questions pertaining to each of the areas.

- Business Case: Clearly understanding the proposed project purpose is important.
- Project Objectives: Projects are undertaken to achieve specific benefits and outcomes.
- Project Strategic Alignment: Consider the organizational priorities.
- Project Budget: Consider the project costs.

Also, consider whether the appropriate Stakeholders are involved at this stage. Questions to ask include:

- Who needs to be involved in the process of establishing a compelling business case?
- Are other program areas affected by this initiative? If so, should representatives from these areas be involved to help shape the vision, direction, and priorities?

There is a necessary balance between getting the right people who are essential to shaping the project concept to ensure that the project effort gets off on the right foot and involving more contributors than needed at this early stage.

Assess the Organizational Impact

IT projects bring some form of organizational change. These changes can affect various processes, workflows, job functions, skill requirements, and interactions with Stakeholders. Projects that effectively manage change benefit from stronger Stakeholder contributions, engagement, and commitment. These change management activities start early and will continue to be important throughout the project lifecycle.

Questions to consider during the Concept Process Phase are shown below in Figure 1-3.

Who? Who is impacted? Will project outcomes affect internal and external people, processes, technology, organizational structures, budgets, and/ or operations?

What? What is the impact from the change? Have the high-level risks associated with the project been identified, along with each risk's associated impact and level of probability?

When? When is a good time to begin planning this change? Are human resources available to properly plan and effectively execute a change of this magnitude?

How? How ready is the organization to adopt this change? What organizational changes are required to ensure the desired outcomes are realized?

Figure 1-3

Complete the Concept Development and Readiness Assessment

Projects evolve within organizations that have their own history and established culture, as well as long-standing people, processes, and technologies. All of these become significant factors and inputs for the project. The quality and maturity of these inputs is a chief determining factor for the quality of project outputs and outcomes.

Evaluating the current organization in which the project will take place is indispensable. A readiness assessment gives the organization the opportunity to adjust strategies, plans, and timing based on the readiness of the organization. The following sub-sections describe topics that should be considered in a readiness assessment. Refer to the Concept Development and Readiness Assessment template for additional information.

Tools

A template is available:
Concept Development and Readiness Assessment

When to Use?

Use the template for projects of the following complexities:

L M H

1. **Organizational Maturity and Preparedness**

   Organizational effectiveness will positively influence the project's ability to succeed, but it does not guarantee success. A valuable exercise is assessing the organization's capabilities and limitations to determine how these characteristics will influence the future project environment.

   The more mature the organization is across various key disciplines, the better the likelihood of success for the proposed project. These disciplines include such areas as strategic planning, customer service, IT service delivery, project management, project governance, performance management, business and program management, workforce development, budget analysis, procurement, and operations.

2. **Organizational Culture**

   An organization's culture also has a potential impact on a proposed project. Culture is largely, "How we do things around here." Is the organization proactive in attracting, developing, and maintaining top talent?

   The organizational culture reflects characteristics such as attitudes, standards, policies, and procedures, or more unique traits such as a hierarchy system. Each trait can have a negative, neutral, or positive effect, and although some organizations like to portray culture as static, in most cases it changes over time.

3. **Capacity for Undertaking a New Project**

   Organizations have a limited capacity to undertake significant initiatives and adapt to change. Evaluate the organization's capacity to undertake a new project.

4. **Governance**

   Timely and effective decision making is critical to the success of any project. Given the nature of projects and the continual trade-offs and decisions that must be made along the way, governance is important to keep a project on track and maintain alignment with business objectives.

5. **History of Project Success**

   Organizations tend to repeat performance history, especially on projects.

6. **Lessons Learned**

   Tapping into the lessons learned from past projects can be a valuable exercise. Learning from the practices of past projects can help identify pitfalls to avoid. For medium or large projects, consider reaching out to

other organizations that may have completed a similar project or have a similar project underway. By exploring lessons learned from other organizations, you can better identify and mitigate potential project pitfalls and risks.

Conduct a High-Level Risk Assessment

Conducting a review of the responses to the assessment criteria, as well as the recommended actions and next steps noted, may help provide an initial gauge of the level of risk associated with the project. The potential areas of risks or challenges to a project's success often become documented project risks that should be considered in future project planning activities. In some cases, the hurdles may be too difficult to overcome and a decision may be made to postpone the project. The organization may alternatively elect to proceed with the project while addressing organizational deficiencies in parallel.

1.4.3 Project Approval Process

The State's project approval process begins during the Concept Process Phase, with a draft Stage 1 Business Analysis (S1BA) as part of PAL. The information that is gathered from the Concept Development and Readiness Assessment can be useful in the departmental and/or statewide project approval processes. Refer to the Framework Resources section in the Additional Resources Chapter if your project is reportable and therefore requires completion of a S1BA. Additional information on the S1BA and PAL can be found in SIMM 19.

Web Links

Statewide Information Management Manual (SIMM)
PAL (SIMM 19) - Stage 1 Business Analysis (S1BA)

1.4.4 Concept Process Phase Review

Once all of the Concept Process Phase activities are accomplished, complete the Concept Process Phase Checklist. Completion of the checklist helps ensure that the foundation of the project has been established.

Tools

A template is available:
Concept Process Phase Checklist

1.5 Tools and Outputs

The following are generally developed during the Concept Process Phase.

Tool / Output	Definition
Concept Development and Readiness Assessment	This template helps the project team determine (1) if an appropriate and complete business case has been developed, (2) if the associated project impacts have been identified, and (3) if the project should be undertaken. The template will also help to identify the business drivers, problems, opportunities, and objectives the project is intended to address. The written description of these factors outline the information, so that it is clear how the project concept aligns with the strategic direction of the organization. The assessment also provides a determination of the sponsoring organization's readiness for undertaking and accepting the project results, and an analysis of possible organizational impacts. The outcomes of the assessment help the project team develop a high level risk assessment for the project. Some of the information for the assessment can be leveraged from the Stage 1 Business Analysis (S1BA).
High-Level Risk Assessment	A review of the outcomes of the Concept Development and Readiness Assessment produces a high-level risk assessment for the project.
Stage 1 Business Analysis (S1BA) [1]	Part of the PAL, the S1BA provides a basis for project management, program management, executive management, and state-level control agencies to understand and agree on business problems or opportunities, and the objectives to address them. Additional information on the S1BA can be found in the *Statewide Information Management Manual (SIMM)* Section 19.
Concept Process Phase Checklist	Identifies the key activities that are to be completed during the Concept Process Phase.

[1] PAL documentation including templates and instructions can be found under the *Statewide Information Management Manual (SIMM) 19* at: https://cdt.ca.gov/policy/simm-19/

Tools

For a complete list of all project Tools, see the Templates chapter.

Web Links

Statewide Information Management Manual (SIMM)
PAL (SIMM 19) - Stage 1 Business Analysis (S1BA)

Process Phase Checklist

2.1 Complete the Checklist

Once all of the activities within the Concept Process Phase are complete, the process phase checklist should be completed. Why a checklist? Checklists are comprised of a list of questions built around why, how, what, who, where, and when, which can help verify whether everything required for completing the process phase is in place. Many of these tasks are repeatable from project to project.

Checklists help document these repeatable steps and ensure that the correct tasks are completed at the right time, every time.

A checklist can assist the project team with quickly and confidently identifying areas of concern within this process phase of the PMLC. In this case, completion of the checklist provides a clear milestone that the Concept Process Phase is complete, including;

- Completed Concept Development and Readiness Assessment
- Completed High-Level Risk Assessment
- Draft Stage 1 Business Analysis (S1BA)
- Completed Concept Process Phase Checklist

Tools

A template is available:
Concept Process Phase Checklist

When to Use?

Use the template for projects of the following complexities:

L M H

Outputs

Complete the Concept Process Phase Checklist to validate that all phase activities are complete.

Initiating

The Initiating Process Phase chapter provides a guide for building a solid foundation with key Stakeholders and formally initiating the project. Key steps ensure that project staff, the organization, and external Stakeholders understand what is being undertaken and what to expect as the project takes shape.

In this chapter...

1 Approach — Page 3

- 1.1 Introduction
- 1.2 Recommended Practices
- 1.3 Roles and Responsibilities
- 1.4 Processes and Activities
- 1.5 Tools and Outputs

2 Project Charter — Page 23

- 2.1 Introduction
- 2.2 Recommended Practices
- 2.3 Roles in Preparation
- 2.4 Practice Overview

3 Stakeholder Register — Page 32

- 3.1 Introduction
- 3.2 Recommended Practices
- 3.3 Roles in Preparation
- 3.4 Practice Overview

4 RACI Matrix — Page 38

- 4.1 Introduction
- 4.2 Recommended Practices
- 4.3 Roles in Preparation
- 4.4 Practice Overview

5 Process Phase Checklist — Page 42

- 5.1 Complete the Checklist

Approach

Figure 1-1

The Initiating Process Phase is the second phase of the California Project Management Framework (CA-PMF) Project Management Lifecycle (PMLC) as shown in Figure 1-1. The purpose of this process phase is to begin defining the overall project parameters. This includes aligning the Stakeholders' expectations with the project's purpose and establishing the project management and quality environment needed for a successful outcome. This process phase also introduces monitoring and controlling activities.

1.1 Introduction

Following the completion of the Concept Process Phases artifacts, the organization will conduct a thorough analysis of the opportunity presented by the project concept. For most projects of a small to medium size, this initial work can be performed within the management structure of the sponsoring organization, and a specific project management structure is not yet required. However, should the project scope, size, and/or complexity require considerable work and involve several divisions within the sponsoring organization or other independent organizations, there might be justification for designating the project management roles and responsibilities before the business analysis is completed. This can be accomplished by completing a RACI Matrix (also known as a responsibility assignment matrix), which captures the key roles and responsibilities of project participants and is one of the first artifacts created for the project.

In addition to defining roles and responsibilities, another key activity of the Initiating Process Phase is the confirmation of project sponsorship. Having an Executive Sponsor and Project Sponsor on board early in the project helps to ensure a commitment to funding, resources, and overall success of the project.

Once sponsorship is confirmed, development of a Project Charter is a key output of the Initiating Process Phase. The Project Charter establishes the project definition, which serves as the foundation for all future work efforts. Successful projects have a detailed project definition as well as a clearly defined business problem, need, or opportunity that is understood and accepted by all Stakeholders. Figure 1-2 shows the flow of project activity during the Initiating Process Phase.

Initiating

Recommended Practices

- It is Never Too Early to Engage Users
- Effective Sponsorship is the Key to Success
- The Business Need Drives the Project
- Check in with Your Organization's Enterprise Architect or Opportunities May be Missed
- Engage Stakeholders Strategically
- Tackle the Project in Bite-Size Pieces and Deliver Incrementally to Reduce Risk
- Change is Hard, So Start Planning for Your Change Early

Roles

- Executive Sponsor(s)
- Project Sponsor
- Stakeholders
- IT Sponsor
- Business Owner(s)
- Project Manager
- Department of Technology (CDT)

Processes

- Establish Project Staffing
- Create a Project Library
- Review Current Documentation
- Conduct Stakeholder Analysis
- Perform Charter Analysis
- Monitoring and Controlling
- Project Approval Process
- Initiating Process Phase Review

Activities

- Identify Project Sponsorship
- Identify a Project Manager
- Form the Project Planning Team
- Create Project Document Repository and Review Current Documentation
- Identify Stakeholder Project Priorities
- Create a RACI Matrix
- Develop the Scope Statement
- Develop the Budget Estimate
- Develop the Schedule Estimate
- Document Assumptions, Constraints, and Risks
- Develop the Project Charter
- Monitor & Control the Project
- Complete the S1BA (PAL)
- Complete the Initiating Process Phase Checklist

Tools

- Project Priorities Assessment Template
- RACI Matrix Template
- Stakeholder Register Template
- Project Charter Template
- Status Reports (Oversight)
- Stage 1 Business Analysis Template (PAL)
- Project Document Library Repository
- Project Document Approval Template
- Initiating Process Phase Checklist Template

Outputs

- Completed Project Priorities Assessment
- Completed RACI Matrix
- Completed Stakeholder Register
- Completed Project Charter
- Completed Stage 1 Business Analysis (PAL)
- Established Project Document Library
- Completed Initiating Process Phase Checklist

Monitoring & Controlling

Figure 1-2

1.2 Recommended Practices

Project success requires laying a solid foundation during the Initiating Process Phase. The project staff, business organization, and external Stakeholders must understand what is being undertaken, what to expect as the project takes shape, and the roles and responsibilities of each group. Focusing on the following areas can help the Project Manager get off to a good start.

Recommended Practices

Review Recommended Practices at the beginning of the Initiating Process Phase.

User-Centered Approach

This recommended practice promotes a user-centered approach. For more information on this, see CA-Agile.

It is Never Too Early to Engage Users

Especially during the Initiating Process Phase, user research and engagement is important to accurately understand and define the project scope. Users have first-hand knowledge of the business need. This means they are best positioned to know what the system needs to be able to do.

Devoting the time and effort to upfront user research will result in a clearer and stronger business case that will drive the downstream planning activities. By understanding who the users are, what they need, how their needs could be met, and when the users need a solution, a project is justified in simple terms that can be easily aligned to organizational mission and goals.

There are many ways to engage users early on in the project, including surveys, facilitated group discussions, and being embedded within an operational environment to observe a day in the life of a broad spectrum of users. Focus on the "what" of the business need and not necessarily how it is being done as that will be fleshed out during development.

Effective Sponsorship is the Key to Success

Effective leadership is essential to project success. The project team relies on clear strategic decision making by the Project Manager. However, it is not enough to have a skilled and committed Project Manager. Project success also requires the active participation of a committed Project Sponsor(s) to provide the leadership necessary to deliver value to the business. A Project Manager, no matter how knowledgeable and skilled, cannot provide all of the direction, business strategy, and resources needed to deliver on project goals. Undertaking a project without the full engagement of the Project Sponsor is a risky endeavor.

During the Initiating Process Phase, the Project Manager needs to ensure the Project Sponsor is engaged, has an active role in the early stages of the project, and understands the critical nature of his or her role in delivering a successful project.

The Project Sponsor's role demands tough decision making with the needs of the business taking top priority. The role may require redirecting resources

from the business to support project needs, or ensuring that the external environment understands and responds to the needs of the project. During the Initiating Process Phase, the Project Manager can use the Project Charter and the associated drafting process as a model for the ongoing reliance on the Project Sponsor and the critical role he or she plays in the project's success.

The Business Need Drives the Project

During the Initiating Process Phase, the project begins to develop an interactive style between the growing project team and the business organization. The Project Manager should develop a management style that involves the key business resources (including Project Sponsor, Business Owner, and Subject Matter Experts) from the beginning. The Project Manager establishes the expectation that these business representatives play an active role in planning and executing the project. The Project Manager keeps his or her eye on the business problem that is at the heart of the project need, but everyone on the project team should understand the identified project need and comprehend how it connects to the project work they do each day. After all, the ultimate goal of a project is to provide a solution to the business problem.

Check in with Your Organization's Enterprise Architect or Opportunities May be Missed

During the early stages of the project development effort, vet the project's vision with your organization's Enterprise Architect. The Enterprise Architect's role is to ensure that the organization's strategic approach to business and information technology (IT) are in alignment with one another. This step will help validate that the project scope, goals, and objectives are coordinated with the enterprise vision and don't conflict with other enterprise initiatives. This vetting and alignment will increase the likelihood that your project will deliver the expected business value. It will also provide the project team with additional insights into project costs, help reduce overall maintenance and operations (M&O) costs, as well as confirm the long-term viability of the proposed solution.

Engage Stakeholders Strategically

During the Initiating Process Phase, the Project Manager should identify the project's key Stakeholders and how they relate to the project. Some key Stakeholders may need to be informed about the Initiating Process Phase or other aspects of the project. Depending on their anticipated role, Stakeholders may provide input to the Project Charter so that it incorporates their interests.

Some Stakeholders have limited experience working with projects. They may need to be oriented to the expected project schedule, activities included in the schedule, the important decision points, and what ongoing communications should be expected as the project takes shape.

As the plans for the project develop, Stakeholders need to be informed about the commitment they need to make to ensure the project's success. This is an opportunity for the Project Sponsor and Project Manager to engage Stakeholders, promote the project business case, and discuss the expected organizational changes. Stakeholder feedback and support is critical to project success.

Tackle the Project in Bite-Size Pieces and Deliver Incrementally to Reduce Risk

Project risk increases with project size. The larger the project – whether measured in dollars, staff, end users, or function points – the greater the chances that the project will not launch on time, exceed budget, or fail to meet the intended need. It is easy to begin a project by assuming a "Big Bang" implementation has to happen, without thinking about whether functionality can be delivered in smaller pieces over time. Iteration reduces risk. It makes big failures unlikely and turns smaller failures into lessons that can be immediately integrated.

During the Initiating Process Phase, the Project Manager, Project Sponsor, and other business representatives should carefully consider where it is possible to divide the work encompassed by the project scope into smaller pieces that can be delivered over time. The trade-off is between:

- Delivering everything that users want at once, with the risk that what is delivered isn't what is needed or doesn't work properly, against
- Delivering improved functionality over time, with the chance to make changes if what is delivered isn't needed or doesn't work properly

This strategy reduces risk by not having everything ride on one large product delivery that must be performed correctly to produce any value. An incremental or modular development and deployment approach will allow the project to deliver value to users more quickly. Additionally, the project team will learn more information about the users, the environment, and the technology with each release and use those lessons for the next release.

User-Centered Approach

This recommended practice promotes a user-centered approach. For more information on this, see CA-Agile.

Change is Hard, So Start Planning for Your Change Early

The earlier the better when planning for change. New systems cause widespread change in processes, capabilities, and roles of program staff. Make sure the organization's program staff is actively engaged in learning what the change is, why the change is being made, and what resources will be available to help them manage the change and be successful.

1.3 Roles and Responsibilities

The roles identified in the following table are the primary Initiating Process Phase participants. Overall definitions of various Stakeholder roles are provided in the "Definitions of Project Roles" in the Additional Resources chapter. The project may have unique requirements that call for additional roles in the process, or the sponsoring organization may have existing governance policies that apply. However, the following table identifies the main responsibilities of the individuals performing specific project roles during the Initiating Process Phase.

Role	Responsibilities
Executive Sponsor	• Keep the project aligned with organization's strategy and portfolio direction • Provide leadership on culture and values • Ensure continuity of sponsorship • Work with other sponsors • Focus on realization of benefits • Provide assurance to the project team by communicating executive-level support
Project Sponsor	• Identify the Project Manager • Identify business objectives and criteria for success • Provide escalation path for project risks and issues • Identify Stakeholders including Business Owner(s) • Approves the Project Charter • Approves the preliminary Project Scope Statement • Approves the Project Organizational Chart and RACI Matrix • Develop the preliminary Project Staffing Estimate • Communicate with the business organization, executive management and external Stakeholders • Understand the project scope and its relationship to the organization's strategic plan • Participate in a kick-off meeting to establish and introduce the project team • Demonstrates commitment to the project

Roles

For a complete list of all project roles, see the Project Role Definitions in the Glossary.

Outputs

The Project Charter is a key output of the Initiating Process Phase.

Role	Responsibilities
Stakeholder(s)	• Any person or group that has an active interest in the project outcome or process, and wishes to participate, or is invited to participate, in the tasks associated with the Initiating Process Phase. This includes SMEs.
IT Sponsor	• Provide input to the Project Sponsor regarding the Project Charter • Assure that the project fits within the organization's IT strategic goals and priorities • Assist in identifying other key IT Stakeholders within the organization who may have future responsibilities for implementing and operating the functionality created by the project • Review and provide feedback regarding the draft Project Organization Chart • Support the Project Manager and Project Sponsor in the preparation of the preliminary Project Scope Statement • Review and provide feedback to the RACI matrix • Review and provide feedback to the project staff estimates
Business Owner(s)	• Provide input into drafting the Project Charter • Define the business outcomes and measurable objectives • Provide input into drafting the Preliminary Scope Statement • Provide input regarding business resources committed in the preliminary Budget Plan • Assist with identifying Stakeholders and review the Stakeholder Register

Role	Responsibilities
Project Manager	• Leads the development of the Project Charter • Review project concept in relation to the organization's strategic business and IT goals and priorities • Provide status updates to the IT Sponsor, Project Sponsor and other Stakeholders • May perform high-level analysis of early project risks to complete the Project Scope Statement • Assist with developing project staffing and resource estimates • Help to define and document project roles and reporting relationships in a RACI Matrix • Conduct Stakeholder Analysis and create Stakeholder Register
Department of Technology (CDT)	• Provide input, guidance, approval/disapproval of the project

1.4 Processes and Activities

To promote understanding, the primary activities completed during the Initiating Process Phase are organized into logical groupings and a logical sequence. However, this is not a literal step-by-step process. Projects are fluid in nature and require Project Managers to adapt to changing environments and new information.

Completing the Initiating Process Phase activities is a process of progressive elaboration, such as adding more depth and detail as more information becomes known. This includes gathering and documenting project information, reviewing the project initiating tools with the Sponsors and other key team members, and updating the project documents. Once Sponsor approval has been received and the remaining activities have been completed, the project will transition into the Planning Process Phase.

> "Projects are fluid in nature. Project Managers need to adapt to changing environments and new information."

Activities

Schedule enough time to properly conduct initiating activities.

1.4.1 Establish Project Staffing

Identify Project Sponsorship

Initiating a project requires the organization to identify appropriate project sponsorship, including a Project Sponsor and an Executive Sponsor. The sponsors play a critical role in the project's overall success, and the decisions about who should serve in these roles are important. It's critical to take sufficient time to align the appropriate Sponsors to the project.

The Executive Sponsor is the champion of the project both within and outside the organization. The Project Sponsor is responsible for serving as the principal authority on matters regarding the communication of business needs, and for resolving escalated issues regarding priority, scope, resources, and business requirements. The Project Sponsor should be at a level and authority that is appropriate to secure funding and commit the necessary resources to the project. The Executive Sponsor should be at a level and authority sufficient to serve as the final escalation point for project risks and issues. The sponsors must understand the project's scope and be accountable for the project's success.

> "Sponsors must understand what constitutes the project's scope and be accountable for the project's success."

In most cases, it is advisable to have a single person named as the Project Sponsor. On the other hand, large and complex projects that span multiple organizations may require multiple people assigned to the Project Sponsor role. Project size and complexity will also dictate the need to have an Executive Sponsor to provide executive level outreach to external organizations and to manage the complex governance of having multiple Project Sponsors. Regardless, it is critical to select Sponsor(s) who have the sponsoring organization's full confidence and possess the appropriate authority.

Executive and Project Sponsor characteristics include:

- Sufficient business and managerial experience
- Ability and willingness to champion the project and its benefits
- Vested interest in the success of the project
- Capacity to attend to the needs of the project
- Political acumen to assist the team in solving problems and removing roadblocks to progress
- Possesses the knowledge and authority to represent the business
- The authority to secure funding and commit resources to the project
- The authority to decide important issues, such as authorizing changes in scope and go/no-go decisions throughout the project

Recommended Practices

Take a look at Initiating Process Phase Recommended Practices for additional information about Sponsorship.

Identify a Project Manager

The Project Sponsor (or the organization's Project Management Office where applicable) usually identifies a Project Manager to begin the initiating activities. The Project Manager is different from that of a functional or operations manager, and this person is responsible for leading the project team and overseeing the day-to-day activities associated with successfully delivering the project's objectives. A Project Sponsor's selection of a Project Manager should be based on multiple factors including the project's complexity and organizational culture, in combination with the candidate's strengths, experience, skills, subject matter knowledge, and interests. The PMBOK provides the PMI Talent Triangle which can also be leveraged when selecting a Project Manager. This focuses on three key skill areas: technical project management, leadership, and strategic and business management.

Roles

The selection of a Project Manager is one of the most important role decisions made on a project.

Ideally, a Project Manager is assigned for the duration of the project to maintain leadership consistency and knowledge of the project's history. The Project Sponsor, however, may choose to assign a different Project Manager to the project who has the appropriate skills for leading the team through a particular phase. For example, the Project Sponsor may assign different Project Managers with the experience and ability to lead the project through the procurement, system development, and/or implementation phases.

> "...the Project Sponsor may assign different Project Managers with the experience and ability to lead the project [through a particular phase."

Whichever scenario is selected, the Project Manager is one of the key roles of any project as they are not only highly visible, but also have a large sphere of influence. The Project Manager should be involved with each of the various groups that interact with the project, along with maintaining a strong advocacy role to ensure the success of the project.

While best practice is to engage a Project Manager as early as possible, a Project Manager can be engaged at any point in the process at the discretion of the home department. Additionally, your department will determine the assignment of responsibilities regarding Project Management, PAL, or other related activities.

Considerations when selecting a Project Manager should include:

- Expertise in project management methods and tools
- Strong and effective interpersonal and leadership skills
- Experience in basic business and management
- Experience within the project's technology
- Knowledge of the business and organization
- Respect and recognition by the Sponsors and among peers within the organization
- Highly organized and efficient at planning, executing, monitoring, and controlling
- Superior communication skills
- Ability to manage relationships and conflict

A Project Manager's responsibilities typically may include:

- Providing direction, leadership, and support to project team members in a professional manner at the project, functional, and task levels
- Providing teams with advice and input on tasks, including documentation, creation of plans, schedules, and reports
- Resolving conflicts within the project, such as between resources or schedules
- Gaining customer and team member buy-in on decisions that lead to project success
- Delegating responsibility to team members
- Monitoring project progress, budget, schedule, scope, and risks
- Communicating project status to the Executive Sponsor, Project Sponsor, control agencies, and Stakeholders
- Escalating issues, concerns, and roadblocks in a timely fashion to the appropriate level to obtain a speedy resolution

Form the Project Planning Team

With input from the Project Sponsor, the Project Manager designates members of the project planning team. For major projects, the Planning Process Phase may require the hiring and reassignment of many technical and business specialists. Ideally, membership of the planning team is relatively stable through completion of the project's requirements analysis process.

Although specific needs vary by project, typical planning teams consist of a: Project Manager, Business Analysts, IT Sponsor, Systems Analysts, Technical Leads, Business Leads, Project Sponsor, Executive Sponsor, Steering Committee, and other identified essential Stakeholders.

Once the primary planning team members are identified and can participate in upcoming planning activities, the RACI Matrix should be updated. It may be useful to develop a preliminary planning team organization chart. This illustrates assigned personnel on the project, identifies relationships between team members, and records members' roles in the upcoming planning activities.

1.4.2 Create a Project Library

The Project Manager should establish a project library/ repository to maintain project information in an organized fashion. Depending on the scale and complexity of this project a Project Librarian role may be established to create and maintain the project library. With a central document repository, team members can collaborate on project documents, maintain historical reference, and support new team member transitions throughout the life of the project. All relevant project-related material, documents produced, issues raised, and decisions rendered should be captured for future reference and tracking.

It is recommended that the project team follow the sponsoring organization's standards and tools for creating project libraries. If the department does not have existing standards or tools, it may be beneficial to establish a directory structure on the local area network (LAN) that is accessible to all team members. Consider more elaborate library structures and tools as needed.

1.4.3 Review Current Documentation

In preparation for Project Charter and Preliminary Scope Statement development, the Project Manager and Sponsor(s) should review all relevant historical documents. These documents help establish historical context, provide lessons learned, and shape future requirements. All relevant documents should be saved in the project library. The following is a list of possible documents for potential review:

- Previously developed concept papers

- Department Strategic Plan
- IT Strategic Plan
- Legislation relevant to the project
- Departmental governance policies
- Department Project Management Office (PMO) and system development policies
- Program area website
- Organization charts
- Legislative Analyst Office reports relevant to the project
- California State Auditor reports relevant to the project
- All emails related to the project
- Documentation for legacy systems (for system replacement projects)
- Documents from any previously unsuccessful attempts to launch the project
- Documents from similar projects

1.4.4 Conduct Stakeholder Analysis

Stakeholder analysis is the process of identifying individuals or groups that are likely to affect, or be affected by, the proposed project, and sorting them by their impact on the project and the impact of the project on them. Identify Stakeholders early in a project and allow their needs and requirements to be considered from the very beginning. When appropriate, seek Stakeholder representation in project planning and executing activities.

The output of this process is a preliminary Stakeholder Register, which may contain, but is not limited to, the following information about identified Stakeholders:

- Identification information, including name, position, and contact details
- Assessment information, such as how the Stakeholder may influence the project or be affected by it
- Classification of preferred involvement level, such as noting a need for early engagement

Review the instructions in this chapter and complete the Stakeholder Register. It is important to engage the correct Stakeholders and secure their buy-in. This

Tools

A template is available:
Stakeholder Register

When to Use?

Use the template for projects of the following complexities:

L M H

initial iteration of the Stakeholder Register will be further developed during the Planning Process Phase.

Identify Stakeholder Project Priorities

Following the Stakeholder analysis, Stakeholder project priorities should be identified to gain understanding and perspective on what trade-offs may be possible as conflicting priorities are identified. The Project Manager and Project Sponsor will be able to understand the top priorities as well as the degree of flexibility that exists with the Stakeholders in the areas of time, cost, scope and quality. This information will help the Project Manager and Project Sponsor navigate the dynamic environment and make critical decisions once the project development work begins.

Tools

A template is available:
Project Priorities Template

Create a RACI Matrix

The purpose of the project RACI Matrix is to document the participation level of Stakeholders as related to completing tasks and/or deliverables for the project. Throughout the project, the RACI Matrix is also used in conjunction with the Project Management Plan (PMP) to help manage scope, schedule, resources, quality, and communication. The RACI Matrix typically includes the following:

- Listing of major project deliverables (outputs) and when they should be completed
- Listing of all identified Stakeholders
- Stakeholder assignments for each deliverable and specifics regarding the level of responsibility

An organization may already have a standard RACI Matrix or practice that identifies different deliverables, Stakeholders, or responsibility assignment standards. If so, that standard RACI Matrix may be leveraged, as appropriate. If the organization has not established a standard, the project team can develop a RACI Matrix using the guidance and templates contained in the CA-PMF.

When to Use?

Use the template for projects of the following complexities:

L M H

Tools

A template is available:
RACI Matrix

1.4.5 Perform Charter Analysis

The Project Manager works with essential Stakeholders to perform the analysis necessary to prepare the Project Charter and the preliminary scope, budget, and schedule. Activities may include:

- Reviewing relevant documentation provided by the business areas.
- Reviewing the Stakeholder Register to identify key participants in the process.

When to Use?

Use the template for projects of the following complexities:

L M H

Tools

A template is available:
Project Charter

- Reviewing the Project Charter instructions in this chapter to identify the required information needed to develop a Project Charter.
- Identifying areas of the Project Charter template where information is not known and gather and review project documentation to fill those gaps.
- Identifying possible business process re-engineering needs.
- Scheduling meetings with appropriate Stakeholders to gather information needed to develop the Project Charter and preliminary scope, budget, and schedule.

Develop the Scope Statement

The project's preliminary Scope Statement provides the high-level definition of the project, details the project deliverables, and describes the major objectives. The preliminary Scope Statement defines what the project intends to accomplish by addressing and documenting:

- What business need the project will address
- The project and deliverable requirements
- Product requirements

The information should be documented at a relatively high level to allow for further breakdown at a later time. The project team refines the preliminary Scope Statement during the Planning Process Phase to produce a detailed Scope Statement, which in turn produces the scope baseline.

This includes:

- **Project justification** - A statement of the business problem that is solved.
- **Project goals and objectives** - The product and/or service deliverables that are created to address the business problem.
- **Assessment criteria** - What constitutes the successful completion of these deliverables.
- **In-scope activities** - A definition of the work to be performed, including relevant business requirements.
- **Out-of-scope activities** - A definition of work that is excluded from the project. This includes any activities that are questionable or require consultation with the Sponsors to confirm out-of-scope designation.

Develop the Budget Estimate

The Project Manager develops a preliminary budget estimate based on the information known at this stage of the project. For some projects, the preliminary budget may be limited to the cost of completing project-planning activities. It may include research on similar state projects to get a rough order of magnitude for the implementation cost. It may also include documentation of budget parameters communicated by the Sponsors.

For history tracking purposes and better budget refinement, the Project Manager should always maintain notes on how this preliminary budget was derived, including assumptions, constraints, and risks identified.

Develop the Schedule Estimate

The Project Manager develops a preliminary schedule based on information known at this point of the project. At this stage in the process, tasks, dependencies, and completion dates are likely to be limited to the upcoming Planning Process Phase activities. If the Sponsors communicate target dates linked to budget actions, certain milestones, or project completion expectations, these are inserted into the preliminary schedule as placeholders, and the associated assumptions are documented.

Document Assumptions, Constraints, and Risks

It is important to document the assumptions, constraints, and risks identified during the Initiating Process Phase activities. These will be helpful while working through Initiating Process Phase activities, such as: identifying Stakeholders; creating the RACI Matrix; and drafting the Project Charter, scope, preliminary budget, and high-level schedule.

Complexity Assessment

A useful starting point is to assess project characteristics that can indicate how challenging the project may be. The state's Complexity Assessment can assist with this. The assessment yields a score indicating the business and technical complexity of the project.

Develop the Project Charter

Ideally, the Project Manager should lead the effort to develop the Project Charter. The Project Charter communicates basic information about a new project and authorizes the project to expend resources towards completion of the project's objectives.

The Project Charter's purpose is to demonstrate organizational support for the project and the Project Manager, as well as to document the business needs of the new product or solution, service, or other project result. Approval of the Project Charter signals that other Initiating Process Phase activities can begin.

Project Charter development is a highly collaborative process that includes the Sponsors, the Project Manager, and other key Stakeholders identified in the RACI Matrix. Refer to the Project Charter instructions in this chapter and the Project Charter template for additional information pertaining to developing the Project Charter.

Once the Project Charter is prepared, it should be reviewed by key Stakeholders and approved by the Project Sponsor and Executive Sponsor. The approved Project Charter is then shared with the project team and other Stakeholders and used to guide subsequent project activities.

Assessing Trade-offs

When developing the Project Charter, discuss with the Project Sponsor and Executive Sponsor any trade-offs among scope, cost, and schedule. The aim should be to include an initial priority ranking of these important constraints in the Project Charter. During future planning activities, it will be important to be aware of the Sponsor's opinions regarding which of these constraints are more flexible and which are less flexible. Sometimes at this stage a constraint is already identified, such as a legislative mandate to implement a solution by a certain date.

1.4.6 Monitoring and Controlling

During the Initiating Process Phase, monitoring and controlling activities are minimal, as there is no project development work occurring at this time, however, the Project Sponsor and Project Manager should monitor the outputs of this process phase to ensure quality and timeliness of completion.

1.4.7 Project Approval Process

The State's project approval process continues during the Initiating Process Phase, with a completed Stage 1 Business Analysis (S1BA) as part of PAL. Refer to the Framework Resources section in the Additional Resources Chapter if your project is reportable and therefore requires completion of a S1BA. Additional information on the S1BA and PAL can be found at SIMM 19.

Web Links

PAL (SIMM 19) - Stage 1 Business Analysis (S1BA)
Project Approval Lifecycle (PAL)

1.4.8 Initiating Process Phase Review

Once all of the Initiating Process Phase activities are accomplished, complete the Initiating Process Phase Checklist. Completion of the checklist helps ensure that project staff, the organization, and external Stakeholders understand what is being undertaken and what to expect as the project takes shape.

1.5 Tools and Outputs

The following are generally developed during the Initiating Process Phase.

Tool / Output	Definition
Project Priorities Template	A assessment tool to be completed for key Stakeholders. The assessment serves to identify the priorities of the project.
Project Charter*	Formally authorizes a project. It describes the business need for the project and the anticipated project results. It formalizes the existence of the project and provides the project with the authority to expend organizational resources to support project activities.
Stakeholder Register	Identifies the organizations and individuals with a role in the project. The Register provides important input for the planning of governance and communication for the project.
RACI Matrix*	Identifies the level of responsibility held by each owner in the creation, review, and approval of project products or documents during each project phase.
Stage 1 Business Analysis (S1BA) [1]	Part of the PAL, the S1BA provides a basis for project management, program management, executive management, and state-level control agencies to understand and agree on business problems or opportunities, and the objectives to address them. Additional information on the S1BA can be found in the *Statewide Information Management Manual (SIMM) Section 19A*.

Tools

For a complete list of all project Tools see the Templates chapter.

Web Links

Statewide Information Management Manual (SIMM)
PAL (SIMM 19) - Stage 1 Business Analysis (S1BA)

Tool / Output	Definition
Complexity Assessments (Oversight) [2]	A self-assessment tool to be completed by the project team. The assessment serves to discover and characterize the business and technical complexities of the proposed project.
Project Status Reports (Oversight) [2]	Includes status reports that communicate the current overall status of a project. It should be distributed to appropriate team members, Stakeholders, and sponsors on a regular basis.
Project Document Approval	This document can be used to circulate documents for review and approval. Attach to those plans and documents that need to be reviewed or signed off. Use is dependent on the project size and scope and the needs of the project team.
Initiating Process Phase Checklist	Identifies the key activities that are to be completed during the Initiating Process Phase.

* There are two versions of these templates available: a standard and a mini. The mini is designed for the smaller of the low complexity projects, pilot projects, and those who are exploring a proof of conc ept. The standard version is for all other projects.

[1] PAL documentation including templates and instructions can be found under the *Statewide Information Management Manual (SIMM) 19* at: https://cdt.ca.gov/policy/simm-19/

[2] Oversight templates and other information related to oversight reporting requirements can be found under the *Statewide Information Management Manual (SIMM) 45* at: https://cdt.ca.gov/policy/simm/

Project Charter

2.1 Introduction

A Project Charter states the project's purpose and rationale, project scope description, roles and responsibilities, approach, and the project organization. Additional items include the goal(s), objectives, high-level requirements, approach, preliminary costs, schedules, risks, assumptions, constraints, and a Stakeholder register. The Project Charter defines the project's boundaries as well as the boundaries within which the Project Manager is authorized to act. This crucial document ensures everyone involved in the project is aware of its purpose and objectives and their respective role.

Tools

A template is available:
Project Charter

When to Use?

Use the template for projects of the following complexities:

L M H

2.2 Recommended Practices

A Project Charter defines the project's scope in broad terms and business objective(s). It includes other essential elements, such as the preliminary budget and time line. Use of recommended practices will help produce a precise, comprehensive Project Charter that will help the project team clearly conceptualize the project goals and objectives.

Recommended Practices

Review Recommended Practices at the start of the process phase.

Involve a Project Manager Early

The Project Manager should be involved as early as possible in the project.

Appropriately Size the Project Charter

Project Charters do not need to be lengthy documents that require a long and arduous process to complete. The Project Charter's content should be tailored to the project's type, size and complexity. The Project Charter should be viewed as an "enabler" versus a "blocker" for launching a new project.

> "The Project Charter does not need to be a lengthy document that is difficult to complete, but a well developed Charter is key."

Collaborate with Key Stakeholders

Involving key Stakeholders in the development of the Project Charter may prevent presenting a document to Stakeholders whose needs and requirements are not met. Including key Stakeholders at this early stage of the project also establishes precedence for inclusion, open communication, and ease in documenting requirements, expectations, and commitments.

Utilize the Expertise Available

Organizations often leverage internal and external sources who have developed Project Charters in the past. However, in such cases, it is still important to work closely with key Stakeholders to ensure their ownership and involvement.

Compile All Relevant Information

Compile all documentation for the proposed project, including emails and memos received from the Project Sponsor(s) and others, notes from conversations, and any other developed project documentation. Add appropriate information to the Project Charter and populate as many sections as possible based on knowledge of the business and what the business is trying to accomplish.

Confirm Stakeholder Requirements

Confirm Stakeholder requirements and their respective priorities. Engage the Stakeholders early and obtain their buy-in.

> "The Project Charter forms the preliminary baseline and is a high-level agreement with the project Stakeholders."

Identify Dependencies and Constraints

When the Stakeholder cites related projects, ask them to elaborate and share details. Document dependencies that exist with other projects and constraints the projects may share.

Document What is Out of Scope

Documenting what is out of scope is just as important as documenting what is in scope.

Read the Project Charter

Make sure the Project Charter is reviewed for accuracy and completeness. Share it with key Stakeholders to ensure that their needs are met.

2.3 Roles in Preparation

Overall definitions of project roles can be found in the *Definitions of Project Roles* section in the Additional Resources chapter. The following project roles typically participate in preparation of the Project Charter:

- Executive(s),Project Sponsor(s) (lead and approver)
- Project Manager
- Business Owner
- IT Sponsor
- Other key Stakeholders

Roles

For a complete list of all project roles, see the Project Role Definitions in the Glossary.

2.4 Practice Overview

2.4.1 Introduction

In simple terms, the Project Charter defines what needs to be accomplished and what products or services will be delivered. Each project begins with a business need, business opportunity, idea, or a vision. It must be in alignment with the sponsoring organization's business objectives as well as the overall strategy for the organization.

> "The Project Charter defines what needs to be accomplished and what products or services will be delivered."

These elements are initially examined during the development of the project concept, and attributes are developed to make a strong case to launch a project. Each sponsoring organization should ensure the project goal and associated objectives are aligned with the organization's overall business goals, objectives, and the long-term strategic direction. The project's purpose must contribute to the organization's overall business vision and mission. This is the why of the project.

The Project Charter also provides a brief overview, detailing how the project will reach each of its goals. This includes a high-level and preliminary view of the resources, time lines, costs, and technologies to be deployed. Additionally, it provides some of the criteria to measure the success of the project.

2.4.2 Charter Development

The Project Charter forms the preliminary project baseline and is a high-level agreement with the essential Stakeholders involved in the project. Projects are typically initiated by business entities outside of the Information Technology (IT) organization, such as an executive within a business unit. Generally, the business entity initiating the project, or its designee, produces the Project Charter. However, it is highly encouraged that the prospective Project Manager and essential Stakeholders from the sponsoring entity's IT organization participate in the process to ensure they understand the project's needs and requirements.

> "The Project Charter establishes the project definition, which serves as the foundation for all future work efforts."

The Project Charter Process, as depicted below in Figure 2-1, leverages project inputs, coupled with skills of the team members and CA-PMF tools, to undertake project activities associated with Project Charter development. A completed Project Charter is the output from this process.

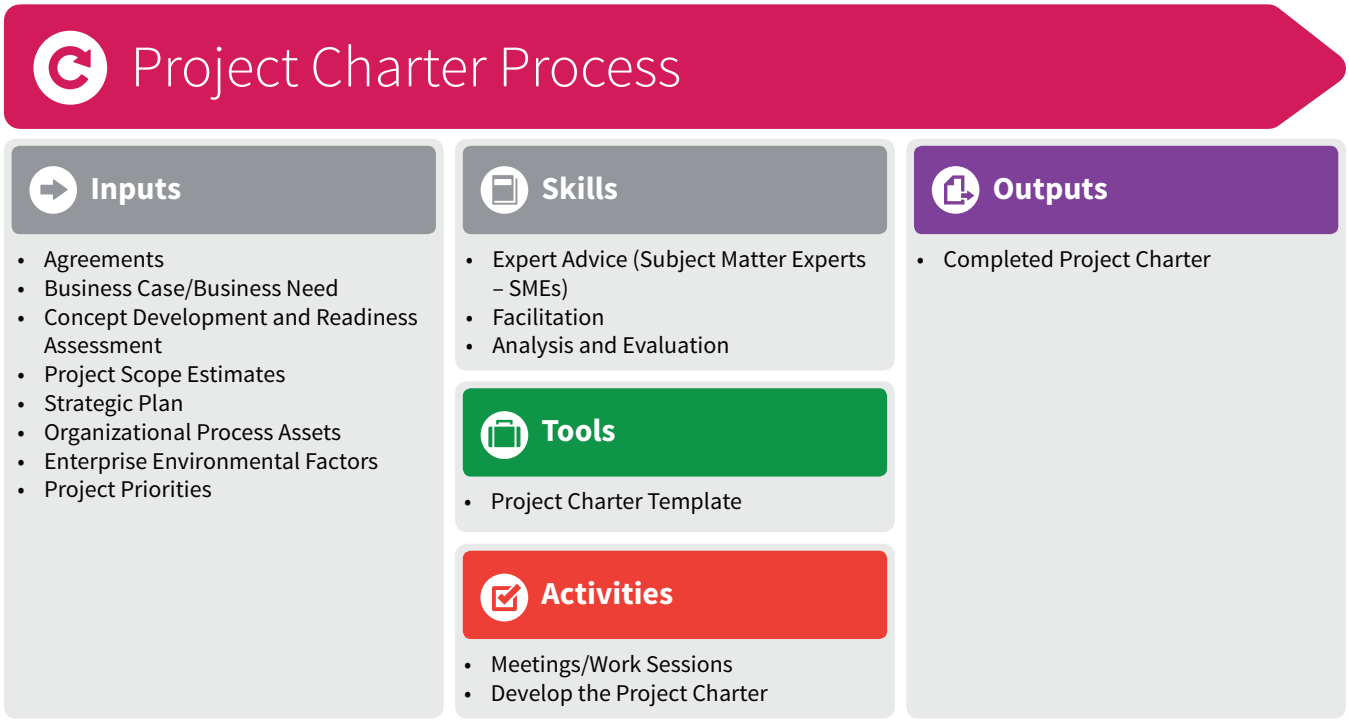


Figure 2-1

The Project Charter provides a fundamental input to the next phase of the project lifecycle - the Planning Process Phase - when the Project Management Plan (PMP) and other important planning documents are prepared.

Project Charter preparation offers an opportunity to start solidifying the project team. For example, the process:

- Allows senior management to set boundaries for the project scope
- Formalizes partnerships
- Helps ensure an understanding of agreements
- Helps project teams identify and plan for risks, thus improving the chance of project success
- Provides a summary of high-priority project requirements

The Project Charter formalizes these findings, serving as the official record of these concepts and supporting information

Elements of Charter Development

When developing the Charter, consider the following inputs:

- **Agreements** - It's important that your Charter reflects the agreements reached with key Stakeholders about project scope, schedule, and resources. This includes an agreement of Sponsor participation and support.
- **Business Case/Business Need** - A clear business case is crucial to a successful project. Understand the business needs before the project is launched. This includes the goals and objectives, the business problem that the project is targeted to solve, along with strategic alignment and with the organizational objectives. Being detailed and thorough is important.
- **Concept Development and Readiness Assessment** - Before developing the Charter, conducting this assessment will help to further define and elaborate the business problem. The assessment also poses preliminary questions for project leaders to consider as they begin to conceptualize a project. It will help to identify business drivers, problems, opportunities, and objectives that the project is intended to address. This written description of these factors outlines the information so that it is clear how the project concept aligns with the strategic direction of the organization. The assessment also provides a determination of the sponsoring organization's readiness for undertaking and accepting the project results, and an analysis of possible organizational impacts.

Skills

Use the following skills to complete tasks:
· Expert Advice (SMEs)
· Facilitation
· Analysis and Evaluation

- **Project Scope Estimates** - A well-defined scope allows the project to be focused. At this stage, be aware of potential scope creep or other factors that may affect the project.
- **Strategic Plan** - The project should strategically align with the goals of the organization in addition to meeting the desired business need.
- **Organizational Process Assets** - These include lessons learned from previous projects, applicable policy procedures, or guidelines. These provide insights regarding previous decisions.
- **Enterprise Environmental Factors** - Organizational or enterprise environmental factors are inputs for this process, because communication must be adapted to the project environment. This consists of entities, conditions, events, and factors within the organization that influence choices and activities.
- **Project Priorities** - The Charter should leverage the content that was developed in the completed Project Priorities Assessment document.

Charter Value and Importance

The Project Charter is the major output of a project's Initiating Process Phase and formally authorizes a project. It formally communicates the existence of the project and authorizes the Project Manager to designate an appropriate level of organizational resources for project activities. The Project Charter should be started early in the PMLC. Its creation is a beneficial process that obtains commitment from all groups and individuals affected by the project.

Formally documenting this information in the Project Charter helps capture the commitment to the project and communicate it to project team members and Stakeholders.

An approved Project Charter:

- Ensures a consistent understanding of the project goals and objectives.
- Establishes expectations, and identifies resources necessary to move the project to the next level of detailed planning.
- Reinforces project governance with an approved organizational structure.
- Identifies potential project risks, allowing them to be addressed early in the project.

- Identifies key project roles and responsibilities.
- Identifies high-level requirements.
- Identifies critical success factors.
- Establishes the assignment of a Project Manager.
- Documents the Executive/Project Sponsor's approval to proceed with the next process phase of the PMLC, the Planning Process Phase.
- Includes a high-level project schedule. The schedule identifies the major milestones and provides the initial roadmap or path towards the more detailed project schedule that is developed during the Planning and Executing Process Phases.

Be sure to seek input from the Sponsors and Business Owner along with other key team members. Remember that this document is an important foundation for the project. Ensuring that it is complete and thorough is important for realizing project success.

The Mini Project Charter

There are two versions of the Project Charter template available: a standard and a mini. The mini is designed for the smaller of the low complexity projects, pilot projects, and those who are exploring a proof of concept, traditionally defined in terms of budget, scope and/or time. For these types of projects, the development of the mini Project Charter provides a level of detail that is commensurate with the amount of information necessary. Instructions for completing the mini Project Charter are included in the template.

2.4.3 Assumptions

Assumptions are factors that we believe to be true but are not confirmed to be true. They add risk to a project, since it is possible that they will turn out to be false and can impact any part of the project lifecycle. Therefore, it is important to document and then throughly analyze assumptions.

2.4.4 Constraints

When considering constraints, it is prudent for the Project Manager to review the Project Management Triangle. This is also known as the "Triple Constraint," and it reveals the relationship between scope, time, cost, and quality.

The rule of thumb is one constraint cannot be changed without affecting either one or both of the other constraints. The project management training as depicted in Figure 2-2 displays the three constraints of time, cost, and scope as they are displayed on three opposing sides of a triangle.

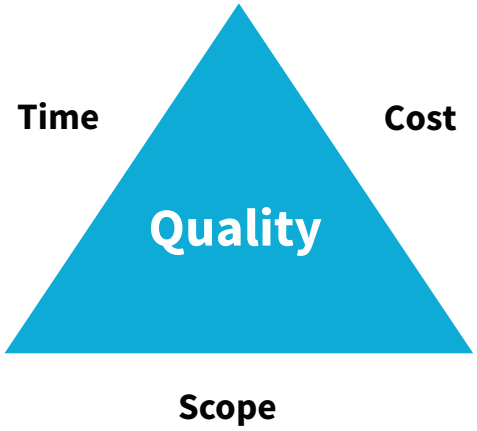


Figure 2-2

In the triangle's center, notice the term "Quality." Any change to the project's time, cost, or scope will also affect project and/or product quality.

- ***Time*** addresses project duration and scheduling
- ***Cost*** addresses project budget and resources
- ***Scope*** addresses project goals and objectives, which can affect requirements and work

The project management triangle is a useful model that illustrates consequences of change to the Triple Constraint to project Stakeholders. The triangle reflects the fact that the three constraints are interrelated and involve trade-offs – one side of the triangle cannot be changed without influencing the others. The consequence of not balancing the Triple Constraint is poor project and/or product quality.

The Triple Constraint is believed to be one of the most overlooked fundamentals of project management. Early in the project, the Project Manager should discuss Triple Constraint priorities with the Project Sponsor and determine which of the three is most important and has the least flexibility for changing as the project's plans are developed.

As the Project Manager, document the priority of the three factors as agreed upon by the Project Sponsor and communicate these priorities to Stakeholders as appropriate. By understanding the Triple Constraint and the ramifications associated with adjusting any one of its components, projects can be better planned, project risks can be analyzed, and the organization can be protected from unrealistic Stakeholder expectations. It is helpful to revisit these priorities once the project is underway to determine if a full picture of cost, scope, and schedule results in resorting these priorities. Be aware that changes in either of these constraints may have an impact on quality. Below is an example of how the Triple Constraint can be depicted in a table format.

Activities

Assess and review the project priorities with the Project Sponsor and project team.

Triple Constraint Table			
Constraint	**Cost**	**Schedule**	**Scope**
Constrained (Cannot change)		X	
Accepted (Could be changed)			X
Improved (Can Be Changed)	X		

Most Flexible Constraint*

* The arrow indicates that the relative flexibility of the constraint increases as you progress down the table from constrained to improved.

Stakeholder Register

3.1 Introduction

Identification of project Stakeholders is one of the first project initiating activities. A completed Stakeholder Register results from the systematic identification of the individuals and organizations expected to be affected by the project or that will affect the project in some way.

"Stakeholder" is a very broad term that includes not only the actual project team members but also any individuals who could be affected by, or who could affect, the changes brought about by the project. For example, a Stakeholder in a public sector project could include a taxpayer who has a stake in the effective use of public funds.

Because of the Stakeholder list's broad reach, it represents only an initial effort to identify those who have an interest in the project and who can influence the project's progress or outcome. Further refinement of Stakeholder relationships occurs during the Planning Process Phase, when the relationships are more clearly evident and are defined by the Governance Plan, the Project Management Plan, and the Communications Plan.

During the Initiating Process Phase, identify Stakeholders by considering:

- Who are the important participants in the project?
- Who will have influence over the project's success?
- Who will be affected by the outcome of the project?

All project team members are Stakeholders. In addition, there may be other internal or external Stakeholders who can be identified at this stage of the project.

A completed Stakeholder Register will provide the project team with a list of individuals and organizations that should be considered as the project progresses. It is important to identify the kind of interest and influence a Stakeholder may have during the course of the project, and to identify those Stakeholders who could participate in project planning and provide input for drafting the Project Charter. It is recommended that the Stakeholder Register be revisited throughout the project to be sure it is kept up to date and complete.

Tools

A template is available:
Stakeholder Register

When to Use?

Use the template for projects of the following complexities:

L M H

3.2 Recommended Practices

Effective Initiating Process Phase practices are an early key to project success. The following recommended practices can help guide a Project Manager during development of the Stakeholder Register.

Identify Stakeholders Early

Identifying Stakeholders early in the life of a project allows the project to plan for their participation whenever it is appropriate. Timely engagement of the appropriate Stakeholders can prevent potential delays and rework caused when key Stakeholders have not provided input on project decisions as they are made. In addition, Stakeholders who do not participate in the project on a daily basis will require an orientation before they can provide timely advice. This takes careful planning and preparation.

Not All Stakeholders Get to Decide

Each Stakeholder needs to have a clear understanding of his or her role within the project. Some Stakeholders are decision makers and should be so identified in project management and governance documents such as the RACI Matrix. At times the project requires the complete agreement of a Stakeholder to proceed, such as in the development of a data hosting plan or interface design. In this case, the hosting organization or the interface partner is part of a mutual decision about design or approach. Other Stakeholders are advisory and are consulted for their knowledge and experience to provide advice about requirements, design, and test results. The final decisions, while influenced by feedback from affected Stakeholders, have to be made by the identified project leadership, such as the Project Manager or the Project Sponsor. Conduct Stakeholder engagement in a way that establishes clear expectations regarding these roles.

Recommended Practices

Review Recommended Practices as you prepare to develop the Stakeholder Register.

> “Each Stakeholder needs to have a clear understanding of his or her role within the project to ensure success.”

3.3 Roles in Preparation

Overall definitions of project rolls can be found in the D*efinitions of Project Roles* section in the Additional Resources chapter. The following project roles typically participate in preparation of the Stakeholder Register:

- Executive(s), Project Sponsor(s) (lead and approver)
- Project Manager
- Business Owner
- IT Sponsor
- Other key Stakeholders

Roles

For a complete list of all project roles, see the Project Role Definitions in the Glossary.

3.4 Practice Overview

3.4.1 Identification of Stakeholders

The Project Manager and Project Sponsor can draw on several sources of information for the initial development and review of the Stakeholder Register. Any organization or individual identified as having a role in the Initiating Process Phase of the project should be included as a Stakeholder. In addition, a more comprehensive list of project roles can provide potential Stakeholders. Initial identification of Stakeholders includes:

- **Key customer(s)** - Those who will be impacted by the system, either directly or indirectly. Key customers include the end users.
- **Key Data Providers** - Those who will be providing data to the system in a particular format, content, or time.
- **End Users** - Individuals who are actually accessing the system to do their work.
- **Vendors** - External organizations with a role in conducting the project, either through direct services or through oversight services such as quality assurance. This includes vendors responsible for systems that may interact with the project's system.
- **Any individual or group positioned to affect project progress** - Examples include members of the public, other public agencies, or other organizations with a stake in the project's results. The Project Manager should consult with the Sponsors and Business Owners to identify additional potential Stakeholders in the sponsoring organization beyond those directly participating in the project.

To minimize risk, the Project Manager should interact early with the legal resources supporting the project to confirm project compatibility with statutes. The manager also should include the organization's administrative unit, so the project can engage budget or staff required to help justify funding and establish project support positions. In addition, the manager may also include the legislative liaison office, to help establish effective legislative communications.

The Executive Sponsor, Project Sponsor, and the Business Owner should have a good sense of those outside the sponsoring organization with an interest in the project. Perhaps an organization conducts its business in conjunction with other federal, state, or local governmental organizations. There also could be interface partners. Payment-handling aspects of the project could require the Treasurer or Controller to be involved in product development and implementation.

Other potential Stakeholders include End Users of the product and/or service that results from the project work. These End Users might be within the sponsoring organization, other state organizations, other levels of government, or among the public. All of these End Users should be considered Stakeholders as well.

3.4.2 Initial Classification of Stakeholders

Stakeholder classification and engagement analysis begins in the project's Initiating Process Phase and continues throughout the Planning and Executing Process Phases. In the Initiating Process Phase, Stakeholders should be identified as completely as possible and classified in several important ways:

- **Project Influence** - How much authority and control does the Stakeholder have over project decisions involving cost, schedule, scope, and ultimate success?
- **Project Impact** - How much do the business processes, actions, and capabilities of the project and its product affect the Stakeholder, and what is the likelihood of this happening?

These two dimensions help define spheres of influence around the project. Some Stakeholders are close to the center, where they have direct control over project decisions. Examples are the Executive Sponsor, Project Sponsor, and Project Manager. Other Stakeholders are affected by the project's outcomes, such as End Users and interface partners, although they do not have direct control over the project decisions.

Stakeholders can have a direct impact on the project schedule and costs, even though they may not have any direct control over project decisions. For example, the technical requirements of hosting sites or interface partners must be taken into account. End Users may have no direct control over project decisions; however, they can have a significant impact on project success. End Users can express their approval or disapproval of the project's approach either directly or indirectly in ways that can affect project outcomes.

> "End users may have no direct control over project decisions, but they can have a significant impact on project success."

In light of their different levels of project control and impact, we can classify Stakeholders in ways that describe the relationship between each Stakeholder as well as each Stakeholder's relationship to the project. This classification of Stakeholders can help reveal how each Stakeholder's project participation should be considered in the project planning. As the project progresses, it is a recommended practice to develop more detailed plans to manage Stakeholders and to describe associated governance and communication within the project. Conduct additional Stakeholder reviews throughout the project lifecycle to ensure the Stakeholder Register is complete and that classifications are appropriate.

Stakeholder analysis is particularly important when managing projects in the public sector, where it may be difficult to anticipate the kind of influence a Stakeholder will have over the course of a project. State public sector projects require funding approval from the Department of Finance and the Legislature, which can provide a forum for unsatisfied Stakeholders seeking changes in the project. Therefore, while a Stakeholder may not have direct influence over the sponsoring organization, he or she may be able to influence the project through political and public channels.

"Stakeholder analysis is particularly important in the public sector."

Structure of the Register

At this stage of Stakeholder Register development, Stakeholders may be identified by name or organization only. However, additional details will be needed in the later development of the project Communication Plan and/or Stakeholder Management Plan. This can include specifying the individuals who are the key points of contact for Stakeholder organizations.

As Stakeholder names are compiled and their influence and impact are assessed, the project team begins to identify which Stakeholders need to be closely involved in the project as it progresses. Influential Stakeholders need to stay informed, ensuring they are ready to do their part to make the project a success. Similarly, the Stakeholder Register will start to show which Stakeholders may not have direct influence over the project but still need to be consulted throughout the project to ensure a positive result.

Special attention should be given to Stakeholders with either high influence or who face a high level of impact from the project. The Stakeholder Register should indicate which Stakeholders need early engagement, and whether that engagement involves actual participation in the Initiating Process Phase activities or simply communication updates regarding the project's initiating activities.

Register Contents

It is recommended that the Stakeholder Register contain the following minimum information for each identified Stakeholder:

1. Name, title, organization, position, and location
2. Contact information (such as phone, email, and address)
3. Stakeholder classification based on the level and likelihood of project influence and/or level of impact on the Stakeholders business or life
4. The need for and type of early engagement with the Stakeholder

This helps to ensure that the Register has the basic information that is needed for the project.

RACI Matrix

4.1 Introduction

Tools

A template is available:
RACI Matrix

When to Use?

Use the template for projects of the following complexities:

L M H

The RACI Matrix (also known as a responsibility assignment matrix) describes the participation by various roles in completing deliverables for a project. RACI is an acronym based on four key types of responsibilities that are often described in the Matrix: Responsible, Accountable, Consulted, and Informed. The Matrix is especially useful in clarifying roles and responsibilities where cross-functional roles or processes exist. It shows the major work that needs to be completed and the associated responsibilities for that work.

Throughout the PMLC, the RACI Matrix can be used in conjunction with the Project Management Plan to help manage scope, schedule, resources, quality, and communication. Organizations may already possess one or more templates that may identify different deliverables, Stakeholders, or responsibility assignment standards. However, if an appropriate template does not exist, use the standard RACI Matrix template available as part of the CA-PMF templates.

The purpose of the RACI Matrix is to document:

- What deliverables are associated with each process phase
- Applicable templates for each of the deliverables
- Who is the template owner
- Who makes the formal decision to approve or deny the deliverable
- Who is responsible for creating the deliverable
- Who could be invited to provide their input to the deliverable
- Who needs to be informed regarding the deliverable

The RACI Matrix is useful because it:

- Alerts the Project Manager and Sponsor(s) if human resources are assigned to too many or too few responsibilities.
- Keeps everybody on the same page regarding who is accountable for a particular project task.

- Helps to keep all the necessary resources in the decision-making and information loop during the project.
- Helps the Project Manager develop a simple communication system to keep those in the "I" (Informed) category informed, while involving only those in the "C" (Consulted) category in meetings and interactive communications. This saves everybody's time.

4.2 Recommended Practices

Recommended Practices

Review Recommended Practices as you develop the RACI Matrix.

The following recommended practices can help the Project Sponsor(s) and Project Manager make sound and effective decisions as they develop the RACI Matrix. A well-developed matrix helps everyone on the project team stay on the same page.

Use the Stakeholder Register

Start with the project Stakeholder Register and/or organizational chart in determining the resources that will be responsible for various aspects of the deliverables. "Resources" may be persons, groups, vendors, or roles.

Every Task Should Designate a Responsible Party

Make sure that every task has at least one person assigned as "R" (Responsible).

Only One Final Approver Per Task

Make sure that every task has only one person assigned to "A" (Approve). Though responsibilities can be shared, final approval should be fixed to a single person.

"R" and "A" Roles May Be the Same Resource

In some cases both the "R" and "A" roles might be taken by the same person.

Keep an Eye on the Number of Roles Consulted

If there seem to be too many people in the "C" (Consulted) category, determine if all of them actually need to be in the decision-making loop. Consider moving some of them to the "I" (Informed) category, where possible.

Validate Your RACI Matrix then Seek Approval

Validate your RACI Matrix with all parties and seek signed agreement. This will help ensure the RACI Matrix accurately reflects the expectations and responsibilities of all resources.

Seek Re-Approval if Changes are Made to the RACI

If any changes to the RACI Matrix are made during the project, all team members should review and approve the revised RACI Matrix.

4.3 Roles in Preparation

Overall definitions of project rolls can be found in the *Definitions of Project Roles* section in the Additional Resources chapter. The following project roles participate in preparation of the RACI Matrix. Participants should include:

- Project Sponsor(s) (lead and approver)
- Project Manager
- Executive(s)
- Business Owner
- IT Sponsor
- Other key Stakeholders as determined necessary

Roles

For a complete list of all project roles, see the Project Role Definitions in the Glossary.

4.4 Practice Overview

Create the RACI Matrix to establish the "what," "who," and level of participation and authority for every project deliverable. Note that despite the straightforward nature of the information included in the RACI Matrix, gaining consensus on all project roles can be challenging. The following steps can help obtain input and approval efficiently:

1. Identify all people who will participate in or support your project.
2. Develop a complete list of deliverables for your project.
3. Discuss with all team members how they will each support the work to produce the different project deliverables. This includes, for each of their assignments, discussing the level of their responsibility and authority, as well as the specific work they will perform. Also discuss with them any involvement that others will have in their activities. If specific assignments haven't yet been identified for certain activities, consult with people who previously have performed those types of activities to identify the appropriate resource and responsibility level.

4. Prepare an initial draft of your RACI Matrix. This includes creating a table, listing all of the project deliverables in the vertical axis (left-hand column), and then adding the resources who will support each deliverable. Next, populate the cells formed by the intersection of each row and column with additional descriptive information about the deliverable and the appropriate role responsibility. To identify the appropriate role responsibility, enter one of the following choices (RACI) in the corresponding cell-intersection between each deliverable and each role:

   "R" - Responsible: Bears responsibility for creating the deliverable

   "A" - Approve: Makes the formal decision to approve or deny (one per deliverable)

   "C" - Consulted: Specifically invited, but not required, to provide input

   "I" - Informed: Notified of updates to the deliverable (especially approval)

5. Have the people consulted in Step 3 review and approve the draft RACI Matrix. If there is agreement with the draft, obtain agreement in writing. If concerns are expressed about some aspects, have team members document their concerns in a memo or an email, so that negotiations and items of concern can be tracked and managed more accurately.

6. If some team members don't approve the draft RACI Matrix, revise it to address their concerns and ask all people who gave input to review and approve the revised document.

7. Go back to Step 5 and continue the process until everyone consulted in Step 3 formally approves the RACI Matrix.

For complex projects, the RACI Matrix can be quite large, and it can be time consuming to keep the chart current and consult throughout the project with all the identified people. However, following the agreements of the approved RACI Matrix is an important part of maintaining trust between project team members and completing the project work within schedule, budget, scope, and quality.

The Mini RACI Matrix

There are two versions of the RACI Matrix template available: a standard and a mini. The mini is designed for the smaller of the low complexity projects, pilot projects, and those who are exploring a proof of concept. For these types of projects, the development of the mini RACI Matrix provides a level of detail that is commensurate with the amount of information necessary to link project resources to project deliverables. Instructions for completing the mini RACI Matrix are included in the template.

Process Phase Checklist

5.1 Complete the Checklist

Once all of the activities within the Initiating Process Phase are complete, the process phase checklist should be completed. Why a checklist? Checklists are comprised of a list of questions built around why, how, what, who, where, and when, which can help verify whether everything required for executing the project is in place. Many of these tasks are repeatable from project to project. Checklists help document these repeatable steps and can help ensure that the correct things are done at the right time, every time.

A checklist can assist the project team with quickly and confidently identifying areas of concern within this process phase of the PMLC. In this case, completion of the checklist provides a clear milestone that the Initiating Process Phase is complete, including:

- Completed Project Priorities Assessment
- Completed RACI Matrix
- Completed Stakeholder Register
- Completed Project Charter
- Completed Stage 1 Business Analysis (PAL)
- Established Project Document Library
- Completed Initiating Process Phase Checklist

Tools

A template is available:
Initiating Process Phase Checklist

When to Use?

Use the template for projects of the following complexities:

L M H

Outputs

Complete the Initiating Process Phase Checklist to validate that all activities are complete.

Planning

The Planning Process Phase chapter helps guide successful completion of essential project planning. Here, you will estimate and establish the scope of work, define and refine the project objectives, develop the course of actions to attain those objectives, and establish methods for managing and controlling the project.

In this chapter...

1 Approach

Page 4

- 1.1 Introduction
- 1.2 Recommended Practices
- 1.3 Roles and Responsibilities
- 1.4 Processes and Activities
- 1.5 Tools and Outputs

2 Complexity Assessment

Page 33

- 2.1 Introduction
- 2.2 Recommended Practices
- 2.3 Roles in Preparation
- 2.4 Practice Overview

3 Project Management Plan (PMP)

Page 36

- 3.1 Introduction
- 3.2 Recommended Practices
- 3.3 Roles in Preparation
- 3.4 Practice Overview

In this chapter...

4

Plans Subordinate to the PMP

Page 40

- 4.1 Change Control Management
- 4.2 Communication Management
- 4.3 Contract Management
- 4.4 Cost Management

Page 80

- 4.5 Governance Management
- 4.6 Implementation Management
- 4.7 Issue Management
- 4.8 Maintenance & Operations Transition Management

Page 106

- 4.9 Procurement Management
- 4.10 Quality Management
- 4.11 Requirements Management
- 4.12 Resource Management

Page 144

- 4.13 Risk Management
- 4.14 Schedule Management
- 4.15 Scope Management
- 4.16 Stakeholder Management

5

Process Phase Checklist

Page 182

- 5.1 Complete the Checklist

Approach

Figure 1-1

1.1 Introduction

Once the Initiating Process Phase activities are complete, the project can enter the Planning Process Phase, as shown in Figure 1-1. Within this process phase, the project team will begin creating project documents that will identify all of the processes and activities necessary to successfully deliver the project outcomes. The Project Manager is responsible for ensuring that the Project Management Plan (PMP) is completed properly.

The PMP and other documents created during the Planning Process Phase will explore all aspects of the project, including scope, duration, cost, quality, communications, resources, risks, procurement, and Stakeholder engagement. There is significant value in the planning process, such as preparing for unknowns, challenging assumptions, and seeking input from various stakeholders. It is also important that there is active participation by the sponsoring organization and the project team. Though some organizations choose to engage outside experts to lead the development of project plans, project team participation in PMP development is crucial for achieving the best results for understanding, focusing, and implementing the associated processes and activities.

> “There is significant value in the planning process - preparing for unknowns, challenging assumptions, seeking input from various Stakeholders...”

The planning process is usually iterative, using repeated processes to achieve desired results. The complex nature of information technology (IT) projects will likely require the use of repeated feedback loops for additional analysis. Since the PMP is generally established early in the project, it requires revision and refinement throughout the Project Management Lifecycle (PMLC) as additional information becomes available.

Project management processes and activities are generally consistent regardless of the type of project. For example, all projects require a Project Charter authorizing the project to spend resources; a PMP; a project schedule; periodic status or progress reporting; identification and resolution processes for project-related risks, issues, and changes; and lessons learned. The California Project Management Framework (CA-PMF) provides guidance and templates for establishing the project's PMP and developing subordinate plans. It is important to remember that every project is unique and that the planning should tie directly to the project.

"It is important to remember that every project is unique."

What is different among projects are the specific deliverables and activities that are executed to produce the end product, the governance established for each project, and the make up of the project team (resources) and Stakeholders. For example, a project may be implementing a new commercial off-the-shelf (COTS) software solution, developing a custom application, upgrading hardware, or improving business processes. The type and construct of the project influences the planning techniques and/or the level of rigor that is required. For less complex projects, planning activities may require a modest amount of time. For very large and highly complex projects, the Planning Process Phase can span a longer period as the project team navigates control agency project approvals, determines project requirements, and conducts procurements.

Figure 1-2 on the following page shows key information about this process phase of the PMLC.

Planning

Concept | Initiating | **Planning** | Executing | Closing

Recommended Practices

- It Takes a Village... to Make a Project Successful
- Connect the Dots… Clarify the Scope
- Make a Deliberate Choice When Determining the Delivery Method
- No Matter the Size or Scope, the Schedule is a Key Component
- Who wants to talk about Security?
- Effective Change Management Requires Close Attention to an Organization's Culture
- Plan to Continually Discover and Validate User Needs
- Early Governance Helps Set Stakeholder Expectations
- Clear Performance Metrics Benefit Both Contractors and Project Managers

Roles

- Executive Sponsor(s)
- Project Sponsor
- IT Sponsor
- Business Owners(s)
- Project Manager
- Contract Manager
- Information Security Officer (ISO)
- Subject Matter Experts
- Department of Technology (CDT)
- Department of Finance (DOF)

Processes

- Prepare for Planning Process Phase Activities
- Develop Planning Process Phase Artifacts
- Approve and Baseline Planning Process Phase Artifacts
- Optimize Planning Process Phase Artifacts
- Monitoring and Controlling
- Project Approval Process
- Conduct Procurements
- Planning Process Phase Review

Activities

- Complete the Complexity Assessment
- Update the RACI Matrix
- Hold Planning Process Phase Kickoff Meeting
- Set Project Practices
- Develop the Project Management Plan (PMP)
- Develop Subordinate Project Plans
- Develop the Work Plan
- Baseline Project Plans
- Optimize Project Artifacts
- Monitor and Control the Project
- Complete the Planning Process Phase Checklist

Tools

- Complexity Assessment Template (Oversight)
- Project Management Plan (PMP) Template and Subordinate Project Document Templates
- Project Status Reports (Oversight)
- Stage 2 Alternatives Analysis Template (PAL)
- Stage 3 Solution Development Template (PAL)
- Stage 4 Project Readiness and Approval Template (PAL)
- Planning Phase Checklist Template

Outputs

- Completed Complexity Assessment
- Completed Project Management Plan (PMP) and Subordinate Project Documents
- Completed Development of Project Policies
- Updated RACI Matrix
- Initial Risk Register
- Completed Development of the Preliminary Plans
- Optimized Project Plans
- Completed Project Approval Lifecycle (PAL) Documents
- Completed Planning Process Phase Checklist

Monitoring & Controlling

Figure 1-2

1.2 Recommended Practices

Appropriate and effective project planning is critical to the success of all projects. The following practices can help guide successful project planning.

It Takes a Village…to Make a Project Successful

Proactively reach out to other organizations or project management practitioners to identify lessons learned that could be significant for the current project. Consult with project professionals who have implemented similar technology, worked with the same vendor, or managed Stakeholders with similar characteristics who are willing to share valuable insights. Leveraging knowledge and experience of others can be extremely beneficial to the success of the project.

Connect the Dots… Clarify the Scope

Ensure that the project scope statement(s) clearly satisfies the needs expressed in the business case. Prioritize high-level scope items and use those priorities to drive project planning and project decisions. Subject Matter Experts (SMEs) should develop requirements based upon the business case and scope statement(s). These activities will help avoid scope creep and create a baseline for scope traceability throughout the PMLC.

Make a Deliberate Choice When Determining the Delivery Method

When planning the implementation for projects that are more than a year in duration, consider an incremental or modular approach to be able to deliver new functionality to users continuously. Instead of delivering all functionality at once, include several releases of functionality over the course of the project, with the highest priority first, so that users can begin realizing business value in months instead of years.

No Matter the Size or Scope, the Schedule is a Key Component

It is critical to develop and rigorously manage the project's schedule. The greater the size and complexity of the project, the more important it is to have a well-defined schedule to help manage tasks and scope. Ensure that the project team has the requisite skill level to build, maintain, and report against the schedule.

Who wants to talk about Security?

It's hard to overstate the importance of security for any project. This includes both IT-related security and the physical security of the project team and sponsoring organization. Engage security professionals early and often, including the Information Security Officer (ISO) of the sponsoring organization, security consultants as required, and any other resources that may be of assistance.

Recommended Practices

These recommended practices can help project teams develop effective project plans.

> Ensure the project scope statement clearly satisfies the needs expressed in the business case.

User-Centered Approach

This recommended practice promotes a user-centered approach. For more information on this, see CA-Agile.

> It's hard to overstate the importance of security to any project.

The ISO both protects the security of project operations and ensures any system or solution built by the project has adequate security safeguards in its architecture to protect confidential and sensitive data. For both duties, the ISO must be familiar with state and federal security standards and procedures. It's typically much easier and less expensive to build security into a system under development than it is to try to "bolt on" security fixes later.

Effective Change Management Requires Close Attention to an Organization's Culture

Organizational Change Management (OCM) is a structured approach for managing the effects of change on people as it relates to new business processes, changes in organizational structure, cultural changes, or implementation of a new system. OCM typically includes communicating to Stakeholders about the how, what, when, and where for changes that will affect them, especially if their current jobs will be affected or changed.

Be sure to focus on the culture of the organization. It is critical for successful change management and is an aspect of organizational change that leaders often fail to consider. Organizational culture can be very difficult to transform. It is important to shift the culture by leveraging the way people already think, behave, work, and feel. Identify and bring to the foreground those elements and behaviors that align with the desired changes. Attract people to the change and reinforce the behavior with positive incentives, recognition, and feedback.

> "It is important to shift the organization's culture by leveraging the way people already think, behave, work, and feel."

Project Sponsors and other leaders must recognize that significant change requires reaching out to every person affected by it. Resistance to change is a natural response; however, it can be overcome through leadership commitment, reinforcing behaviors, and engaging in active communication throughout every level of the organization.

Plan to Continually Discover and Validate User Needs

Solicit user feedback frequently throughout the project lifecycle to ensure that user needs are met. This activity extends beyond just requirements gathering. Plan for user interactions during analysis, design, build, and especially test phases to continually discover, refine, and validate user needs through each phase.

An ongoing research and test feedback loop will relieve some of the pressure and risk associated with waiting to engage users only during system or user acceptance testing at the end of the project. By continually involving users, the project team can make corrections and adjustments as they surface, which will increase the likelihood of meeting business and user needs.

User-Centered Approach

This recommended practice promotes a user-centered approach. For more information on this, see CA-Agile.

Early Governance Helps Set Stakeholder Expectations

Projects typically operate under multiple constraints, determined by the priorities for cost, schedule, and scope. Projects also involve uncertainty, and complex decisions are required to achieve successful outcomes. Therefore, it is recommended that comprehensive project governance be established early in the project. Project governance establishes criteria, time frames, processes, and roles and responsibilities to ensure timely and effective decision making. Using the governance process, Stakeholders should identify their criteria for project success and provide that to the project team.

Clear Performance Metrics Benefit Both Contractors and Project Managers

Contract management entails understanding and evaluating all aspects of a contract for compliance. It is recommended that the Contract Manager work with the Quality Manager to ensure that the project's Quality Management Plan clearly identifies performance metrics.

Metrics can help quantify the quality, scope, and timeline for each of the contract deliverables. For example, one metric might be the number of days late that a deliverable was submitted, or the number of review cycles required by the state before the deliverable can be approved.

When performance metrics are included in the Quality Management Plan, the project can communicate expectations to contractors. The metrics also allow the Project Manager to identify trends and variances so that he or she can identify and address potential problems. This allows the Project Manager to better manage state and contractor resources.

1.3 Roles and Responsibilities

The following table identifies primary Planning Process Phase participant roles and responsibilities. In some cases, a project might have unique requirements that call for additional roles or responsibilities depending on the project's size, type, and complexity.

Role	Responsibilities
Executive Sponsor(s)	• Provides executive intervention to overcome organizational roadblocks. Key in driving the project goals and objectives to align with the organization's strategic direction.
Project Sponsor	• Provides overall direction during the planning process. • Approves the PMP and subordinate plans. • Coordinates with all sponsoring organization Stakeholders as the project takes shape. • Establishes and maintains communication with external Stakeholders. • Oversees the establishment of governance processes and structures. • Ensures the project obtains the resources needed to proceed with project planning. • Clarifies priorities among schedule, cost, and project scope. • Ensures timely resolution of project issues. • Reviews and approves materials submitted for project approval. • Reviews and approves funding documents. • Advocates for project funding and approval.

Roles

For a complete list of all project roles, see the Project Role Definitions in the Glossary.

Role	Responsibilities
IT Sponsor	• Participates in the development of the PMP and subordinate plans. • Participates in the development of system requirements and the traceability matrix. • Participates in the development of funding documents. • Provides IT expertise for planning activities.
Business Owner(s)	• Participates in drafting the PMP and subordinate plans. • Identifies and engages Subject Matter Experts (SMEs). • Participates in planning processes, especially those related to the sponsoring program. Examples include defining functional requirements, Stakeholder analysis, procurement planning, communication planning, and risk identification.
Project Manager	• Leads the preparation of the Complexity Assessment, PMP, and subordinate plans. • Oversees implementation of the plans. • Establishes governance processes and structures. • Coordinates development of the requirements documents. • Leads Stakeholder analysis and management of Stakeholder activities. • Forms teams and begins work to define scope, schedule, and cost. • Reviews all applicable state IT standards and regulations to ensure compliance. • Oversees development of funding documents. • Facilitates development of an initial risk registry. • Initiates kickoff meeting(s) with the project team, Stakeholders, and Project Sponsor(s).

Role	Responsibilities
Project Team	• The group responsible for planning and executing the project. • Works with necessary Stakeholders and staff. • Delivers their tasks according to the project schedule.
Contract Manager	• Responsible for managing and tracking vendors. • Provides oversight and tracking for the system integrator contract and other project-related contracts. • Participates in negotiations. • Facilitates amendments. • Reviews work authorizations and invoices. • Monitors contract compliance.
Information Security Officer (ISO)	• Responsible for security throughout the sponsoring organization. • Works closely with the project team to ensure project operation and product development have appropriate protection of confidential data, are secure against unauthorized access, and that any breaches are reported according to state and federal requirements.
Subject Matter Experts (SMEs)	• Assist in developing functional requirements. • Assist in Stakeholder identification and analysis. • Assist in defining scope, schedule, and cost.
Department of Technology (CDT)	• Oversees the PAL. • Provides support and advice regarding project management activities. • Provides support for and/or conducts IT procurements.
Department of Finance (DOF)	• Reviews project funding documents. • Gains funding approval by Legislature.

1.4 Processes and Activities

Project planning begins after completion of the Initiating Process Phase activities and results in the development of key project artifacts. These include a complexity assessment; the PMP and associated subordinate plans; and project scope, schedule and cost baselines. The Templates chapter contains many templates with instructions to help project teams complete the tasks that occur in this process phase of the PMLC. The chapter also provides helpful guidance on which templates to use depending on the complexity of your project.

The following sections describe the cycle of preparing for, developing, optimizing, approving, and baselining the various projects artifacts that are outputs of this process phase.

1.4.1 Prepare for Planning Process Phase Activities

During the Planning Process Phase, project artifacts are developed with the intent to identify and standardize processes and procedures the project team will use throughout the remaining process phases of the PMLC. In addition, the project team will define and baseline the project scope, budget and schedule, against which progress will be tracked. Prior to beginning these Planning Process Phase activities, the project team should complete the following activities in preparation for the work.

- Review the approved Project Charter and confirm that the information is still valid.
- Review and confirm the project priorities among schedule, cost, and scope that were established in the Initiating Process Phase.
- Complete the Complexity Assessment template and instructions.
- Review the RACI Matrix and update as needed.
- Review the PMP and subordinate plan templates and instructions.
- Prepare for and conduct the planning team kickoff meeting.

Complete the Complexity Assessment

Projects come in all shapes and sizes and have varying levels of complexity. Understanding the project's complexity is important because it informs the selection of an appropriate Project Manager, skills and training needed for project team members, and the type of support that is required from Project Sponsors and executives. For the Planning Process Phase activities, the Complexity Assessment is also a useful tool to determine the level of detail needed in the PMP and which subordinate plans are recommended for the project. The Templates chapter provides a chart that recommends which subordinate plans should be developed based on whether the project is of low, medium or high complexity. However, the project team should also consider the unique characteristics and needs of the project in making this determination.

Tools

A template is available:
Complexity Assessment (Oversight)

When to Use?

Use the template for projects of the following complexities:

Update the RACI Matrix

The RACI Matrix was initially drafted during the Initiating Process Phase. Now that additional Stakeholders have been identified and more project planning activities conducted, the RACI Matrix should be revisited and updated based on new information. This includes updating the RACI Matrix using the PMP and subordinate plans that will be developed based on the determined complexity of the project, and assigning the appropriate project team members. This activity will help organize the project team and document the expectations of who is doing what.

Hold Planning Process Phase Kickoff Meeting

The Project Manager and the Project Sponsor should conduct a kickoff meeting with the project team. During the meeting, the Project Sponsor should review the Project Charter and communicate the project's purpose, priority, and vision. The Project Manager reviews upcoming planning activities and each person's role in the planning process. The Project Manager may choose to go over the updated RACI Matrix depending on the size of the project team (small team size being more optimal for this venue).

Set Project Practices

Project practices are the rules, standards, and tools that will be used by the project team during the project but that have not been included in the PMP. Not all projects will need to develop specific project practices. However, it's a worthy exercise to take the time to consider whether the project should adopt special practices.

When a new project begins, it is easy to overlook the work required to establish the project environment and culture. When cross-functional teams are assembled from various organizations or different parts of the same organization, they are frequently accustomed to doing business in particular ways that may or may not be consistent across organizations. The goal of this planning activity is to make conscious decisions about expectations and to avoid miscommunication.

For example, project practices may include:

- Printing all documents double-sided and on recycled paper.
- Standards for storing documents (such as on a network drive or in a document management system).
- Required energy conservation practices for the project team.
- Adherence to special project-related security requirements, both physical and computer-related.
- Adherence to special project-related confidentiality and conflict-of-interest requirements.

Recommendations for project practices development include:

- Acquire any specific guidelines or potential practice recommendations from the Project Sponsor, IT Sponsor, and/or Business Owners.
- Obtain additional input from the project team and review specific policies that should be developed and adopted.
- Engage project team members, based on their areas of expertise, in drafting the policies for specific items.
- Meet with the project team to review, discuss, and approve practices.
- Publish the practice decisions, distribute them to the project team, and store them in the project document repository.

This activity should result in documented project practices that should also be stored in the project repository. Each project team member should receive and/or have access to the documents describing the project practice decisions.

1.4.2 Develop Planning Process Phase Artifacts

After completion of the preparation activities described above, the project team can begin developing the foundational project management artifacts that will be important and useful during the Executing Process Phase.

Develop the Project Management Plan (PMP)

The PMP describes the mechanics of how aspects of the project will be planned and managed throughout the project management lifecycle (PMLC). The PMP may be a single document containing separate sections for each of its components (often true for smaller projects), or it may simply reference stand-alone subordinate plans for specialized areas (more common for larger and complex projects). Using the Complexity Assessment as a guide, the Project Manager determines which subordinate plans will be developed for the project. The Project Manager may also assign development of the PMP and subordinate plans to the project team members who will be responsible for executing them.

At a minimum, all projects must develop a PMP. The PMP should draw information from the Project Charter, the RACI Matrix, the Stakeholder Register, and other project documentation that may be available from the Concept and Initiating Process Phases.

Section 3 of this chapter provides additional guidance for developing the PMP.

Tools

A template is available:
Project Management Plan (PMP)

When to Use?

Use the template for projects of the following complexities:

L M H

Develop Subordinate Project Plans

The following is a list of subordinate plans that may be developed and implemented based on the complexity or specific needs of the project. Section 4 of this chapter contains instruction for developing the plans identified below and includes detailed guidance on each project management discipline. It is recommended that all Project Managers read and become acquainted with section 4 of this chapter. Though it may not be necessary to develop each subordinate plan, familiarity and knowledge of each discipline will increase the likelihood of project success.

- **Change Control Management Plan** - The Change Control Management Plan describes the processes and procedures for how changes to project scope, schedule and resources will be managed. This includes how Change Requests are collected, evaluated, approved, and implemented.

Tools

For a complete list of all project templates, see the Templates chapter.
Plans Subordinate to the PMP

- **Communication Management Plan** - The Communication Management Plan identifies how project information will be collected, created, distributed, stored, and managed throughout the project lifecycle. Planning helps ensure that project communications meet Stakeholders' information needs.
- **Contract Management Plan** - The Contract Management Plan identifies the processes and procedures for managing project contracts for goods and services throughout the project lifecycle. This includes contract initiation; management of contractor staff, invoices, and deliverables; and contract close-out.
- **Cost Management Plan** - The Cost Management Plan describes how the project's budget and expenditures will be estimated, budgeted, funded, and managed. This includes assigning responsibility for tracking expenses and authorizing expenditures, as well as the methods and schedule for budget updates and expenditure reports.
- **Governance Management Plan** - The Governance Management Plan clearly identifies the structure and decision-making processes for managing the project. This plan is important for large projects with complex organizational settings.
- **Implementation Management Plan** - The Implementation Management Plan is a planning and management tool used to illustrate the necessary steps for implementing project deliverables (product or system). The plan also describes the operational preparation steps that are necessary. It guides project staff by proactively developing the operational program necessary to support both the Stakeholders and the resulting system.
- **Issue Management Plan** - The Issue Management Plan identifies the processes and procedures used for project issues. This includes how project issues will be identified, analyzed, tracked, and managed throughout the project lifecycle.
- **Maintenance & Operations (M&O) Transition Management Plan** - The M&O Transition Management Plan describes how deliverables, including products or services, are transferred to the operational environment and integrated into ongoing operations.
- **Procurement Management Plan** - The Procurement Management Plan describes the project's processes for acquiring external products or services needed to meet project goals. Procurement planning identifies how contracts will be executed and how the project will comply with statewide contracting requirements.

- **Quality Management Plan** - The Quality Management Plan describes how to develop and manage the quality of the project's outputs. The plan identifies quality management processes and provides standards, practices and conventions used to carry out quality control and quality assurance activities. It identifies which quality standards are relevant to the project and how to satisfy them.
- **Requirements Management Plan** - The Requirements Management Plan details how requirements will be gathered, defined, analyzed, documented, and managed.
- **Resource Management Plan** - The Resource Management Plan identifies how project resources will be structured. Includes hardware, software, services, staffing, facilities, etc., along with the project roles, responsibilities, reporting relationships, and staff management. This may include both state and contractor staff.
- **Risk Management Plan** - The Risk Management Plan identifies the processes and procedures used for project risks. This includes how project risks will be identified, analyzed, tracked, and managed throughout the lifecycle.
- **Schedule Management Plan** - The Schedule Management Plan defines how the project schedule will be developed and managed throughout the project lifecycle.
- **Scope Management Plan** - The Scope Management Plan describes how the project's scope will be defined, developed, validated, and controlled throughout the project lifecycle.
- **Stakeholder Management Plan** - The Stakeholder Management Plan describes the processes and procedures for how to effectively identify, analyze, engage, and manage Stakeholders throughout the project lifecycle. Proper Stakeholder planning helps ensure that the Stakeholders' needs, expectations, and project influences are documented and met.

Develop the Work Plan

The work plan represents the next step in refining the preliminary estimates for the scope, schedule, and resources prepared during the Initiating Process Phase. This work will represent a more informed view based on the additional information that has been gleaned since the last iteration. The following sections describe how to develop a more detailed view of the scope, schedule and resources to better define the effort needed to complete the project.

Work Breakdown Structure (WBS)

The Work Breakdown Structure (WBS) is a tree structure that shows the subdivision of effort required to achieve the project objectives. It is a decomposition (breaking down) of a project into smaller components that are more manageable in terms of size, duration, or responsibility. This may include products, data, services, or any other project deliverable. The WBS organizes and further elaborates the total project scope. Work not included in the WBS is, by definition, out of the project's scope.

The WBS appears to look like an organizational chart, but it is not. The organizational chart represents people responsible for performing work, while the WBS represents tasks and deliverables to be developed for creating a final system or solution. Similar to how an organizational chart shows the relationship between people, the WBS shows the relationship between project deliverables.

Inputs to the WBS development include:

- Project Charter
- Preliminary Scope Statement
- Constraints and Assumptions, as documented in the Project Charter
- Project Policies
- Historical information from previous projects

Section 4.15.5 of this chapter provides additional guidance for developing the WBS.

Tools

A template is available:
Work Breakdown Structure

When to Use?

Use the template for projects of the following complexities:

L M H

Project Schedule

The project schedule is the tool that communicates what work needs to be performed, which resources of the organization will perform the work, and the time frames in which that work needs to be performed. The project schedule should reflect all of the work associated with delivering the project and how long it will take to complete. Without a full and complete schedule, the Project Manager will be unable to communicate the complete effort, cost, and resources needed to deliver the project.

Project schedules can be created using a variety of tools, such as Microsoft Project or even a simple spreadsheet. This process starts with the tasks and deliverables identified in the WBS. Project Managers or their designees then perform a series of steps to build out a project schedule. The goals are to define work activities, logically sequence and organize activities, estimate activity durations, and estimate the resources (including team members) who perform work activities.

Section 4.14 of this chapter provides additional guidance for developing the project schedule.

Project Resources

When resourcing a project, the primary objective is to match the best resources to the right job, at the right time. This includes all resources such as hardware, software, services, staffing, facilities, etc., along with the project roles, responsibilities, reporting relationships, and staff management. The success of the project is highly dependent on how well the project is resourced throughout. Proper planning is essential for ensuring the project is adequately and properly resourced.

Utilizing the WBS and the project schedule as a starting point, the appropriate resource levels must be determined based on the type of project tasks and overall implementation time frame. As the project progresses and additional information becomes available, the project resource plan may need to be updated with additional details about the resource requirements, such as roles, quantity, and competencies that are required for the Executing Process Phase. The project should focus on resources that are internal to the organization and, if necessary, seek contractor staff to fill in gaps in expertise needed for project success.

Section 4.12 of this chapter provides additional guidance for developing project resource estimates.

Budget

A project budget includes all funds necessary to execute the project. The process of determining the project budget involves aggregating the estimated costs of the project. This includes, but is not limited to, staffing, contracted services, facilities, hardware, software, and supplies. Some project costs (such as staffing) are easily attributable to specific tasks in the WBS and project schedule. Other costs (such as hardware, software, or facilities) may require further research and analysis to determine what an appropriate budget may be for the duration of the project.

Coming up with a reasonable project cost is important for obtaining both Stakeholder and funding approval. A low project budget will likely result in a future request for augmentation that will likely mar project success, or a high budget request will diminish the return on investment and jeopardize initial project funding.

See Section 4.4 of this chapter for additional guidance for developing cost estimates and the project budget.

1.4.3 Approve and Baseline Planning Process Phase Artifacts

When the Project Manager determines there is a sound plan for completing the project, the Planning Process Phase artifacts should be submitted to the Project Sponsor. At this point, the Project Sponsor can elect to:

- Approve the documents,
- Revise the documents based on new information available, or
- Determine a new project direction.

If, after development of the Planning Process Phase artifacts, the Project Manager determines the project cannot be completed based on the project constraints, the Project Manager should inform the Project Sponsor. At this point, the Project Sponsor can elect to:

- Cancel the project, or
- Ask the Project Manager to revise the documents based on new information or direction, such as revised constraints.

If the Project Manager and project team determine that they cannot meet the project objectives with the new information, the decision on how to proceed belongs to the Project Sponsor. The decision may be to cancel the project or to determine an alternate approach for successfully completing another round of planning.

A canceled project can be misconstrued as a failure; however, it is important to note that sometimes the best business decision is to cancel the project. Canceled or suspended projects also can produce valuable lessons learned that will benefit future projects.

Baseline Project Plans

For non-reportable IT projects, the Project Manager may baseline the Planning Process Phase artifacts once they are approved by the Project Sponsor. For reportable IT projects, final approval of the project scope, budget, and schedule may require actions by the Department of Technology, the Department of Finance, and/or the Legislature. The project can baseline these artifacts once the appropriate approvals are received.

1.4.4 Optimize Planning Process Phase Artifacts

After the Planning Process Phase artifacts are approved and baselined, they will require periodic revision and progressive elaboration based on the availability of new information as the project moves forward. Often, changes to one artifact may require changes to the others, and the artifacts may need to be optimized through iterative refinement.

Optimize Plans

The PMP and subordinate plans are not static documents and should be continuously reviewed and updated. As the project progresses through the phases of the PMLC or SDLC, project needs and requirements may shift. The project plans should be reviewed on a periodic basis (such as annually or quarterly) based on the characteristics and overall duration of your project. Triggers for updating project plans may include:

- New project risks
- Change to project constraints (scope, schedule or cost)
- Change in project complexity
- Change to the size of the project team
- Change to project governance
- Change to project approach

It is important to remember that plans do not exist in isolation; changes to one plan may require revision to one or more other plans. Having an understanding of these dependencies will help facilitate this ongoing process.

Optimize Scope

As with the project plans, the project scope may need to be refined over time. This may be facilitated by changes to the WBS and may be triggered by:

- Different approaches to completing the work
- Buy/build decisions
- Breaking tasks into smaller pieces to allow for more detailed scheduling
- Changes to solution, such as using a commercial off-the-shelf (COTS) software versus a software as a service (SaaS)
- Modified quality standards and project scope
- Removal of low-priority requirements
- Scope changes made in an effort to reduce risk

When making any change to project scope, either an increase or decrease, it is important to follow the processes and procedures documented in the PMP or Change Control Management Plan. This ensures that scope changes are being approved at the appropriate level of governance.

Optimize Schedule

Schedule optimization seeks ways to adjust the schedule to better meet project objectives. This involves trying to determine ways to decrease or more accurately measure the time required to complete a project without increasing risk, budget, or diminishing quality. Continuous improvement and elaboration of the schedule is vital for accurate reporting and to monitor project progress. On an ongoing basis, complete the following activities to optimize the schedule.

- Is it easier to decompose tasks in the near term rather than tasks in the distant future. Decomposition of near-term project tasks should occur periodically.
- Using data from prior completed tasks and the expertise of those completing the tasks, capture the duration and resource allocation of the decomposed tasks.
- As the schedule is progressively elaborated, validate existing dependencies and create new ones to sequence the work and accurately portray the overall duration.

If the schedule needs to be extended during this exercise, follow the processes and procedures documented in the PMP or Change Control Management Plan.

Optimize Resources

As the project enters the Executing Process Phase and SDLC activities are being completed, the schedule is a valuable tool to help determine whether the resources and staffing on the project is optimal. Evaluate the allocation of each project team member to determine their capacity. If the allocation is over or under, this must be addressed by a process called resource leveling. The goal of resource leveling is to ensure credible and consistent allocation based on availability. Resource leveling is normally accomplished through a combination of the following:

- Deferring tasks (usually non-critical) until the resource is available
- Negotiating for additional project resources
- Arranging temporary supplemental resources to get the project through an especially resource-intensive period
- Changing resource assignments within the project so that available resources take some of the load from over-allocated resources
- Changing the nature of the work to require fewer resources or resources with different skills

Optimize Cost

Project costs must be managed to ensure that the project does not go over budget. Once initially identified, project costs must be continuously monitored and adjusted based on actual expenditures and according to changing project needs. When necessary, project costs can sometimes be reduced through a variety of approaches including:

- Negotiating better prices with suppliers or subcontractors
- Finding economies of scale by consolidating purchases
- Reducing scope in ways that do not undermine project goals
- Reducing travel or consolidating trips to reduce travel expenses
- Revisiting make-versus-buy decisions

As with changes to project scope and schedule, follow the processes and procedures documented in the PMP or Change Control Management Plan when costs are expected to go over budget.

1.4.5 Monitoring and Controlling

During the Planning Process Phase, a large portion of work goes into defining the monitoring and controlling activities for the Executing Process Phase. This is accomplished via the development of the PMP and subordinate plans. However, the Project Sponsor and Project Manager should monitor the outputs of this process phase to ensure quality of the products and timeliness of completion. In addition, the project scope, schedule, and costs should be monitored to be in alignment with the Project Charter and other project documentation.

1.4.6 Project Approval Process

The State's project approval process continues during the Planning Process Phase. Refer to the Framework Resources section in the Additional Resources Chapter if your project is reportable and therefore requires completion of PAL documentation. Additional information on PAL can be found under SIMM 19.

Web Links

Project Approval Lifecycle (PAL)
Statewide Information Management Manual (SIMM)

1.4.7 Procurements

Project procurements (if required) may be conducted once the PMP, relevant subordinate plans, and appropriate PAL documentation have been approved ,and there is a baseline scope, schedule, and cost. Procurements may include hardware/software purchases, contract services for expertise that does not exist on the project team, or other goods and services necessary to complete the project. Depending on the organization's delegated purchasing authority, the project may be required to work with the CDT Statewide Technology Procurement (STP) for guidance and approval of IT procurements.

Web Links

Statewide Technology Procurement (STP)

1.4.8 Planning Process Phase Review

Once all of the Planning Process Phase activities are accomplished, complete the Planning Process Phase Checklist. Completion of the checklist helps ensure that the project is well equipped to plan and manage the project activities.

1.5 Tools and Outputs

The following table highlights project plans and other management tools that may be developed during the Planning Process Phase. With smaller and less complex projects, the content of some or all of the individual plans may be integrated within in the PMP itself instead of created as a standalone plan. Note that some of the tools and outputs may not have been identified in this approach, but will be discussed in the subordinate plans.

Tool / Output	Definition
Complexity Assessment (Oversight) [1]	A self-assessment tool used iteratively throughout the project by Project Managers to help accurately determine a project's complexity based on known project information at the time of the assessment.
Project Management Plan (PMP)*	Documented processes and procedures for how the project will be managed. For smaller projects, the PMP may be a single integrated plan with sections that address each applicable project management topic. Larger and more complex projects may require development of individual subordinate plans in addition to the PMP.

Tools

For a complete list of all project Tools, see the Templates chapter.

Outputs

The Complexity Assessment helps accurately determine project complexity based on known information.

Tool / Output	Definition
Plans Subordinate to the PMP	Individual subordinate plans documenting the processes and procedures for how the project will be managed, typically created for larger and more complex projects. These include: • Change Control Management Plan • Communication Management Plan • Contract Management Plan • Cost Management Plan • Governance Management Plan • Implementation Management Plan • Issue Management Plan • Maintenance & Operations (M&O) Transition Management Plan • Procurement Management Plan • Quality Management Plan • Requirements Management Plan • Resource Management Plan • Risk Management Plan • Schedule Management Plan • Scope Management Plan • Stakeholder Management Plan
Change Control Management Plan	Describes how changes will be identified, submitted, monitored, and controlled. Provides direction for managing the Change Control process, including a formal Change Control Board (CCB). Supporting documentation includes: • Change Request Form • Change Request Log

Tool / Output	Definition
Change Request Form	Documents and ensures that information captured relating to change is consistent throughout the project. Consistent information enables change approvers to make better, more informed decisions project-wide. The change request form includes an analysis report that is tied to a particular change request. This uses information from the change request form to begin populating the analysis.
Change Request Log	Provides an at-a-glance view of the number and types of changes currently being considered by the project.
Communication Management Plan	Identifies project communication needs and expectations based on Stakeholder requirements. Describes how this information will be communicated, when and where each communication will be made, and who is responsible for providing each type of communication. Supporting documentation includes: • Project Status Reports (Oversight)
Contract Management Plan	Documents the activities and processes that need to be performed by the project team to ensure that the goods and services being contracted for are provided. This plan also discusses the various contractor interactions that must be managed and the associated roles and responsibilities.
Corrective Action Plan	Documents processes to investigate the root cause of unanticipated problems and process issues encountered during the project lifecycle. This is to prevent the causes from recurring during the project.
Cost Management Plan	Describes how costs will be planned, structured, and controlled. Supporting documentation includes: • Cost Baseline

Tool / Output	Definition
Cost Baseline	Documents the approved version of the project budget for all project phases. The budget can be changed only through formal Change Control procedures.
Governance Management Plan	Describes the process for making project decisions. Provides the Project Manager and project team with the structure, processes, decision-making models, and tools for managing a project.
Human Resources (HR) and Staff Management Plan	Describes how project roles, responsibilities, reporting relationships, and staff management will be structured. Describes agreements on resources required to do the project work, when work commences, and for how long. This may include both state and contractor staff. Supporting documentation includes: • Project Organization Chart • Skills Assessment
Implementation Management Plan	Describes how the system developed by the project will be implemented in the target (production) environment. In the event of statewide implementations, the plan addresses how the system will be implemented in each site and location.
Issue Management Plan	Describes how issue management activities will be structured and performed. Supporting documentation includes: • Issue Log
Issue Log	Documents project issues so that they may be managed to reduce negative impacts on the project.
Maintenance & Operations Transition Management Plan	Describes how project deliverables, such as products or services, are transferred to the operational environment and integrated into ongoing operations.

Tool / Output	Definition
Meeting Agenda and Minutes Template	Helps to document who will attend and what the planned items of discussion are to be. Once the meeting has concluded the minutes document what has been decided or agreed to and tracks action items including who is responsible and when the items that they are assigned are to be completed by.
Process Improvement Plan	Identifies quality management-specific standards and practices, assessment, monitoring, and correction of the core Project Management processes followed by the project.
Procurement Management Plan	Describes how a project team will acquire goods. Describes how the procurement processes will be managed, from the development of procurement documents through contract closure.
Project Organization Chart	Diagram that shows the structure of the project, including relationships and a command hierarchy.
Quality Management Plan	Describes how an organization's quality policies will be implemented. Supporting documentation includes: • Process Improvement Plan
Requirements Management Plan	Describes how requirements will be gathered, defined, analyzed, documented, and managed. Requirements Management is traditionally a component of Scope Management, but it is elevated in the CA-PMF because lessons learned indicate this is a particularly difficult area for many project teams. Supporting documentation includes: • Requirements Traceability Matrix (RTM)
Requirements Traceability Matrix (RTM)	Reusable tool for collecting and establishing requirements. It links each requirement to business needs and goals as well as project objectives.

Tool / Output	Definition
Risk Management Plan	Describes how risk management activities will be structured and performed. Supporting documentation includes: • Risk Register • Risk Assessment (Oversight)
Risk Register	Documents and manages known risks in accordance with the Risk Management Plan (plan may be incorporated within the PMP). This includes tracking information such as probability, impact, triggers, mitigation plans, and contingency plans.
Schedule Management Plan	Describes the criteria and the activities for developing, monitoring, and controlling the schedule. Supporting documentation includes: • Schedule Baseline
Schedule Baseline	Documents the approved baseline version of the project schedule, which can be changed only through formal Change Control procedures.
Scope Management Plan	Describes how the scope will be defined, developed, monitored, and controlled. Supporting documentation includes: • Scope Baseline • Work Breakdown Structure (WBS)
Scope Baseline	Documents the approved version of a Scope Statement, Work Breakdown Structure (WBS), and WBS dictionary, which can be changed only through formal Change Control procedures.
Skills Assessment	Assesses project team members' skills and identifies how those skills align with the project needs.

Tool / Output	Definition
Stakeholder Management Plan	Describes the processes, procedures, tools, and techniques to effectively engage Stakeholders in project decisions based on Stakeholder needs, interests, and requirements. For smaller projects, may be incorporated into the Communication Management Plan. Supporting documentation includes: • Stakeholder Register
Stakeholder Register	Documents the quantitative and qualitative analyses of people whose interests should be considered.
Project Management Supporting Documents	Documentation supporting the various project management plans.
Project Status Reports (Oversight) [1]	Informs and engages Stakeholders with information about project progress and performance.
Risk Assessment (Oversight) [1]	Assesses the risk associated with the project's activities.
Work Breakdown Structure (WBS)	Decomposition (break down) of a project into smaller components in order to organize the project work into manageable work packages.
Planning Process Phase Checklist	Lists specific milestones used to confirm completion of project process phases as part of the acceptance process.

* There are two versions of these templates available. A standard and a mini. The mini is designed for the smaller of the low complexity projects, pilot projects, and those who are exploring a proof of concept. The standard version is for all other projects.

[1] Oversight templates and other information related to oversight reporting requirements can be found under the *Statewide Information Management Manual (SIMM) 45* at: https://cdt.ca.gov/policy/simm/

Complexity Assessment

2.1 Introduction

Projects vary greatly in size and complexity, and organizations that undertake projects have a wide range of experience managing projects. These factors help define the context in which a project must be managed and can significantly influence its success.

The Complexity Assessment is available to assist in the evaluation of these factors and understanding the nature of challenges posed by the complexity of projects. The Complexity Assessment has two components for evaluating projects: technical complexity and business complexity.

Tools

A template is available:
SIMM 45 - Complexity Assessment (Oversight)

When to Use?

Use the template for projects of the following complexities:

2.2 Recommended Practices

The following recommended practices can assist the development of the Complexity Assessment.

Update Assessments Regularly

Assess the complexity of the project periodically – every two to three months and/or at the conclusion of a project phase

Higher Complexity Projects Merit More Experienced Project Teams

Leverage the results of the Complexity Assessment to validate that the project team is staffed with the appropriate resources. Generally, the more complex the project, the more experienced the project team members assigned to the project.

Recommended Practices

These recommended practices can help project teams successfully develop and utilize the Complexity Assessment.

2.3 Roles in Preparation

Overall definitions of project roles can be found in the Definitions of Project Roles section in the Additional Resources chapter. The following roles typically participate in completing the Complexity Assessment:

- Project Sponsor (approval)
- Project Manager (lead)
- IT Sponsor
- Quality Manager
- Planning team members
- Key project Stakeholders
- Information Security Officer
- Department of Technology

Roles

For a complete list of all project roles, see the Project Role Definitions in the Glossary.

2.4 Practice Overview

The Complexity Assessment is often based on assessments of both the business and technical complexity of the project, including organizational factors of the entity undertaking the project; knowledge of the target user group; Project Manager and team member experience levels; the time constraints associated with implementation; the political visibility of the project effort; and organizational familiarity with the proposed solution. It provides a structured approach for identifying risks and can help drive planning efforts to help lessen the risks inherent in complex projects.

In addition to its help in identifying the level of project risk, the Department of Technology (CDT) requires completion of the Complexity Assessment as part of the Project Approval Lifecycle (PAL) for review at specified stages/gates. Visit the CDT website to obtain full information and instructions.

Web Links

For more information see the: Project Approval Lifecycle (PAL)

PAL (SIMM 19)

2.4.1 Technical Complexity Assessment

The technical complexity component of the Complexity Assessment requires the Project Manager to rate a series of attributes that describe the characteristics of the proposed project approach. The attribute ratings are combined to provide an overall index of the technical complexity of the project.

The index informs the Project Manager about the overall level of complexity and, therefore, the inherent risk to the project. Individual attributes that contribute to a high complexity rating need to be analyzed for opportunities to mitigate the risk. For example, if an alternative solution proposes using an unproven technology, it may be worth contemplating a different solution that relies on a technology with demonstrated success.

2.4.2 Business Complexity Assessment

The business complexity component of the Complexity Assessment allows the Project Manager to rate the project against a set of attributes related to the business impact of the project. The assessment provides an overall rating of business complexity or inherent risk, and each individual high rating requires analysis and possible mitigation. For example, if the business requirements are vague or business rules are new or changing, it may make sense to postpone the project and initiate a business process re-engineering effort to reduce the complexity ratings for these attributes. This will in turn increase the likelihood of project success.

Project Management Plan (PMP)

3.1 Introduction

A key activity of the Planning Process Phase is development of the Project Management Plan (PMP) and, if necessary, associated subordinate plans. For small projects, the PMP may be the single document that covers all of the project management knowledge areas. This can cut down on the amount of overhead in preparing and maintaining plans. Larger and more complex projects may need additional subordinate plans in order to capture the necessary level of detail for the project. The size of the PMP should be proportionate to, or balanced with, the size and complexity of the project.

The PMP does not describe the product, service, or other details of the project result. Rather, it should identify all the processes and procedures required to plan and manage the project, including monitor and control processes that help the project team measure progress. For example, the PMP describes how the project team will manage project scope, but it does not describe the project scope itself. The PMP describes how the project team will manage risks, but it does not identify or describe specific risks. The expected product, service, and related details are captured in other project artifacts, such as the Statement of Work (SOW), Risk Register, Issue Log, or design specifications.

Tools

A template is available:
Project Management Plan (PMP)

When to Use?

Use the template for projects of the following complexities:

L M H

3.2 Recommended Practices

Project teams members undertaking development of the PMP can benefit from best practices developed through the work of many previous teams that have successfully planned projects. These best practices include the following.

Recommended Practices

Review Recommended Practices as you develop the Project Management Plan.

The PMP Reflects Baseline Agreements

The PMP is a baseline of agreements that the Project Manager uses to document expectations for how the project will be planned and managed. Completing a PMP helps to keep project activities organized and lays the foundation for project monitor and control activities.

Delegate

A Project Manager cannot, and should not, try to do it all. Utilize the project team members to support the development of the PMP and subordinate plans.

Understand the Complexity of the Project

The Complexity Assessment is a valuable tool to help determine the appropriate level of planning needed on the project. The higher the project complexity, the more details will likely be needed in the PMP and/or the more subordinate plans will need to be developed. The planning effort should be proportionate to the project complexity.

Make Sure the PMP is Read

Once approved, share the PMP with those who are directly impacted by or involved with the development of the project. Downstream work and decision making is more efficient when all Stakeholders are operating under the same expectations, processes, and procedures.

Remember to Optimize Plans on an Ongoing Basis

As the project environment changes, so may the processes and procedures in place to plan and manage the project. The PMP and other project plans should be reviewed periodically and updated based on the changing characteristics of the project. To be most effective, the PMP must be up to date and relevant.

3.3 Roles in Preparation

Overall definitions of project roles can be found in the Definitions of Project Roles section in the Additional Resources chapter. This section identifies project team members who help develop and approve the PMP during the Planning Process Phase. Participants should include:

- Project Sponsor (approval)
- Project Manager (lead)
- Business Owner(s)
- IT Sponsor
- Quality Manager
- Project team members

Roles

For a complete list of all project roles, see the Project Role Definitions in the Glossary.

- Subject Matter Experts (SMEs) from various project and program areas (such as technical, maintenance and operations, testing, and business)
- Procurement Manager
- Key project Stakeholders
- Information Security Officer (ISO)

3.4 Practice Overview

The PMP development process centers on defining, integrating, and coordinating all project management knowledge areas into a single, cohesive document. It is the main planning document and describes how major aspects of the project will be managed. Some of the benefits of the PMP include:

- Guides the project team through a process in which all aspects of the project are considered
- Clearly defines roles, responsibilities, processes, and activities
- Defines and documents processes to increase the likelihood the project will be completed on time, within budget, and with high quality
- Ensures a clear understanding of agreements among project Stakeholders
- Helps project teams monitor and control project activities

An effective PMP is not necessarily lengthy. For smaller and less complex projects, a PMP can be compact and still offer great value. The PMP's content will vary and the time invested to develop it should be balanced with the project's size and complexity. For large and complex projects, it may require a significant effort to develop a comprehensive PMP and may justify the creation of subordinate plans. In this case, the subordinate plans will be referenced in the appropriate PMP sections.

Based on the determined size and complexity of the project, the Project Manager should decide whether to develop a single PMP document, or a PMP with subordinate plans. This sub-chapter addresses the development of the PMP. Guidance for the development of the subordinate plans are contained in sub-chapter 4, Plans Subordinate to the PMP.

3.4.1 Develop the Plan

To aid in the development of the PMP for a project, a template is provided that contains the overall structure for the document. The template also provides detailed instructions for what should be included as the content of each section. The following sources of information should be utilized when completing the PMP:

- Project Charter
- Stakeholder Register
- Lessons Learned from past projects
- Organizational Process Assets
- Concept Development and Readiness Assessment

The detailed information provided in each section of sub-chapter 4 and the associated templates should also be leveraged when additional understanding is required for each project management knowledge area identified in the PMP. Even when not developing subordinate plans, sub-chapter 4 and the associated templates provide important information about the discipline, processes, and activities of each project management area that supports the development of the PMP.

Tools

A template is available:
Project Management Plan (PMP)

When to Use?

Use the template for projects of the following complexities:

L M H

The Mini PMP

There are two versions of the PMP template available: a standard and a mini. The mini is designed for the smaller of the low complexity projects, pilot projects, and those who are exploring a proof of concept. For these types of projects, the development of the mini PMP provides a level of detail that is commensurate with the amount of information necessary to plan and manage the project. Instructions for completing the mini PMP are included in the template.

Tools

A template is available:
Mini Project Management Plan (PMP)

Plans Subordinate to the PMP

4.1 Change Control Management

4.1.1 Introduction

Any project endeavor involves change. In a very broad sense, change is a reaction to specific problems or opportunities encountered during the lifecycle of a project. Managing change is necessary to any project's success and entails a structured approach to change control including defined processes, tools, and techniques. The following guidance focuses on:

- Change Control Process
- Change Request (CR) Form
- CR Log
- Change Control Management Plan

4.1.2 Recommended Practices

Change control helps prevent unauthorized changes to a project and supports informed decision making. The following recommended practices create consistency, clarity, team awareness and better outcomes associated with the disposition of CRs affecting a project.

Don't Fear Change Requests - But Be Well Prepared to Manage Them

Project team members may be tempted to view CRs as disruptive or burdensome, but they are necessary to managing the project's scope, schedule and cost. Well-managed projects will have a structured, comprehensive approach to change control management that ensures all CRs are handled in an efficient manner that maximizes the likelihood of project success. This includes effective CR tracking, analysis, and disposition, as well as implementation, coordination and communication of approved changes as needed. Change, if managed and implemented timely and well, can help the project better meet its goals.

Recommended Practices

These recommended practices can help improve change management outcomes.

No Surprises - Communicate Early and Often About Change Activities

Transparency is a key element of any successful change control management approach. Team members and other Stakeholders need to know what is going on in order to effectively carry out their roles. Ensure that Business Owner(s), implementation staff, and maintenance and operations staff are included in the change communications loop, and that Stakeholders know how to find information on all pending, approved, deferred or rejected CRs. This reduces the likelihood of an unscheduled "surprise" when the product is moved to production. Change-related communication can be facilitated by maintaining an easily accessible central repository of information relating to CRs.

Carefully Monitor and Validate Change Implementation

An approved CR must be fully implemented into project plans, requirements and work activities. Establish uniform procedures to monitor change implementation. Validate completion and communicate the outcome. Obtain metrics to confirm that the change is producing the expected result. If change implementation frequently results in very different impacts than expected (such as much larger cost or schedule impacts), review the rigor used in the change analysis process.

Major Changes May Also Require External Approval

Requests for major changes to a project, such as those involving significant alterations to cost, scope, or schedule, may exceed thresholds set by Control Agencies and therefore require their approval. For reportable information technology (IT) projects, a Special Project Report (SPR) may be mandated in some cases. Project managers should be knowledgeable about applicable Control Agency thresholds and reporting requirements.

Keep the Change Control Process Uniform

Projects of varying sizes and complexities may have somewhat different Change Control Management requirements. However, all CRs should be uniformly subject to the project's processes once they are established. Undocumented changes are a recipe for chaos and may require expensive rework late in the project lifecycle.

4.1.3 Roles in Change Control Management

Roles

For a complete list of all project roles, see the Project Role Definitions in the Glossary.

Overall definitions of project roles can be found in the Definitions of Project Roles section in the Additional Resources chapter. The following roles typically participate in change control management activities:

- Project Sponsor (approver)
- Executive Steering Committee
- Project Manager (lead)
- Business Owner(s)
- External Stakeholders
- IT Sponsor
- Change Control Board
- CR Originator
- CR Coordinator/Analyst
- CR Analysis/Implementation Team

Change Control Board (CCB)

The Change Control Board (CCB) (also referred to as a Change Advisory Board) is responsible for reviewing, evaluating, approving, deferring, or rejecting CRs. The authority of the CCB should be clearly defined and may vary from project to project (e.g., a cost threshold that the CCB cannot approve and must escalate to an Executive Steering Committee).

The CCB typically consists of members from representative project groups, including: product manager, development manager, Project Manager, test lead or manager, Subject Matter Experts, IT manager, and senior management. If the project has a large impact outside of the sponsoring organization, the customer may be included on the CCB to represent the users' needs and perspective.

For larger and more complex projects with a large volume of changes, it may be necessary to establish multiple CCBs dedicated to specific project areas. Conversely, for smaller and less complex project environments, it may be advantageous to have the CCB comprised of project Executive Steering Committee Members. If the project does not have a Executive Steering

Committee, the CCB can be comprised of the Project Manager and the Project Sponsors. Whatever the makeup, the CCB should be able to respond to requests promptly and efficiently. Specific details regarding the CCB should be included in the PMP or the Change Control Management Plan (e.g., membership, roles, and decision authority).

4.1.4 Practice Overview

As an integral and functional part of the PMP, change control management involves monitoring and controlling changes to project scope, schedule, budget, documents, artifacts, standards, policies, and deliverables. Though projects and organizations vary greatly in size and complexity, all projects must establish and follow agreed-upon change control management practices. Development and adherence to a Change Control Process (CCP) helps prevent unauthorized changes, minimizes disruption to the project environment, and includes the necessary input and evaluation for making sound project decisions. A structured CCP appropriately identifies, defines, analyzes, approves and tracks each change. The CCP also ensures:

- Changes to project baselines are reviewed and approved in advance of the change
- Changes are coordinated across the entire project
- Stakeholders are notified of approved project changes

Although commonly associated with change or change management, the areas listed below are not covered under this change control management practice overview:

- Organizational Change Management (OCM)
- Configuration Management
- Production system changes
- Production tools, software, hardware, and processes

Figure 4.1-1 depicts the overall inputs, skills, tools, activities, and outputs associated with the performance of change control management.

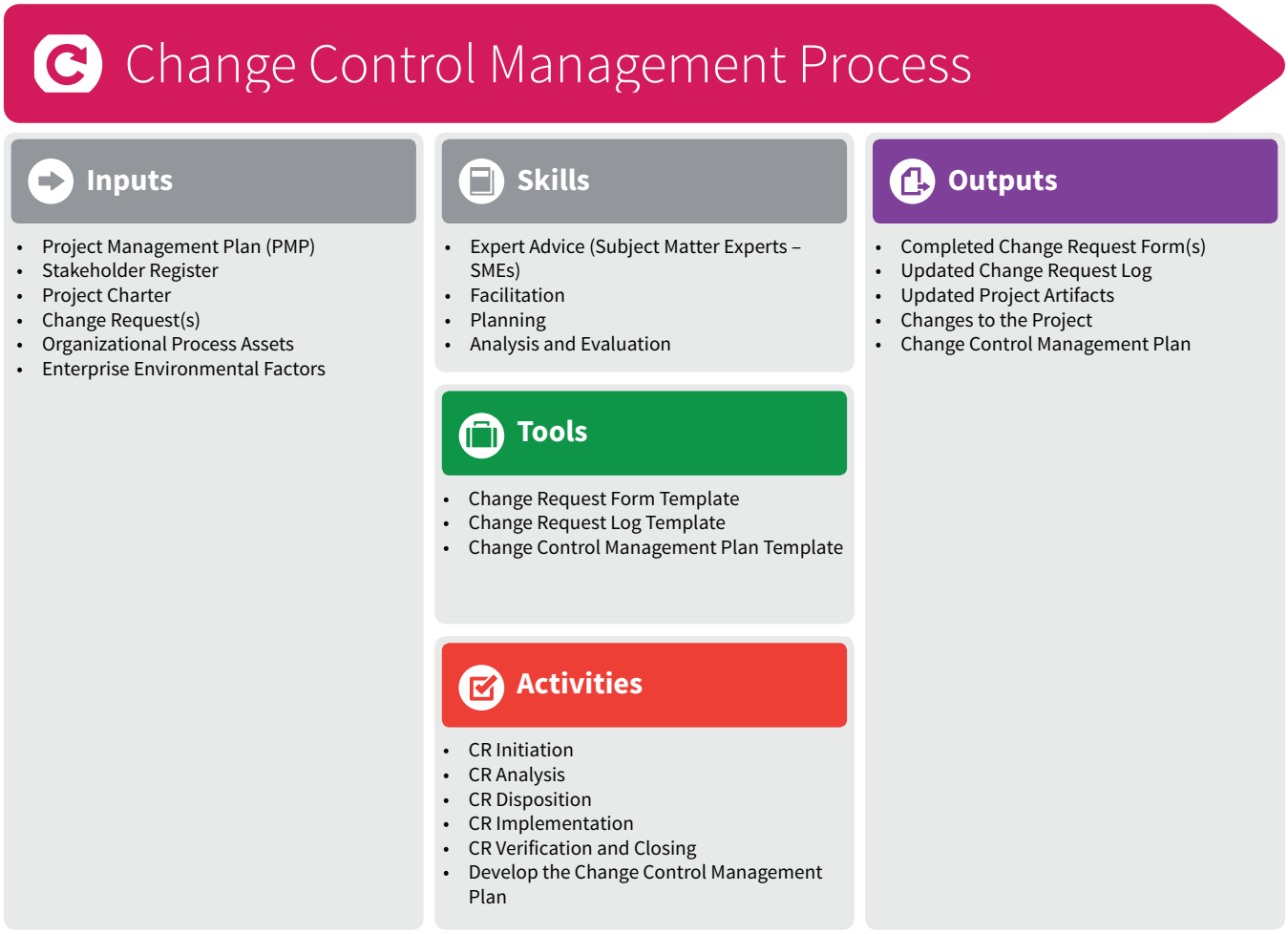


Figure 4.1-1

Change Control Process

The CCP includes the following five steps:

- CR Initiation
- CR Analysis
- CR Disposition
- CR Implementation
- CR Verification and Closing

Figure 4.1-2 illustrates the CCP through a process flow diagram. The text in the pages following the diagram provides a more detailed description of the process.

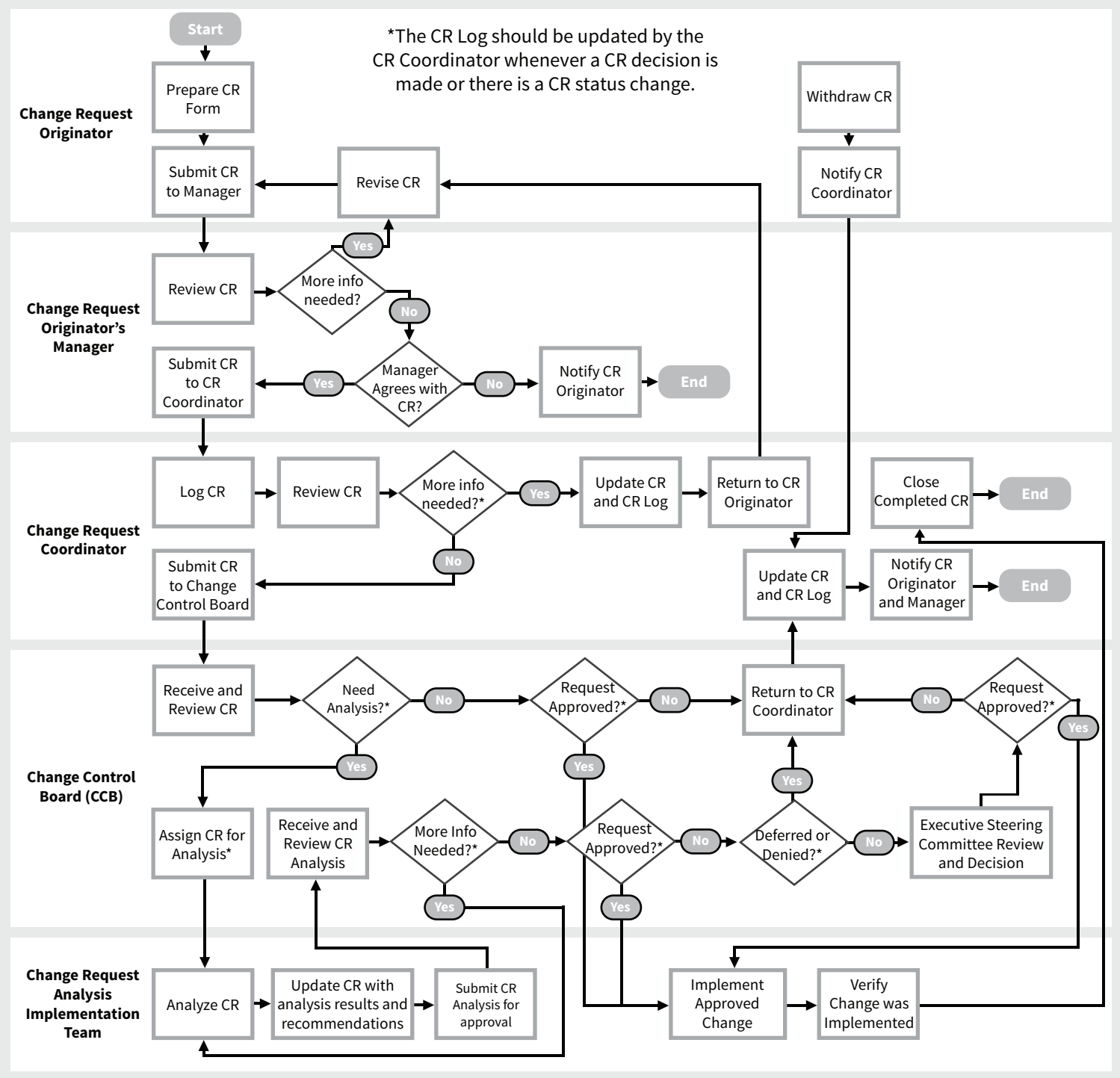


Figure 4.1-2

CR Initiation

The CCP starts with the identification of a project change by any project team member or Stakeholder. To initiate the CCP, the individual who identified the change or assigned to manage the change (the CR Originator) completes the CR form to document and describe its scope and impact. The completed CR form is first reviewed by the CR Originator's manager to confirm the need for and completeness of the CR. If deemed complete and appropriate, the manager will submit the CR to the CR Coordinator/Analyst.

The CR Coordinator/Analyst is the facilitator of the CCP. He or she maintains CRs and related documents, and monitors and tracks the CRs as they move through the process steps. Upon receipt, the CR Coordinator/Analyst gives the CR an initial review for completeness and populates the form with the assigned CR number. If the CR Coordinator/Analyst has assessed that the CR is incomplete, the CR will be returned to the CR Originator with a request for additional information. The CR may need to go through several review and update cycles until the CR Coordinator/Analyst has determined that the CR is ready for CCB review.

When ready, the CR Coordinator/Analyst provides the CR to the CCB for review and disposition. After review, the CCB may request the CR Analysis/ Implementation Team to perform further analysis of the CR, deny the change, or approve the currently described implementation.

During CR initiation and throughout the CCP, the CR Coordinator/Analyst will track status of all CRs in a CR log. The CR log will contain high-level information such as the submission date, the name of the CR Originator, the current status, the final disposition, the disposition date and the implementation status. In addition to being the single source for all Stakeholders to find CR information, the data contained within the CR log can be used later to assess the efficacy of the CCP and identify opportunities for process improvement.

Tools

A template is available:
Change Request Form

Skills

Use the following skills to complete tasks:
- Facilitation
- Analysis and Evaluation

When to Use?

Use the template for projects of the following complexities:

Tools

A template is available:
Change Request Log Template

CR Analysis

If the CCB has determined that further analysis of the CR is needed, the CR Analysis/Implementation Team will evaluate the change to determine the potential impact(s) of the change on the project and implementation solutions. The CR Analysis/Implementation Team consists of one or more staff members representing areas that may be affected by the change and who have the expertise to understand the implications. The analysis performed by the team is documented in the CR form. Key items pertaining to the CR analysis should include:

Skills

Use the following skills to complete tasks:
- Expert Advice/SMEs
- Analysis and Evaluation

- Description of any current workaround (temporary or alternative solution) that may be used until the change is implemented
- Description of the recommended solution and its impact on baselined items and the project
- Discussion of potential implementation risks and mitigation
- Assessment of priority (critical, high, medium, or low) and how quickly the change needs to be addressed
- Root Cause Analysis (RCA) of the Change Request:
  - Why wasn't the requested change found earlier
  - How can project processes be modified to prevent this type of CR in the future?

When the CR Analysis/Implementation Team has completed updates to the CR form, the CR is sent back to the CCB for review and disposition.

CR Disposition

The CCB reviews the CR with consideration of the information provided by the CR Analysis/Implementation Team. The CCB will makes one of the following decisions:

- Rework Needed - Return to the CR Analysis/Implementation Team for additional information
- Change Approved - CR is approved for implementation
- Change Denied - CR is denied and the change will not be implemented
- Change Deferred - CR is deferred for later consideration

Decisions to approve, reject, or take other action on CRs may occur at one of two levels in the CCP:

- CCB
- Project Sponsor, Executive Steering Committee, or other designated authority

The CCB is the initial entry point for consideration of all CRs. Changes will be approved or escalated as authorized in the PMP or the Change Control Management Plan. If the request requires referral or escalation to the Executive Steering Committee, Project Sponsor or other designated authority, the CR form is sent to the designated authority for review and a decision.

When the disposition of a CR has been decided, either by the CCB, the Executive Steering Committee, the Project Sponsor, or other designated authority, the CR Coordinator/Analyst updates the CR log, communicates the disposition to affected Stakeholders, and notifies the CR Analysis/Implementation Team that the CR is ready to be implemented.

CR Implementation

The CR Analysis/Implementation Team coordinates the actual changes outlined in the approved CR. Once the changes have been completed, the CR Analysis/Implementation Team updates the CR to record the actual changes made and any differences from what was requested. Updating the CR with actual changes provides a documented record of the changes.

Implementation tasks may include, but are not limited to:

- Update the project schedule with new tasks or date changes
- Create new deliverables
- SDLC tasks associated with new requirements
- Update project documentation
- Funding approval associated with an increase to project costs

CR Verification and Closing

The CR verification process verifies that the approved CR was implemented as intended. If there are significant differences between what was approved and what was implemented, the CR Analysis/Implementation Team must notify the CR Coordinator/Analyst for possible action, such as modifying the CR and securing appropriate approvals.

Once the changes have been completed, the CR Coordinator/Analyst will finalize all CR documentation and file in the project document repository. The CR Coordinator/Analyst will also update the CR log with a final status and date, and will notify the affected Stakeholders the change has been implemented.

Outputs

The following are outputs of the process:
- Updated CR log
- Completed CR form
- Updated project artifacts
- Changes to the project

Develop the Change Control Management Plan

Change control management describes the processes and procedures for how changes to project scope, schedule and resources will be managed. This information may be made a part of the PMP, or a standalone Change Control Management Plan may be developed using the provided template. The project must assess its relative complexity and make this determination. The subordinate plan will allow the project to detail the change control management monitoring and controlling activities, including the processes and procedures associated with a complex governance structure.

When developing the Change Control Management Plan, consider the following inputs:

- **Project Management Plan (PMP) -** Ensure that the Change Control Management Plan is aligned with the information that is contained in the PMP. After approval and baseline of the plan, it may be necessary to update the PMP.
- **Stakeholder Register** - Review the Stakeholder Register to assist in identifying members of the CCB.
- **Project Charter** - The Project Charter contains the initial scope of the project. Consider the approved scope when assessing CRs.
- **Organizational Process Assets** - Review the organizational process assets which may include but are not limited to all of the documents, templates, policies, procedures, plans, guidelines, lessons learned, and historical data.
- **Enterprise Environmental Factors** - Enterprise environmental factors include but are not limited to the culture, facilities, infrastructure, capital equipment, standards, regulations, policies, records, procedures, processes, information systems, risk-tolerance of Stakeholders, political climate, and communication channels of the organization.

Skills

Use the following skill to complete tasks:
· Planning

Tools

A template is available:
Change Control Management Plan

When to Use?

Use the template for projects of the following complexities:

Outputs

The following is an output of the process:
· Change Control Management Plan

4.2 Communication Management

4.2.1 Introduction

Communication is a fundamental way to manage Stakeholder expectations regarding the progress of the project. The Project Manager devotes a significant amount of time on communications, including conducting and facilitating meetings; composing emails, documents, and plans; negotiating with team members, Stakeholders and vendors; overseeing work; reporting performance via status reports; and escalating issues.

> Communication is a fundamental way to manage the expectations of Stakeholders.

Communication management addresses the questions depicted in Figure 4.2-1.

Who?	Who needs to receive information about the project?
What?	What information needs to be disseminated?
When?	When do they need to know it?
How?	How is it communicated to them?
Where?	Where are communications stored (in the communications medium or a document repository location)?

Figure 4.2-1

4.2.2 Recommended Practices

The following recommended practices are intended to assist project teams with their communication strategy. Effective communication planning will help reduce project risk caused by uncoordinated or ineffective communications.

Recommended Practices

These recommended practices can help project teams develop effective communications planning.

Identify and Categorize Stakeholders

After identifying all Stakeholders, classify them into two groups: the ones who need to be consulted (two-way communication) and the ones who just need to be informed (one-way communication). This categorization will allow for a quick assessment of which Stakeholder group needs to receive a communication.

Centralize all Project Information

Create a central location to store all project-related information. Inform all Stakeholders about this location at the beginning of the project. This will allow all Stakeholders to proactively seek out information on an ongoing basis and promote transparency.

Track and Report Progress

Each project should develop a rigorous process for tracking and reporting the project's actual progress against the planned progress. Bi-weekly or weekly project updates, depending on the project's scope and length, are useful for conveying this information to project team members and external Stakeholders.

Use Templates for Status Reports

Use a standard template for all status reporting. This will make it easier to produce each report on a periodic basis, allow for better communication between project team members, and help the Project Manager quickly recognize where there may be issues impacting the project's productivity.

Hold Meaningful and Productive Meetings

Value the project team members' and Stakeholders' time. Before scheduling a meeting with multiple participants, evaluate whether there is a more efficient way to achieve the same outcome, e.g., an email or a one-on-one conversation. If a meeting is needed, carefully select and invite those participants who are responsible for, or need to be consulted on, specific work and activities. Before each meeting, send a clear agenda with defined expected outcomes.

Communicate Often

Detailed project plans are most helpful when they are effectively communicated to and used by the project team. Communicate often to ensure that every

project team member understands his or her role and responsibilities. Create an environment that lends itself to reciprocal communication; the project team should feel comfortable raising issues and concerns. Finally, don't forget to communicate successes to the project team to provide support, encouragement, and maintain momentum.

4.2.3 Roles in Communication Management

Overall definitions of project roles can be found in the Definitions of Project Roles section in the Additional Resources chapter. The following roles typically participate in communication management activities:

- Project Sponsor (approval)
- Project Manager (lead)
- Project Team
- Communication Manager (lead)
- Contract Manager
- Business Owner(s)
- Key Project Stakeholders

Roles

For a complete list of all project roles, see the Project Role Definitions in the Glossary.

4.2.4 Practice Overview

Effective communication is critical to successful project management and delivery. Without it, vital information may not be exchanged effectively and may negatively impact the completion of scheduled tasks. The likelihood of project success increases exponentially when communication issues are avoided.

The goal of communication management is to define the project's structure and methods of information collection, screening, formatting, and distribution. Defining the communication management processes and procedures ensures the project team members have a uniform understanding of the critical communication links among people, ideas, and information needed for project success. Effective communication management supports:

- Meeting Stakeholder information needs
- Tracking and reporting of project performance

- Formally documenting project results
- Garnering enthusiasm and support for the project
- Sharing information from management down to staff, and vice versa

Figure 4.2-2 depicts the overall inputs, skills, tools, activities, and outputs associated with the performance of communication management.

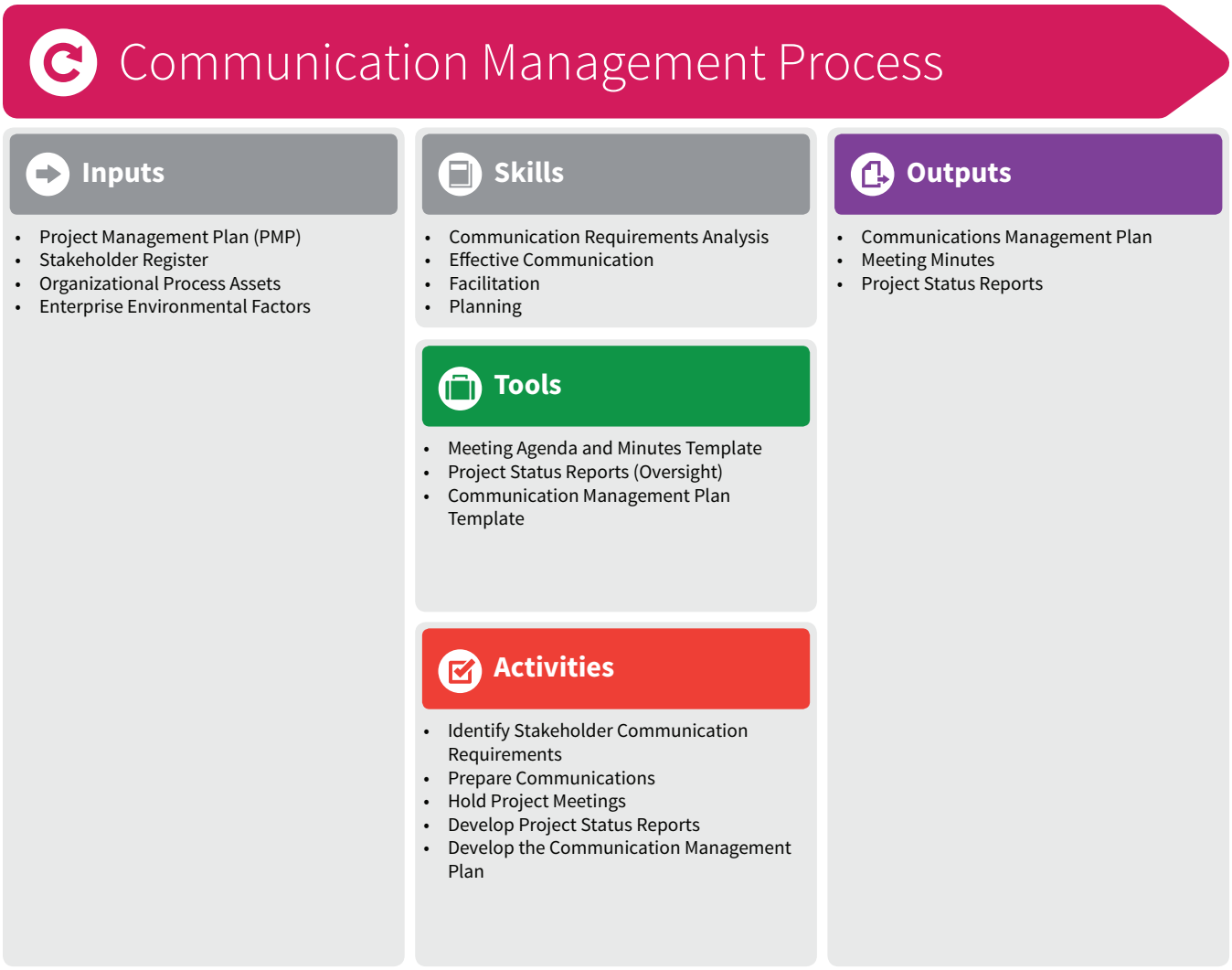


Figure 4.2-2

Components of Communication Management

Communication management is the systematic approach to monitoring and controlling the mode and content of communications to Stakeholders. The following narrative describes the activities involved in planning for and carrying out communications.

Communication Methods

There are a number of communication methods to be leveraged when conducting project communications. They can be broadly classified into three types: "interactive," "push," or "pull." The Project Manager decides based on project requirements what communication methods are to be used in the project and how and when to use them.

- **Interactive Communication** involves two or more parties performing a multi-directional exchange of information. This typically includes meetings, telephone calls, and video conferencing and presentations, during which the recipients of the information have an opportunity to ask questions and engage in a discussion. This is considered to be the most efficient method to ensure understanding by all participants.
- **Push Communication** is considered a single-direction communication method and involves sending a specific message to a specific recipient(s). This method ensures distribution of the information but does not guarantee that the information was received and understood. Examples of this communication method include reports, emails, faxes, voice mails, memos, and press releases.
- **Pull Communication** is best used for large volumes of information or large audiences when recipients of the information access the content at their own discretion. Examples of this communication method include websites, e-learning, knowledge-based systems, and file sharing systems.

Identify Stakeholder Communication Requirements

Communications planning begins with identifying the project Stakeholders, their relationship to the project, and their information needs. This analysis involves deciding who should be informed of what, and how important it is that they receive that information. Projects generate a great deal of information and data, which can cause communication overload and confusion. A planning technique for communication requirements is to limit both the quantity of information being circulated and the paths used for communication. This allows the project team to shape communication to create clear, accurate, concise, and transparent messages. To start, leverage the Stakeholder Register developed in the Initiating Process Phase.

Skills

Use the following skills to complete tasks:
· Planning
· Communication Requirements Analysis

Prepare Communications

An integral part of communications is to determine the who, what, when and how. This includes information pertaining to the target audience, purpose, frequency, owner, distribution vehicle, and whether the communication is internal or external. It is also important to determine what information will be disseminated, its source, and who will collect it.

When preparing a communication, consider the following steps:

1. Identify the purpose of the communication. What is the goal or objective?
2. Define the audience. Create a list of Stakeholders who need this information about the project. Consider whether it needs to be communicated to internal or external Stakeholders, or both.
3. Define the communication requirements. What do the Stakeholders want to know? What type of information is being shared? Will this be a one-way or two-way communication?
4. Build a communications schedule and determine the frequency for each type of communication. Develop a flexible schedule in coordination with the project schedule.
5. Identify a team member responsible for helping to gather the information and prepare communications. Select the individual or group who will lead the communication process.
6. Define the medium for communication. Select the appropriate mediums to ensure the information is delivered successfully to the Stakeholders. Common methods include email, status report, document, survey, meeting, website, and collaboration site.
7. Prepare and deliver the content. When possible, use a template to standardize the communication. This generally speeds up this final step and also promotes retention and ease of viewing for the Stakeholder when the communication is familiar and they know what to look for and where to look for it.

Skills

Use the following skills to complete tasks:
· Planning
· Effective Communication

Hold Project Meetings

There are several types of project-related meetings in which communications may occur. Most project meetings consist of Stakeholders coming together for the purpose of resolving problems or making decisions. Although casual discussions may be construed as a meeting, most project meetings are more formal with a prearranged time, place, and agenda. Typical meetings begin with a defined list of issues to be discussed and expected meeting outcomes,

Skills

Use the following skills to complete tasks:
· Facilitation
· Effective Communication

which are circulated in advance with minutes and other specific information documented during the meeting. Project meetings are a common and important way to communicate information during a set aside time to concentrate on specific project areas. However, meetings should never be a substitute for ongoing communications between the Project Manager, project team, senior management, and any other project Stakeholder needing information timely.

To make meetings more effective, identify and describe the schedule and information requirements for each meeting. Developing and publishing this information helps ensure all project team members are aware of meetings that may require their attendance or may have outcomes that impact their work. Identify and describe the type, frequency, purpose, and participants of project meetings.

The following represents common meetings that projects may have:

- **Team Meetings** - It is recommended for the Project Manger to hold project team member meetings at least weekly and meetings for senior management at least bi-weekly. The meetings' purpose is to communicate such topics as risks, issues, resource concerns, schedule, deliverables, milestones, and dependencies across the project team. Make sure that minutes are captured to hold the participants of each meeting accountable for any decision made, and to ensure action items that came up during the meeting are tracked to completion.
- **Stakeholder Meetings** - Stakeholder meetings should be held at an interval that satisfies the Stakeholders' need for information. The purpose is for the Project Manager and/or Project Sponsor to communicate with the Stakeholders about such topics as risks, issues, schedule, deliverables, and milestones. Stakeholder meetings could include Executive Steering Committee meetings, oversight meetings, and project quality or schedule review meetings.

Prepare Meeting Agendas and Minutes

Preparation and distribution of written meeting agendas and minutes can greatly enhance the productivity of project work, team coordination, and communications. An agenda ensures that a meeting has a clear purpose, structure, and schedule that make the best use of participants' abilities and time. Minutes ensure that the meeting's actions and decisions are formally and concisely recorded, providing accountability and a record of progress for future meetings, project managers, and other interested Stakeholders.

In general, an agenda should be distributed well in advance of the meeting so that participants can familiarize themselves with the subject matter. The agenda clearly defines the topics and action items to be discussed and acted

Activities

A published meeting schedule ensures all team members will know which meetings involve them.

When to Use?

Use the template for projects of the following complexities:

L M H

Tools

A template is available:
Meeting Agenda and Minutes Template

upon, the time allotted, and who is responsible for each presentation. Meeting minutes document progress, decisions, completion of action items, as well as new action items and assigned owners. Upon approval, minutes are distributed to meeting participants and other Stakeholders. All agendas and minutes should be preserved in the project's documents library.

Develop Project Status Reports

A project status report is an efficient way to document and disseminate information to project team members and Stakeholders on a regular basis. They may be used for sharing information to both internal or external Stakeholders, but much like project meetings, reports should never be a substitute for ongoing communications between the Project Manager, project team, senior management, end users and any other project Stakeholder needing information.

Project status reporting is a project management monitoring and controlling function performed throughout a project. Project status reporting is usually conducted as a roll-up process. Team members report status or individual task status to team leads. Team leads then report a rolled-up functional area status to the Project Manager. Then, the Project Manager rolls up each functional area status, consolidates the information, and documents results in a formal project status report to Stakeholders. The retrospective and "look ahead" aspect of reports help keep management apprised of progress and alerted to any early indications of schedule slip. A project status report may also help expose project problem areas early on, focus attention on tasks to mitigate problems, and communicate a possible need for help from outside the immediate project team. It is recommended that a project status report be developed and distributed weekly or bi-weekly, especially during key periods of project activity. Monthly reporting requirements may also be established by the California Department of Technology (CDT).

Tools

A template is available:
SIMM 45 - Project Status Report Template (Oversight)

When to Use?

Use the template for projects of the following complexities:

L M H

Developing the Communication Management Plan

The purpose of the Communication Management Plan is to identify the activities required to define, integrate, and coordinate project communications. The plan also documents the method for communication and the management of that communication throughout the project lifecycle. An effective Communication Management Plan is not necessarily lengthy; however, larger and more complex projects may require a separate subordinate Communications Management Plan instead of being contained within the PMP. The standalone Communication Management plan may be developed using the provided template.

When to Use?

Use the template for projects of the following complexities:

L M H

Tools

A template is available:
Communication Management Plan

When developing the Communication Management Plan, consider the following inputs:

- **Project Management Plan (PMP)** - Ensure that the Communication Management Plan is aligned with the information that is contained in the PMP. After approval and baseline of the plan, it may be necessary to update the PMP.
- **Stakeholder Register** - Leverage the Stakeholder Register to identify the target audience of the Communication Management Plan. It is essentially a list of project Stakeholders who are affected by the project and its outcome, or who influence the project and its outcomes. The Stakeholder Register will not only help you identify who to communicate to, but it can helpful in determining how to communicate and how frequently to do it.
- **Organizational Process Assets** - Review the organizational process assets which may include but are not limited to all of the documents, templates, policies, procedures, plans, guidelines, lessons learned, and historical data.
- **Enterprise Environmental Factors** - Includes but is not limited to the culture, standards, regulations, policy, records, procedures, processes, information systems, risk-tolerance of Stakeholders, political climate, and communication channels of the organization.

Outputs

The following is an output of the process:
- Communication Management Plan

4.3 Contract Management

4.3.1 Introduction

Contract management sets out the processes and procedures for managing project contracts for goods and services throughout the project lifecycle. This includes initiation of contracts; management of contractor staff, invoices, and deliverables; and contract close-out. Contract management activities can be especially useful for projects that contract out for a significant share of the services needed for project completion. For larger and more complex projects with significant outsourcing, this may include managing multiple contracts or subcontracts simultaneously or sequentially.

4.3.2 Recommended Practices

Recommended Practices

Review these recommended practices to better understand how to plan Contract Management.

Effective contract management helps projects ensure that contracted goods and services are delivered on schedule and in accordance with specifications in exchange for the state's payment. The following recommended practices are intended to assist the project team in carrying out contract management activities.

Set Clear Contract Management Roles and Responsibilities

As with other areas of project management, failure to set clear roles and responsibilities for managing project contracts can negatively affect the project's outcome. The designated Contract Manager and assigned staff, who stay in close communication with the Project Manager, other team members, and the contractor, can play a key role in ensuring the project receives the best possible contract performance, timeliness, and optimal value for money spent.

The Contract Manager is responsible for managing and tracking vendors. The Contract Manager may also provide oversight and tracking for a system integrator contract and other project-related contracts. The Contract Manager monitors contract compliance, participates in negotiations, facilitates amendments, and reviews work authorizations and invoices.

Set the Right Tone from the Start

As the contract is initiated, plan to focus on creating positive, goal-oriented relationships between internal and contractor management and staff. A contract kickoff meeting and other vendor onboarding activities provide good opportunities to confirm roles, responsibilities, and lines of communications. Ensure everyone is working on the same page, with conformed and up-to-date

copies of the contract and Statement of Work (SOW) available to all appropriate persons. Provide specialized training for contract management staff if it is needed and available. An atmosphere of fair treatment and mutual respect can help set the stage for an outcome in which all parties to the contract timely fulfill their obligations and achieve project goals.

Don't Make Assumptions – Use Clear and Consistent Standards to Measure Contractor Performance

Ensure that clear standards are defined for measuring contractor performance. Progress should consistently and constantly measured and audits should be conducted as necessary to make sure contract terms and conditions are being met. The Contract Manager and assigned staff should have a working knowledge of all aspects of the contract. The project's Quality Manager should be consulted to ensure performance metrics are clearly identified.

Be Prepared for Issues, Changes, and Corrective Actions

Customer satisfaction surveys on completed work and other feedback can proactively help monitor contractor progress. Stay ahead of the game and prevent non-compliance by identifying potential problems early. If project managers are uncertain about a compliance-related matter, don't hesitate to get help from other contracts specialists and/or legal counsel. Act quickly to address any non-compliance, but when possible focus on resolving disputes with negotiation or arbitration rather than litigation.

Keep a Sharp Eye on the Payments

Terms of payments to contractors must be clearly documented and understood. Completed work, contractor expenditures, and supporting information all must be reported and verified before a payment is made. Proactively monitor and manage invoices and payments in adherence to the terms of the contract and project budget. Ensure compliance with state law that requires prompt payment of undisputed invoices.

Remain Vigilant Throughout Contract Closure

Ensure completion of all contracted work, including any expected knowledge transfer and product documentation. All work described in the SOW must be done and accepted prior to contract closeout.

4.3.3 Roles in Contract Management

Overall definitions of project roles can be found in the Definitions of Project Roles section in the Additional Resources chapter. The following roles typically participate in the development of the Contract Management Plan:

- Project Sponsor(s)
- Project Manager
- Contract Manager
- Contract Analyst(s)
- Functional Manager/ Business Owner
- Department Budget Office
- Department Legal Office
- Department of Technology (CDT)

Roles

For a complete list of all project roles, see the Project Role Definitions in the Glossary.

4.3.4 Practice Overview

Contract management entails the understanding and evaluation of all aspects of a contract for compliance, and taking quick and effective actions to prevent or resolve issues. Processes also need to be performed by the project team to ensure that the goods and services being contracted for are provided timely and with the expected quality. The remainder of this section identifies and describes many of those processes performed by the Contract Manager or other project team member.

To help Contract Managers navigate state rules and policies regarding procurement and contracts, refer to the Department of General Services (DGS) State Contracting Manual (SCM) for additional information.

Web Links

DGS: State Contracting Manual (SCM)

Figure 4.3-1 depicts the overall inputs, skills, tools, activities, and outputs associated with contract management.

Figure 4.2-2

Contract Initiation

Once the contract is signed, contract initiation activities such as the onboarding of vendor staff and a contract kickoff meeting can take place. Security authorizations and badges, facility and project orientation, equipment check-out, parking instructions, dining tips, familiarization with project workplace standards and work hours, and other typical onboarding activities should be planned and completed as needed. Vendor staff working offsite may also require at least some onboarding activities, including network authorizations and information on security and communications protocols. The project's Contract Manager should have a working knowledge of all aspects of the project's organization and contract to help lead the integration of vendor personnel.

During contract initiation, it is very important to start off a project with a set of clear standards and expectations. Time and effort should placed on setting up a collaborative environment where state and contractor staff work towards common goals and objectives.

Skills

Use the following skills to complete tasks:
- Effective Communication
- Planning

Contractor Reporting

Accurate and timely reporting of project tasks and milestones is essential for evaluating the progress of contracted work and the need for any corrective actions. The Contract Manager, Project Manager, business leads, and IT lead are all critical to observing contractor performance, progress and the quality of work products.

The Contract Manager should stay in regular contact with the contractor and review contractor progress reports and other information as provided under the terms of the contract and Statement of Work. Contractors may provide, at a minimum, weekly verbal reports and written monthly reports, or as scheduled under the contract terms. Performance reviews, including a final contractor performance review, should be conducted as required.

Significant changes (such as more than 10 percent) to the contract's schedule and cost may require a formal corrective action plan or other contract remedies dictated by the terms of the contract. The Project Manager and Contact Manager may conduct regular or special meetings with the contractor to discuss identified risks or performance issues. Procedures for tracking contract problems and the implementation and results of corrective actions or amendments should be documented. The Contract Manager should work with the Quality Manager to ensure that the project's Quality Management Plan clearly identifies performance metrics for contracts.

Deliverable Management

For deliverables based contracts, having a clearly defined deliverable management process will help facilitate the state's ability to hold the contractor accountable for the quality of the work products being delivered. In all situations, the state's acceptance of a deliverable means the contractor has submitted satisfactory work and, usually, may now invoice the state for payment. Payment is a good motivator to drive progress and should be withheld until all deliverable specifications have been met.

Outputs

The following is an output of the process:
- Deliverable Tracking Log

Large and complex contracts may result in a significant amount of deliverables. In these cases, a deliverable tracking log should be developed to help the Contract Manager keep track of their status. A spreadsheet will suffice, or the Contract Manager may explore different solutions to meet the project's needs. Information that should be contained in a deliverable tracking log include: deliverable name and other identifiers; cost; status; estimated submission date; actual submission date; and state functional or technical owners of the deliverable.

See the Executing Process Phase chapter for additional information on deliverable management.

Invoice Processing

Contract Managers must establish procedures for receiving, logging, processing and approving invoices submitted by contractors once a service has been rendered or goods received. In addition, the Contract Manager must also have a sufficient understanding of the organization's invoice processing procedures, including the accounting methods, how the invoices are submitted, how they are paid, and the resolution of disputed invoices. The Contract Manager must ensure the invoices are processed timely and that the contractor receives payment for an undisputed invoice within the time frame written in the terms and conditions of the contract or California's Prompt Payment Act, whichever of the two is sooner.

Outputs

The following is an output of the process:
- Invoice Tracking Log

The Contract Manager may develop an invoice tracking log for each contract that manages the contract expenditures against the dollars encumbered for the contract, by fiscal year.

Contract Disputes

Disputes can often arise during the course of a contract, especially a larger and complex contract that places detailed obligations on all parties. If the contractor and state employees are developing a sophisticated IT product with little schedule or budget leeway, problems can occur despite the most careful planning by both the contractor and project management. Many minor disagreements can be resolved with relative ease and attempts should be made to find a resolution at the lowest level possible. Major contract disputes cannot always be avoided, but it is incumbent on all parties to plan do their best to resolve disagreements in a way that allows the contract and project to reach a successful conclusion. But the project must plan for formal procedures for the project to follow in the case of unresolved disputes. This process can be invoked by either the state or the contractor.

Skills

Use the following skills to complete tasks:
· Facilitation
· Contract Requirements Analysis

Provisions are typically included in the contract that dictate formal escalation procedures, as appropriate, to the Contract Manager, Project Manager, Project Sponsor, Executive Steering Committee, or the Department of General Services if the issue cannot be resolved at the lower levels. Though it should be used with caution and in situations where other options have been exhausted, the project should not be afraid to escalate issues through the formal dispute process.

Replacing Contractor Staff

Skills

Use the following skill to complete tasks:
· Contract Requirements Analysis

Replacement of contractor employees must be planned for and well managed to minimize disruption of the work described in the contract and Statement of Work, and to ensure effective knowledge transfer. Contractor staff replacement may be needed for a variety of reasons and can be expected as typical on long duration (multi-year) projects with a large workforce.

For time and materials contracts, the state must consistently monitor the hours expended by the contractor to ensure that quality work is being performed within a reasonable amount of time. This can be accomplished by using time sheets or another reporting mechanism that provides transparency. If performance issues arise, even on contracts with fixed price deliverables, follow the procedures allowed in the contract and Statement of Work to remediate the problem. This may result in a request to replace contractor staff.

Project goals in the replacement of contractor staff should include effective knowledge transfer from the old staff to the new, as well as smooth transition of responsibilities. A contractor employee joining a complex development effort mid-steam may face additional orientation challenges compared to employees who were there at the beginning. Effective replacement procedures can be even more critical to project success when a top contractor manager departs. When deciding whether a replacement contractor staff is acceptable, be sure to

evaluate his or her experience against the contract requirements and exercise the option to interview the candidate in a face-to-face meeting. Resumes and references should be reviewed by the state. Ensure the new employee will be at least as qualified as the departing worker, or that other compensatory measures (such as hiring multiple replacements or negotiating lower rates) are completed if an equally qualified candidate cannot be found.

Amendments

Contract amendments may be necessary to fulfill the goals of the contract and project when there is an unforeseen event that alters the scope, schedule or cost of the contract. Amendment changes may include modifications to the statement of work, pricing, and descriptions of the products, services, or results to be provided. When drafting a contract amendment, make sure to vet the changes with the Project Manager, the business lead, the IT lead, and/or legal counsel.

The process for completing a contract amendment will vary between organizations and depends on factors such as the type and size of the change, the organization's delegated purchasing authority, and whether it is an IT or non-IT contract. For additional information and guidance on contract amendment, consult with the Department of General Services (for non-IT contracts), CDT's Statewide Technology Procurement Division (for IT contracts), or the State Contracting Manual.

Work Authorizations

For contracts that contain the appropriate provisions, a work authorization may be used to authorize the contractor to complete work that is not specifically outlined in the contract, but is aligned with the overall scope of the contract. This work is unanticipated and discovered during the course of the contract, and funds must be available in the contract to pay for it. The Contract Manager's duties should include reviewing and negotiating work authorizations.

The procedures for work authorizations typically are described in the contract and supporting documentation. Procedures should include clear lines of approval for proposed work authorizations submitted by a contractor. This typically involves the Contract Manager reviewing and negotiating work authorizations prior to approval by the Project Manager.

Skills

Use the following skills to complete tasks:
- Legal Analysis
- Contract Requirements Analysis

Contract Closeout

Contract closeout is an integral stage of the contract management process. Before and during closeout, the project should plan to ensure project work is complete and accepted; final invoices, expenditures and payments are finalized; final performance reviews and audits are complete; knowledge transfer and training are conducted, records are archived according to applicable records retention procedures; and applicable administrative, project, departmental and statewide requirements have been satisfied.

Closeout preparation should typically begin well before the end of the contract performance period. The Contract Manager should ensure the contractor will be on time with the final deliverables and there is a clear scheduled for timely resolution of any outstanding issues, disputes, and discrepancies.

Closeout planning may typically include:

- Outline of the formal process to be used to close the contract
- Roles and responsibilities for closing activities
- Procedures for documenting delivery and formal acceptance of final work product(s) or other deliverable
- How the processing of the final invoice(s) will be accomplished and recorded
- Disposition or transfer of any outstanding claims
- Audit of the project's contract accounting and records
- Acceptance and review of the contractor final report
- Completion and submission of required contractor evaluations

Skills

Use the following skill to complete tasks:
· Planning

When to Use?

Use the template for projects of the following complexities:

L M H

Tools

A template is available:
Contract Management Plan

Develop the Contract Management Plan

Contract management identifies the processes and procedures for managing project contracts for goods and services throughout the project lifecycle. A Contract Management Plan may vary based on the size and complexity of the project and the contract terms; however, the basic components described in this section can be incorporated into any Contract Management Plan. This information can be incorporated into the PMP, or the Project Manager can determine that a standalone Contract Management Plan is required for the project. A Contract Management Plan template is provided to assist the project team.

When developing the Contract Management Plan, consider the following inputs:

- **Project Management Plan (PMP)** - Ensure that the Contract Management Plan is aligned with the information that is contained in the PMP. After approval and baseline of the plan, it may be necessary to update the PMP.
- **Quality Management Plan** - The Quality Management Plan describes how to develop and manage the quality of the project's outputs. The plan identifies quality management processes and provides standards, practices and conventions used to carry out quality control and quality assurance activities. It identifies which quality standards are relevant to the project and how to satisfy them.
- **Expert Advice** - Contract management specialists, legal, budget office analysts, and business leads can all contribute valuable information and resources to the development of a Contract Management Plan.
- **Organizational Process Assets** - Review the organizational process assets which may include but are not limited to all of the documents, templates, policies, procedures, plans, guidelines, lessons learned, and historical data.
- **Enterprise Environmental Factors** - Includes but is not limited to the culture, standards, regulations, policy, records, procedures, processes, information systems, risk-tolerance of Stakeholders, political climate, and communication channels of the organization.

Outputs

The following is an output of the process:
- Contract Management Plan

4.4 Cost Management

4.4.1 Introduction

Cost management defines how project expenditures will be managed by setting the standards and policies by which project costs are controlled, measured, and reported. Cost management addresses:

- Development of the project budget
- Quantitative measures of cost performance
- Report formats, frequency, and audience

Project cost management primarily focuses on the costs of resources needed to complete project activities, with consideration for hardware, software, consulting services, overhead costs, and ongoing maintenance and support of the project's end product or service. The following section provides an overview of the methods and techniques for performing cost management; this does not offer guidance regarding the state budgeting process.

4.4.2 Recommended Practices

Recommended Practices

These recommended practices can help project teams confidently conduct cost management planning.

Effectively budgeting a project and carefully tracking and controlling costs are key to project success. The following recommended practices are intended to help project teams confidently undertake cost management activities.

Estimate Costs Realistically

Realistic cost estimates help a project team gain a better understanding of project risks and opportunities. Costs are often underestimated when not following a structured approach for determining work and estimating associated costs, or not involving the appropriate resources.

Make sure cost estimates are completed by practitioners who are experienced in the work and that estimates are based on a project scope that has been validated with user research. A project that delivers a great product on time can still be viewed as a failure if it is significantly over budget, even if the cost overruns were due to an unrealistic cost estimate.

Capture All Costs

Projects often experience unanticipated costs or hidden costs. Be sure to consider all work and project resources required when estimating costs. This includes the costs of other project workstreams – such as Organizational Change

Management (OCM) or Business Process Reengineering (BPR) – and those costs needed to engage users in research and validation activities throughout the project lifecycle.

As you develop your initial cost estimate, it is important to consider the best and worst case scenario. List all costs that the team thinks may or may not be needed. Lead with the worst case scenario and refine as more information becomes known.

Keep Track of Costs

Keep track of actual costs by using a collection methodology that is consistent and timely. Develop a tracking mechanism that can accurately and transparently capture the budget and actual costs of the project. In most circumstances, a spreadsheet would be sufficient for this task.

Cost Analysis and Forecasting

Cost analysis and forecasting should be ongoing activities throughout the project lifecycle. This will help bring about cost awareness, transparency, and enhance overall risk management as it relates to cost. By identifying cost variances early on, the project will have the opportunity to proactively mitigate these risks.

Roles

For a complete list of all project roles, see the Project Role Definitions in the Glossary.

4.4.3 Roles in Cost Management

Overall definitions of project roles can be found in the Definitions of Project Roles section in the Additional Resources chapter. The following roles typically participate in the development of the Cost Management Plan:

- Project Sponsor (approver)
- Executive sponsor (approver)
- IT Sponsor (approver)
- Project Manager (lead)
- Financial Lead and/or Financial/Budget Manager
- Financial Analyst(s) and/or Budget Analyst

4.4.4 Practice Overview

Cost management focuses on the following core processes:

- **Estimate Costs** - The process of approximating the monetary resources required to conduct project activities and complete the project. Examples of resources include human resource costs, hardware, software, services and facilities.
- **Determine Budget** - The process of aggregating estimated costs to establish an authorized cost baseline.
- **Control Costs** - The process of monitoring and controlling costs in accordance with the baseline and approved changes.

Cost management has a close relationship with the schedule, scope, and quality management disciplines. Often, an adjustment made to a project's budget or a cost overage will have a noticeable and possibly significant effect on the project's schedule, scope, and quality. Attention must be given to how adjustments in one of these areas affect the other areas.

Figure 4.4-1 illustrates the inputs, skills, tools, activities, and outputs necessary to complete cost management activities.

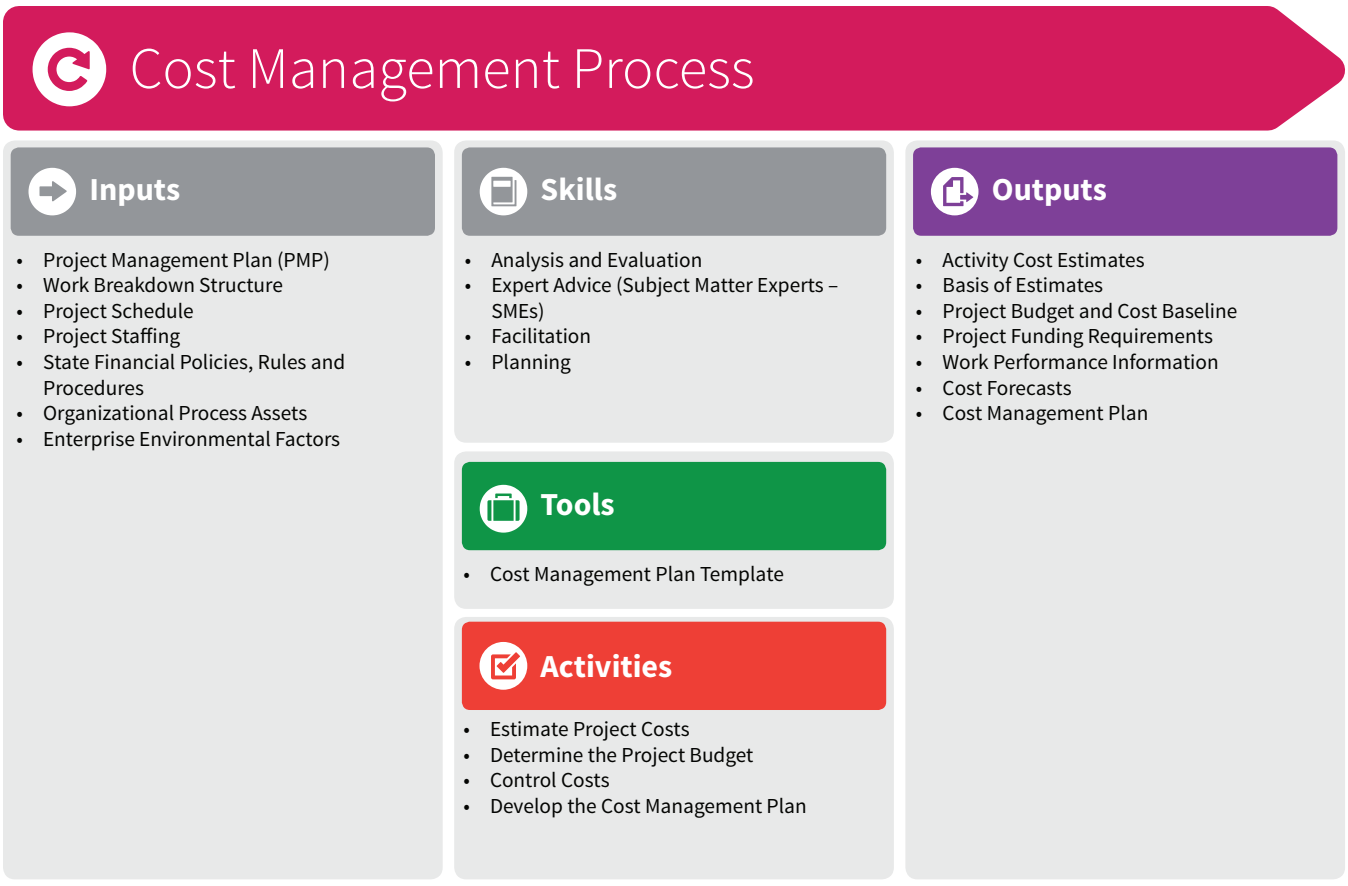


Figure 4.4-1

Estimating Costs

The process of estimating costs is focused on the monetary resources needed to complete the project. Consider the following inputs developed in the Planning Process Phase when estimating costs:

- Work Breakdown Structure (WBS)
- Project Schedule
- Project Staffing

In addition to the items above, the following cost factors should be taken into consideration when going through this exercise:

- **Expert Judgment** - Taking historical information into account. Expert judgment provides valuable insight about the environment and past project experiences. Expert judgment also can help determine whether to combine estimating methods and how to reconcile differences among them.
- **Reserve Analysis** - Cost estimates may include contingency reserves or allowances to account for cost uncertainty based on project risks. Contingency reserves may be a percentage, a fixed number, or may be developed through quantitative analysis. The contingency reserve should be clearly documented and be part of the project cost baseline and overall funding requirements. Estimates may also be produced for what is called management reserves. Management reserves are intended to address unknown or unidentified risks that may pop up in a project. Management reserves generally are not included in the project cost baseline. However, when management reserves are used, the Change Control Process is required to gain approval of a cost baseline adjustment.
- **Cost of Quality (COQ)** - Assumptions about costs of quality may be used for activity cost estimates. Cost of quality includes all costs incurred over the life of the product, from investing to prevent requirements non-conformance, appraising the product for conformance to requirements, and failing to meet requirements (rework).

There are many techniques available to help develop high-confidence cost estimates. Depending on the size and complexity of the project, and the experience of the project team members, Project Managers should choose a method that best suits the project.

- **Analogous Estimating** - This technique is commonly used when there is a limited amount of project detail, such as in the early stages of a project. Analogous estimating uses historical cost information from similar past projects along with expert judgment. Actual scope, cost, budget values,

Skills

Use the following skills to complete tasks:
- Planning
- Evaluation and Analysis
- Expert Advice (SMEs)
- Facilitation

and parameters from previous projects are used to calculate high-level cost estimates, with adjustments made for known project differences. This method is faster and less costly, but is also considered less accurate.

- **Parametric Estimating** - This technique uses historical data and statistical analysis to determine project costs. New costs are extrapolated based on actuals from prior work efforts. For example, if it previously took 1 hour to upload 10 documents, the work effort to upload 100 documents would be 10 hours. Make sure to consider changing variables that may be affect the new estimates (such as new technologies, more knowledgeable and experienced staff). This technique can produce high levels of accuracy.
- **Bottom-up Estimating** - This technique estimates the work associated with each component of work, such as an activity, to a great level of detail. Estimated costs of each activity can then be aggregated to determine the project costs. Though considered highly accurate, bottom-up estimating is very costly and time consuming. Project size and complexity typically influence whether or not this technique is used, where it is less feasible to use this technique on large and complex projects.
- **Three-Point Estimating** - With this technique, cost estimates are based on three cost scenarios and averaged in order to reduce uncertainties, risks and biases. The three scenarios that are used to define a range for an activity's cost are:
  - **Most likely (cM)** - The cost of the activity based on a realistic effort assessment
  - **Optimistic (cO)** - The activity cost based on the best-case scenario
  - **Pessimistic (cP)** - The activity cost based on the worst-case scenario

  After estimating the cost of each scenario, the expected cost *(cE)* is calculated using a formula. Two common formulas include the triangular and beta distributions.
  - Triangular Distribution is the average of the three.
    The formula is cE = (cO + cM + cP) / 3
  - Beta Distribution (also call the Program Evaluation and Review Technique (PERT) formula) is also an average, but with greater weight placed on the most likely (cM) estimate.
    The formula is cE = (cO + 4cM + cP) / 6
- **Vendor Bid Analysis** - Cost estimates may include an analysis of what a project should cost based on responsive bids from qualified vendors. This approach is commonly used in the public sector. When a project is

awarded to a vendor under a competitive bid process, the project team may be required to perform additional cost estimating work to examine the individual deliverable(s) pricing. Then, a cost is derived that supports the total project cost.

Once the cost-estimating process is complete, the expected outcomes and outputs are:

- **Activity Cost Estimates** - Each project activity has an associated cost estimate. These are probable costs based on quantitative assessments.
- **Basis of Estimates** - This is documentation describing how cost estimates are developed. This includes assumptions, constraints, any indications of estimate ranges, and the confidence level in the final estimate.
- **Project Document Updates** - Identify any project documents that contain information regarding cost estimates and update accordingly.

Outputs

The following are outputs of the process:
- Activity Cost Estimates
- Basis of Estimates
- Project Document Updates

Developing the Project Budget

A project budget includes all funds needed to execute the project, with the cost of activities aggregated by fiscal year. This process establishes an approved cost baseline for project performance to be measured against. To determine the project budget, utilize the following inputs:

- Activity cost estimates
- Basis of estimates
- Project Schedule
- WBS

Skills

Use the following skills to complete tasks:
- Evaluation and Analysis
- Expert Advice (SMEs)

When aggregating costs, be sure to consider any pre-determined funding limits per fiscal year or per fund available. The expenditure of funds should be reconciled with any limits on the commitment of funds.

The outputs of the budget determination process include:

- **Cost Baseline** - The cost baseline is the time-phased project budget. The baseline is used as the basis for comparison to actual results and can only be changed using the Change Control Process.
- **Project Funding Requirements** - Total funding requirements and periodic funding requirements are derived from the cost baseline. Project funding often occurs in incremental amounts over time and may not be continuous or evenly distributed.
- **Project Document Updates** - Identify any project documents that contain information regarding project budget and update accordingly.

Outputs

The following are outputs of the process:
- Project Budget
- Cost Baseline
- Project Funding Requirements

Controlling Costs

The process of controlling costs involves monitoring a project's status to update and estimate anticipated project costs, and managing changes to the cost baseline. Updating the budget requires knowledge of actual costs allocated to date. This may require collecting of additional information about staff or contractor hours, outside of the regular departmental accounting systems, to achieve more up-to-date estimates of actual obligations and expenditures.

Any request to increase the project budget must go through the Change Control Process. (For reportable IT projects, cost variances that are +/- 10 percent of approved project budget will require additional approvals. See SIMM 30.) To avoid rework or poor quality, Project Managers should also monitor the value of the work being accomplished. Much of the effort to control costs involves analyzing the relationship between fund consumption or expense and the work being accomplished. Effective cost control means managing the approved cost baseline and changes to the baseline. Project cost control includes:

- Influencing factors that create changes to the cost baseline.
- Ensuring timely action on Change Requests.
- Managing actual changes as they occur.
- Ensuring cost expenditures do not exceed authorized funding by period, by WBS component, by activity, and in total for the project.
- Monitoring cost performance to isolate and understand variances from the baseline.
- Monitoring work performance against funds expended.
- Preventing inclusion of unapproved changes in the reported cost or resource usage.
- Informing appropriate Stakeholders of all approved changes and associated costs.
- Bringing expected cost overruns within acceptable limits.

Cost control provides the Project Manager with the tools and information to identify variance from the plan, providing the opportunity to apply corrective actions to minimize risk. Inputs to the process include:

- Project funding requirements
- Work performance data

Web Link

See section 30 of the Statewide Information Management Manual (SIMM) for more information.

The following information describes the many techniques used to control costs:

- **Earned Value Management (EVM)** - EVM is intended to help Project Managers with measuring project performance and progress by forming an integrated baseline combining scope, schedule, and resource measurements. The idea is to use a systematic method to find project variances by comparing work performed against the work planned or estimated. In order to make those comparisons, projects need to have established baselines in which the project team has confidence. The graphic below, Figure 4.4-2, helps to visualize the EVM concepts.

Skills

Use the following skills to complete tasks:
- Evaluation and Analysis
- Expert Advice (SMEs)

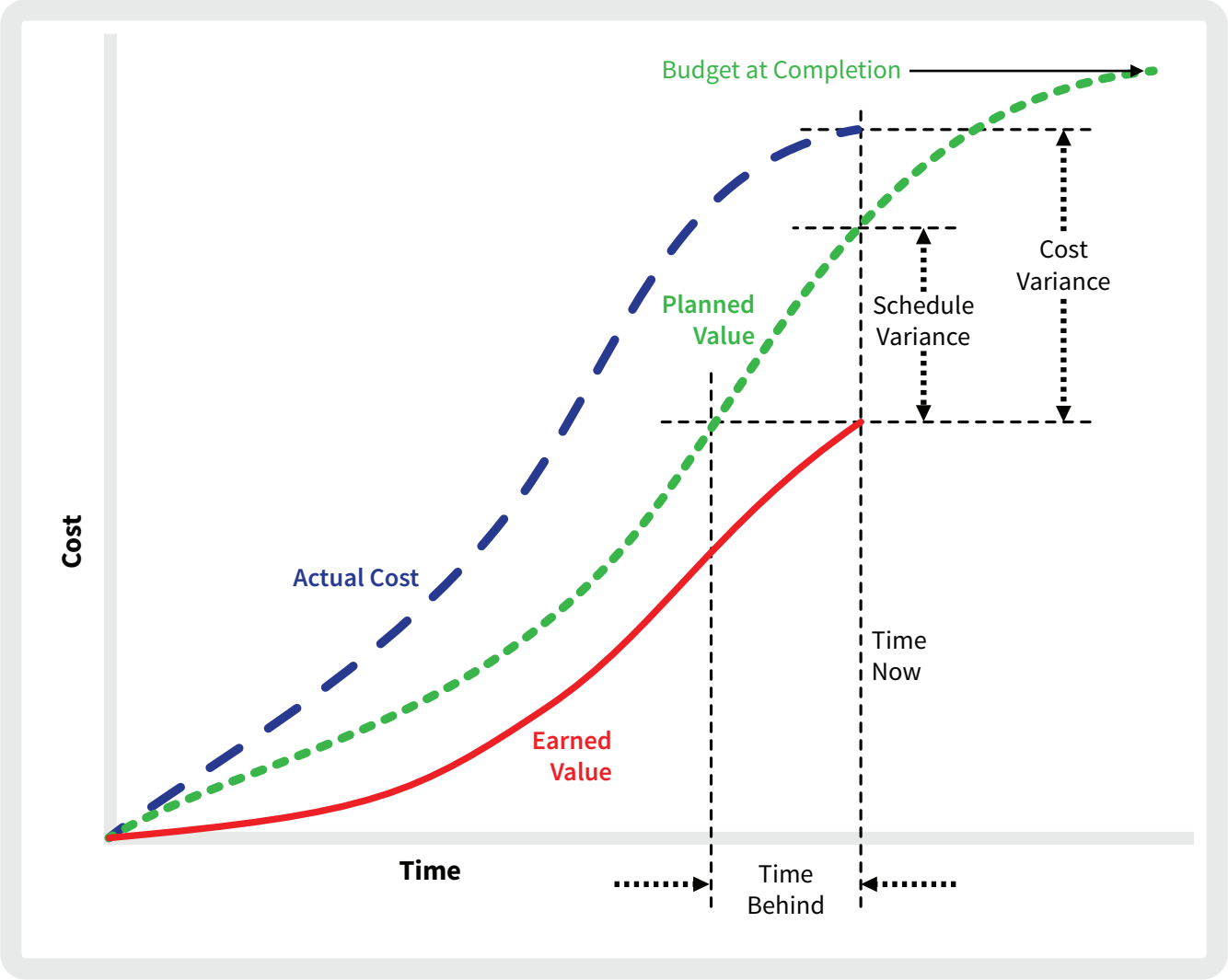


Figure 4.4-2

- **Planned Value (PV)** - PV is the authorized budget assigned to scheduled work. PV defines the physical work that should have been accomplished. The total planned value for a project is also known as Budget at Completion (BAC).
- **Earned Value (EV)** - EV is a measure of work performed. It is expressed in terms of the budget authorized for that work that has been completed. EV is often used to calculate the percent complete of a project.
- **Actual Cost (AC)** - AC is the realized cost incurred for the work performed on an activity during a certain time period. It is the total cost incurred in accomplishing work that the EV measured.

Variance from the approved baseline is also monitored:

- **Schedule Variance (SV)** - SV is a measure of schedule performance expressed as the difference between earned value (EV) and planned value (PV). It is the amount by which the project is ahead or behind the planned delivery date, at a given point. The formula is SV = EV – PV.
- **Cost Variance (CV)** - CV is the amount of budget deficit or surplus at a given point in time, expressed as the difference between earned value (EV) and the actual cost (AC). The formula is CV = EV – AC.
- **Schedule Performance Index (SPI)** - SPI is a measure of schedule efficiency expressed as the ratio of earned value (EV) to planned value (PV). SPI measures how efficiently the project team is using its time. An SPI of less than 1.0 indicates less work was completed than planned. An SPI of great then 1.0 indicates more work was completed than planned. The formula is SPI = EV / PV.
- **Cost Performance Index (CPI)** - CPI is a measure of the cost efficiency of budgeted resources, expressed as a ratio of earned value (EV) to actual cost (AC). A CPI value of less than 1.0 indicates a cost overrun for work completed. A CPI value of more than 1.0 indicates a cost underrun of performance to date. The formula is CPI = EV / AC.
- **Forecasting** - As the project progresses, the project team may develop a forecast for the estimate at completion (EAC) that differs from the budget at completion (BAC) based on project performance. Forecasting the EAC involves making projections of conditions and events in the project's future based on current performance information and other knowledge available at the time of the forecast. Forecasts are generated, updated, and reissued based on the project's work performance data.
- **To-Complete Performance Index (TCPI)** - TCPI is a measure of the cost performance required to be achieved with remaining resources, in order to

meet a specific management goal. It is expressed as the ratio between the cost to finish the outstanding work and the remaining budget. The formula for TCPI based on the BAC is TCPI = (BAC – EV) / (BAC – AC).

- **Variance at Completion (VAC)** - Variance at completion shows the difference between what the starting project budget (what it was originally expected to cost) versus what the forcasted project budget at completion. The formula is VAC = BAC - EAC.
- **Performance Reviews** - Performance Reviews compare cost performance over time, schedule activities, or work packages over-running or under-running the budget, and estimated funds needed to complete work in progress.
- **Project Management Software** - More often than not, project management software is used to monitor the three EVM dimensions (PV, EV, and AC). This displays graphical trends and forecasts a range of possible final project results.

Cost control activities produce valuable information, including:

- **Work Performance Information** - The calculated Cost Variance (CV), Schedule Variance (SV), Cost Performance Index (CPI), Schedule Performance Index (SPI), To-Complete Performance Index (TCPI), and Variance at Completion (VAC) values are documented and communicated to Stakeholders.
- **Cost Forecasts** - A calculated Estimate at Completion (EAC) value is documented and communicated to stakeholders.
- **Project Document Updates** - Activity cost estimates and the basis of estimates may be updated along with other project documents.

It is important to remember that any changes to the cost baseline must be approved by a Change Request via the Change Control Process.

Outputs

The following are outputs of the process:
- Project Budget
- Cost Baseline
- Project Funding Requirements

When to Use?

Use the template for projects of the following complexities:

L M **H**

Tools

A template is available:
Cost Management Plan

Develop the Cost Management Plan

The Cost Management Plan is a component or subordinate plan of the Project Management Plan (PMP). Depending on factors such as project size, complexity, and project management approach, the plan may be its own document or may be a sub-section within the PMP.

The Cost Management Plan describes how the project will estimate, plan, structure, and control costs. The plan is usually drafted by the Project Manager, a Financial Manager, or lead role as assigned. The sponsoring organization's

budget and financial staff should also participate in the process. This promotes an understanding of how the project's financial information fits into the organization's overall budget and finance processes.

All Project Managers and those in essential project cost or financial roles should review state policies, rules, and procedures relating to cost and financial management activities. Because information changes, it is recommended to remain current by frequently reviewing these policies, rules, and procedures.

When developing the Cost Management Plan, consider the following inputs:

- **Project Management Plan (PMP)** - Ensure that the Cost Management Plan is aligned with the information that is contained in the PMP. After approval and baseline of the plan, it may be necessary to update the PMP.
- **Expert Advice** - Financial specialists within the organization can contribute valuable information and resources to the development of a Cost Management Plan.
- **State Policies, Rules and Procedures -** Review the state's financial policies, rules and procedures to ensure that the project's practices are in alignment.
- **Organizational Process Assets** - Review the organizational process assets which may include but are not limited to all of the documents, templates, policies, procedures, plans, guidelines, lessons learned, and historical data.
- **Enterprise Environmental Factors** - Enterprise environmental factors include but are not limited to the culture, facilities, infrastructure, capital equipment, standards, regulations, policy, records, procedures, processes, information systems, risk-tolerance of Stakeholders, political climate and communication channels of the organization.

Outputs

The following is an output of the process:
· Cost Management Plan

4.5 Governance Management

4.5.1 Introduction

For a project to be successful, decisions must be made in a timely manner and at the appropriate authority level. A well-defined and active governance structure promotes development of more efficient and effective teams, better results, reduced risks, and effective use of resources. The governance process benefits projects by achieving the following objectives:

- Ensuring timely decisions are made at the appropriate project level
- Ensuring the project maintains sponsorship and funding
- Providing strategic leadership and direction
- Fostering a culture of accountability and transparency
- Providing oversight and guidance to improve the overall potential for success

To achieve these objectives, the project must create a structured governance approach for decision making. With this governance approach established and communicated, the project team better understands how project decisions are made.

4.5.2 Recommended Practices

Recommended Practices

These recommended practices can help project teams develop clearly defined project governance.

Project governance establishes how decisions are made and who makes the decisions. The following recommended practices can help project teams reduce the risks to project success that can arise from lack of clearly defined project governance.

Make Timely Decisions

The Project Manager needs to connect decision makers with the problems that require timely decisions. Delayed decision making may impact when work can be completed, require re-work if a decision alters the project approach, and affect the project scope, cost and schedule.

Delegate

Projects run more efficiently when decisions are delegated to the lowest appropriate level so that decisions can be made sooner. This can be accomplished by defining approval thresholds that each level of management is authorized to make a decision on.

Keep It Simple

A straightforward decision-making structure and overall project governance will improve project efficiency. The simpler the approach, the easier it will be for project team members to make decisions quickly and move forward with project activities.

4.5.3 Roles in Governance Management

Overall definitions of project roles can be found in the Additional Resources chapter. The following roles typically participate in the development of the Governance Management Plan:

- Project Sponsor (approver)
- Project Manager (lead)
- Business Owner(s)
- External Stakeholders
- IT Sponsor

Roles

For a complete list of all project roles, see the Project Role Definitions in the Glossary.

4.5.4 Practice Overview

Governance management establishes a process by which information pertaining to a problem/opportunity is collected, analyzed, and then presented to the decision maker(s). In addition, governance management specifies who those decision makers are, and what decision-making authority they have on the project.

Figure 4.5-1 illustrates the inputs, skills, tools, activities, and outputs necessary to complete governance management activities.

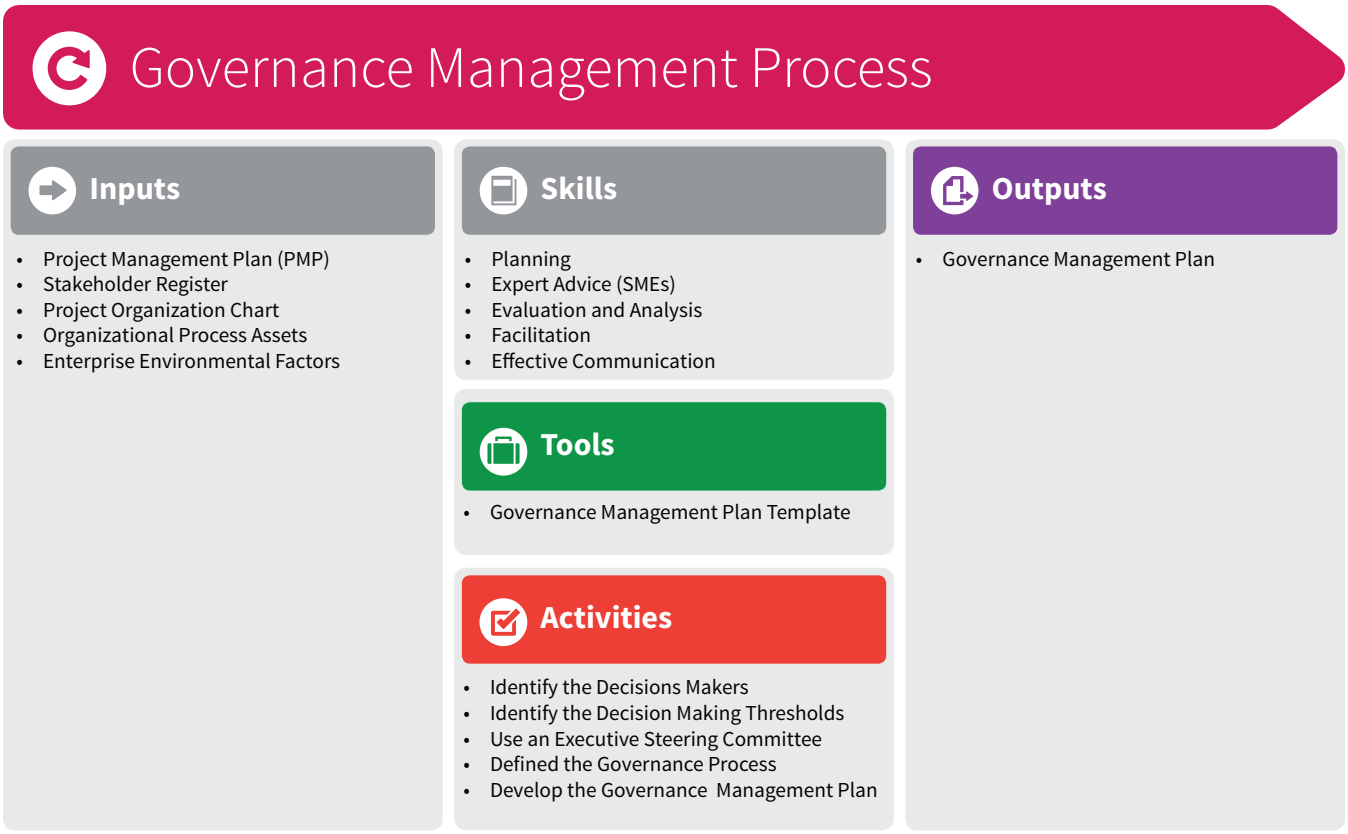


Figure 4.5-1

Identify the Decision Makers

Identify the project roles or groups that have decision-making authority on the project (e.g., team leads, Project Manager, Project Sponsor, Change Control Board). When a project problem/opportunity presents itself, the governance management process will dictate which project role or group has the appropriate authority to make a decision to move the project forward.

Specifically, the RACI Matrix can provide a mapping of the project roles or groups and the corresponding decision authority. This alone may be sufficient documentation for a small or less-complex project with a small project team and a clearly defined business impact. For large and complex projects, a project governance structure (an organization chart) will be helpful in identifying all of the roles and their relationships in the project decision-making landscape.

Skills

Use the following skills to complete tasks:
· Planning

Identify the Decision-Making Thresholds

Important decisions are made everyday during the course of a project, but not every decision needs to be escalated for resolution. Identifying the decision thresholds defines who can make which decision when. Clear thresholds will enable project teams members to know which problems/opportunities they are allowed to resolve and implement, and which decisions must be escalated. Thresholds should be applied to the following types of decisions:

- Baseline and change control activities for the project's scope, schedule and cost:
  - **Scope** - Including work packages and Work Breakdown Structures (WBS).
  - **Schedule** - Including the timing of milestones and short-term scheduling issues based on task priorities.
  - **Cost** - Including the full range of resources (including equipment, hardware, software, services, staffing, etc., along with support costs, facility costs, and vendor costs) to support project activities.
- Determining the quality of work. This includes monitoring, intervening in project activities to improve quality, and making decisions regarding the acceptance of deliverables.
- System design choices, including functionality and usability.
- Go/no-go decisions.

Skills

Use the following skills to complete tasks:
· Expert Advice (SMEs)
· Evaluation and Analysis

Use an Executive Steering Committee

A recommended governance practice is the creation of an Executive Steering Committee (ESC). The Project Sponsor is often asked to chair the Executive Steering Committee. Commonly, the committee may have one of two types of governance roles:

- **Advisory Role:** The ESC is formed as an advisory group that provides advice to the Project Sponsor regarding major project decisions. The ESC may include essential management roles, such as the technical lead, the business lead, the IT Sponsor, Business Owner(s), and external Stakeholders who have a significant stake in the project's design and implementation. The ESC may also include representatives from the end user community, or key administrative and program staff from the sponsoring organization.

Skills

Use the following skills to complete tasks:
· Facilitation
· Effective Communication

- **Decision-Making Role:** The ESC is charged with making critical project decisions. This is often the best approach when there is more than one sponsoring organization and joint project decisions need to reflect multiple business interests. A decision-making Executive Steering Committee ensures that the business needs of all participating organizations are considered. Even when there is only one sponsoring organization, executives may want to encourage active participation from multiple business units within the organization. Decisions made by the ESC are typically final.

Reliance on a decision-making ESC has advantages and disadvantages. One advantage is that decisions guiding the project can be made with the collective knowledge and experience of multiple Stakeholders. These Stakeholders may be more likely to consider diverse interests than a single Project Sponsor.

A major disadvantage of a decision-making Executive Steering Committee may be the diffusion of authority away from the Project Sponsor, and the reliance on a group of decision makers to come to a consensus for every decision. The Project Sponsor thus has less control over the decision-making process.

The best decisions to advance the project are typically made by the person who is dependent upon the project's success. This person is usually responsible for obtaining the resources required for the project and who has the strategic vision to meet the goals of the sponsoring organization.

Define the Governance Process

The project must define a clear governance process that describes how problems/opportunities are raised for decision by project team members and what needs to happen to prepare a decision request. Depending on the characteristics of the project, the process may be either formal with regularly scheduled decision meetings, or informal with meetings on an ongoing, as-needed basis. The project may choose to implement a form to standardize and capture the necessary information for the decision request.

Develop the Governance Management Plan

Project governance establishes the structure and processes for making decisions during the normal course of a project. Governance should establish who has the authority to make different types of decisions as well as how those decisions are made. Some smaller or less-complex projects may not require a stand-alone Governance Management Plan, but at the very least, decision processes should be recorded in the Project Management Plan, RACI Matrix, or elsewhere as appropriate.

The creation of a separate, stand-alone Governance Management Plan may

When to Use?

Use the template for projects of the following complexities:

L M **H**

Tools

A template is available:
Governance Management Plan

help to clarify the governance of larger, more complex projects or projects with business processes that are not yet clearly defined. Project environments that may require more complex governance structures include:

- Multiple sponsoring organizations, each with responsibility over part of the business processes.
- Multiple sponsoring organizations with different missions and cultures.
- A project team housed apart from the sponsoring organization, such as under another public agency or a vendor contract.
- A large team.
- A complex set of external Stakeholders with a high level of influence over the sponsoring organization.
- A project with high visibility and political risk for the sponsoring entity.

When developing the Governance Management Plan, consider the following inputs:

- **Project Management Plan (PMP)** - Ensure that the Governance Management Plan is aligned with the information that is contained in the PMP. After approval and baseline of the plan, it may be necessary to update the PMP.
- **Stakeholder Register** - When defining decision-making authority, consider those Stakeholders that have a high level of influence and impact on the project.
- **Project Organization Chart** - Use the project organizational chart to understand the relationship of all project team members when mapping out the governance structure.
- **Organizational Process Assets** - Review the organizational process assets which may include but are not limited to all of the documents, templates, policies, procedures, plans, guidelines, lessons learned, and historical data.
- **Enterprise Environmental Factors** - Enterprise environmental factors include but are not limited to the culture, facilities, infrastructure, capital equipment, standards, regulations, policy, records, procedures, processes, information systems, risk-tolerance of Stakeholders, political climate and communication channels of the organization.

Outputs

The following is an output of the process:
- Governance Management Plan

4.6 Implementation Management

4.6.1 Introduction

A project is a temporary undertaking to create a unique product or service. However, just creating something doesn't necessarily make it useful in and of itself. In many cases, especially with regard to software projects, the outcome of a project must be implemented for it to be of value to project Stakeholders. Implementation means introducing and ingraining something new into an existing business enterprise. Because successful implementation can involve and impact an organization's people, processes, governance, and technology, a thoughtful, disciplined approach to managing implementation is called for. Projects vary in nature and there is no single approach as to how to implement a project outcome. There are, however, general practices that can be applied as a foundation for managing an implementation, and those practices are the focus of this section.

Implementation management activities allow project team members to think through critical components before implementation is imminent, thereby saving time, energy, and money. Project team members can anticipate factors they otherwise might not consider until encountered, and they can identify potential problems and challenges up front before implementation begins. This planning exercise becomes proactive instead of reactive, which allows best practices to be used and ensures that project efforts are concentrated on implementing a high quality, well-planned solution.

4.6.2 Recommended Practices

Implementation management activities enable the project team to contemplate and address the wide range of factors that can impact implementation of a project's end product, such as organizational change, business process adaptation, hardware and software integration, policy/procedure updates, and security considerations. The following recommended practices can help the project team look ahead and proactively ensure a smooth transition to the future state.

Recommended Practices

These recommended practices can assist the development of effective implementation planning.

Plan for Implementation Early

Regardless of size, all projects benefit from a formal approach to implementation. Implementation management, tuned to the unique needs of the project, provides transparency and encourages team discourse to ensure all bases are covered. Implementation activities should be identified early to provide a clear vision of where the project is headed, and should evolve over the life of the project.

For projects pursuing an incremental or modular delivery approach to implementation, be sure to plan for multiple concurrent workstreams to account for both the effort to deploy completed functionality and to develop new functionality.

Going Modular or Incremental May Change Your Plans and Procurement Strategy

An incremental or modular approach should not be equated with less work or effort. Each domain of implementation – people, process, technology, strategy, and governance – needs to be evaluated to understand how an incremental or modular deployment impacts each area. Teams should think about and be able to answer questions such as:

- How will people react to and be trained for several releases?
- Are the processes being developed repeatable over each increment or module?
- How will the technology needs change with each release?
- Does the procurement strategy support continuous improvement of products, processes, and services based on feedback received from users?
- How will the releases integrate with legacy systems?
- Will the stakeholders and governance model be different for each release?

It is important to be sure that each aspect of implementation is thoughtfully considered to account for all of the moving parts.

User-Centered Approach

This recommended practice promotes a user-centered approach. For more information on this, see CA-Agile.

Partner with CDT

Ensure you use the appropriate construct for any contracts (i.e. time & materials, deliverables based, other).

Consider the Entire Scope

A key difference between installing a solution and implementing a solution is the consideration of factors other than just the technology itself. Implementation impact, especially with regard to technology, rarely is confined solely to a single domain within an organization. Implementation management generally requires consideration of not only the technology domain, but also people, process and governance domains as well. Impacts to these areas should be accounted for in the overall plan.

Dedicate Staff to the Implementation

All projects should have an Implementation Lead role. Whether they are managing the implementation or working with a consultant during the implementation, the identified staff member should be the "go to" person for other staff. By being involved in the implementation, this staff member gains firsthand understanding of the new solution.

Communicate Relentlessly

Change can create anxiety which, unchecked, can turn into resistance. Communicate often with team members, Stakeholders, and customers before, during, and after the implementation portion of the project to reduce ambiguity and alleviate anxiety. All those who need to be involved in implementation should be notified early and included at the appropriate time. In addition, scheduling the entire implementation is important to overall project management.

Roles

For a complete list of all project roles, see the Project Role Definitions in the Glossary.

4.6.3 Roles in Implementation Management

Overall definitions of project roles can be found in the Definitions of Project Roles section in the Additional Resources chapter. The following roles typically participate in the development of the Implementation Management Plan:

- Project Sponsor (approver)
- Executive Sponsor if applicable (approver)
- Project Manager (lead)
- IT Sponsor
- Implementation Lead (if applicable)
- Stakeholders
- Business Owner(s)

4.6.4 Practice Overview

Implementation planning is initially performed during the Planning Process Phase. The activities identified take place throughout the project lifecycle and include basic four domains: people, process, technology and governance. But projects vary in size and outcome, and it's reasonable to expect that there are

other domains (such as physical facilities and business partners) that might be impacted due to project specifics.

Figure 4.6-1 illustrates the inputs, skills, tools, activities, and outputs necessary to complete implementation management activities.

High-level implementation management activities of the basic four domains are described below.

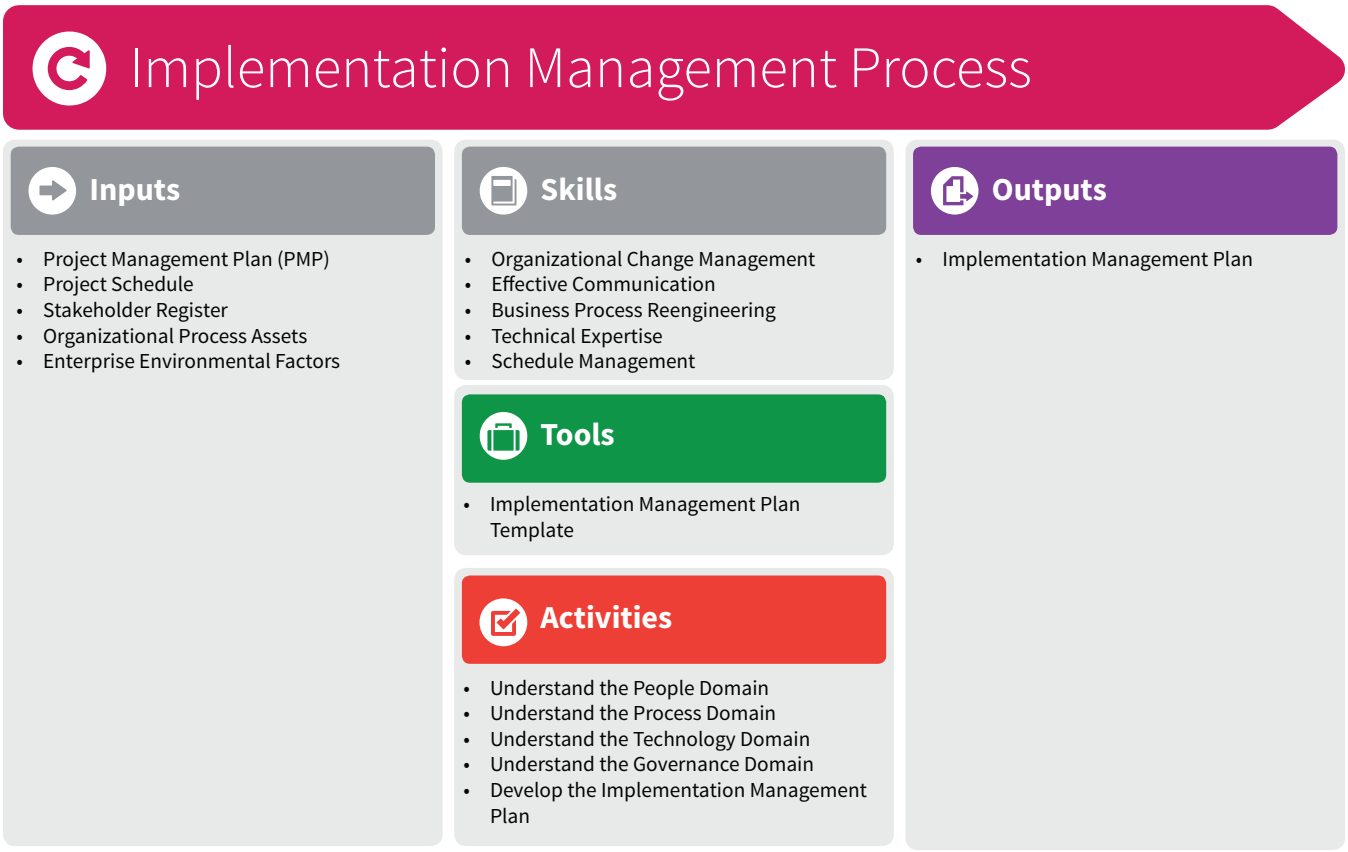


Figure 4.6-1

Understand the People Domain

When considering the people aspect of implementation, it's common to find that training for the new system is the focus. While training is important, it's only part of the equation. In reality, knowing how the new system will be applied in the business environment is what is most important. Beyond training, which instructs users on how to operate a system, implementation focuses on ingraining the solution into the existing daily business operations.

Skills

Use the following skills to complete tasks:
- Organizational Change Management
- Effective Communication

This requires an understanding of, and readiness for, what will change in terms of participant's roles, necessary skill sets, performance expectations, and other factors. Implementation management must consider the effects on the people who will work in the new environment so that any preparation work needed can be accomplished before implementation begins.

Understand the Process Domain

It is unlikely that implementation of a new solution will leave an organization's current business processes intact. As such, the effect on current processes in terms of such factors as steps, inputs/outputs, timing, and controls should be taken into consideration when planning for implementation. Reviewing the current state (As-Is) documentation, future state (To-Be) documentation, and the developed gap analysis documentation should be standard practice in planning the implementation This ensures that any gaps have been or can be filled appropriately prior to beginning implementation. Any changes planned should be fed into planning for the people domain aspects of the project as they will directly impact how the new environment will function.

Skills

Use the following skill to complete tasks:
- Business Process Reengineering (BPR)

Understand the Technology Domain

The technology domain is significantly affected when implementing a new solution. Early planning is especially necessary to ensure that the project will meet objectives. Some topics to consider when planning for implementation include:

Skills

Use the following skill to complete tasks:
- Technical Expertise

- **Roll-out** – How will the new system be deployed? Will it be rolled out all at once ("Big Bang") or will there be a phased approach? If so, what will be deployed in each phase? Will there be a pilot period? Determining the approach early in the project helps in planning the project and sets clear objectives.
- **Rollback** – Occasionally projects are deployed and it's discovered that something is not working as designed. Sometimes the deficiency is significant enough that the system has to be rolled back. Keeping the rollback plan in mind while planning the rest of the effort offers the opportunity to build in rollback capabilities while the system is being developed.
- **Hardware and Software** – Determining the hardware and software installation requirements is a core effort in implementation planning. Key topics to consider include the approach to implementing the network and hardware, identification of facility needs (such as power and cooling), and installation timing. Identify any required site visits and include any readiness

activities needed in the implementation plan. If the solution is cloud-based, consider what, if any, hardware and software will be needed based upon the service model (such as platform-as-a-service, infrastructure-as-a-service, software-as-a-service).

- **Security** – While security requirements such as user authentication and access control for the solution should be built into the solution itself, the deployed solution may have additional requirements around the physical location of the system. Access to the physical system may require badging staff, logging visits, and facilities monitoring.
- **Documentation** – During implementation and on into maintenance and operations, system administrators and technicians will need access to information to guide them in their support, maintenance and operations efforts. The implementation plan should identify the collection of "as-built" documentation needed and the collection should be developed and maintained over the life of the project.
- **Schedule** – A large part of the implementation plan is the schedule. Determining "who does what by when" early on helps to set expectations and provides an opportunity to insert milestones in the master schedule to help ensure implementation readiness. The schedule should be supported by a set of detailed, step-by-step installation procedures for the spectrum of implementation activities needed for implementation, such as for contracts, hardware, software, telecommunications, service desk, and training. The procedures should identify the group or person(s) responsible for each step. A good practice is to include criteria to indicate go-no-go decisions that may be needed throughout the implementation process.

Skills

Use the following skill to complete tasks:
· Schedule Management

Understand the Governance Domain

Good governance of a new solution, especially if it is in a shared-services environment, is fundamental to its long-term success. If the need for the system is driven by new mandates or regulations, existing organizational policies may have to change to reflect the new environment. If policies change, it's likely that supporting procedures will be impacted as well. Changes in the policy and procedures area should be defined, vetted, and implemented prior to or coincident with the implementation.

The need for change control does not go away when the project ends. Ongoing decision making regarding corrective and perfective changes to the system once it is in production should be formally defined and administered. Implementation planning should ensure that change control is defined, roles established, and responsibilities assigned as part of the overall implementation effort.

Develop the Implementation Management Plan

The Implementation Management Plan is a project management tool designed to illustrate the critical steps necessary for implementing project deliverables (product or system). It also describes the necessary operational preparations. The plan guides project staff by proactively developing the operational program necessary to support both the Stakeholders and the resulting system. It also helps identify any risks or challenges along the way. It especially helps project team members and Stakeholders, regardless of their level of involvement, understand the project goals and how the project is to be accomplished. It ensures that everyone working on the project is on the same page, and that any discrepancies are resolved before they become costly to the project or Stakeholder being served.

The Implementation Management Plan specifically describes the operational preparation necessary for implementing the deliverable(s). It includes a description of the scope, impact analysis, installation requirements, hardware, software, security, documentation, training, data conversion, interfaces, and staff transition necessary to support the new solution.

An Implementation Management Plan allows project Stakeholders to think through critical components before implementation is imminent, thereby saving time, energy, and money. Stakeholders can anticipate factors they otherwise might not consider until encountered, and they can identify potential problems and challenges up front before implementation begins. This planning exercise becomes proactive instead of reactive, which allows best practices to be used and ensures that project efforts are concentrated on implementing a high quality, well-planned solution.

When developing the Implementation Management Plan, consider the following inputs:

- **Project Management Plan (PMP)** - Ensure that the Implementation Management Plan is aligned with the information that is contained in the PMP. After approval and baseline of the plan, it may be necessary to update the PMP.
- **Project Schedule** - Review the to understand the project's time frames and plan the implementation activities accordingly.
- **Stakeholder Register** - Consider all of the impacted Stakeholder when developing the Implementation Management Plan to ensure that the people domain of this effort are given the appropriate time effort.

Tools

A template is available:
Implementation Management Plan

When to Use?

Use the template for projects of the following complexities:

- **Organizational Process Assets** - Review the organizational process assets which may include but are not limited to all of the documents, templates, policies, procedures, plans, guidelines, lessons learned, and historical data.
- **Enterprise Environmental Factors** - Includes but is not limited to the culture, standards, regulations, policy, records, procedures, processes, information systems, risk-tolerance of Stakeholders, political climate, and communication channels of the organization.

Outputs

The following is an output of the process:
- Implementation Management Plan

4.7 Issue Management

4.7.1 Introduction

An issue is a problem related to a project that is about to occur or is currently occurring. Issue management is the practice of actively resolving issues to minimize their negative impact to projects scope, schedule, cost or quality. This disciplined process of identifying, analyzing, tracking, and resolving issues is an ongoing project function. Analysis of the project's issues will provide information (data) and understanding for more informed decisions and will bring visibility, accountability, and timely resolution. Effective project management always requires the proactive and timely identification of issues and seeks to resolve these issues expeditiously.

4.7.2 Recommended Practices

Recommended Practices

Review Recommended Practices as you develop the project's Issue Management Plan.

Proficient issue management is critical to the success of a project as it enables the project manager and project team to actively resolve issues and minimize their impact. The following practices are recommended to assist with issue management activities.

Assign a Manager for the Issue Management Process

Assign responsibility of issue management to an Issue Manager to ensure that the rigor defined in the process is adhered to throughout the life of the project, and expertise is developed in the discipline.

No Issue is Too Small

Document all issues in the Issue Log, regardless of how small they may seem. It is better to easily and quickly resolve an issue for the benefit of the project team members and Stakeholders than to not show any consideration for it at all.

Review Progress Regularly

Monitor the status of each issue at a regularly scheduled status meeting or possibly a dedicated issue management meeting. This provides consistent and on-going evaluation of issues and strategies to resolve them.

Abide by the 80/20 Rule

Be mindful of the "80/20" rule, which says 80 percent of the impacts on a project will come from approximately 20 percent of the documented issues. Prioritize issues and concentrate resolution efforts on issues that pose the greatest threat to success.

Don't Be Afraid to Escalate

Establish an escalation process that ensures that critical issues reach the necessary decision-making authority for resolution, soon enough to prevent undesirable impacts to a project.

4.7.3 Roles in Issue Management

Overall definitions of project rolls can be found in the Definitions of Project Roles section in the Additional Resources chapter. The following roles typically participate in the development of the Issue Management plan and the ongoing management of issues:

- Project Sponsor (approver)
- Project Manager (lead)
- IT Sponsor
- Issue Manager
- Issue Owners
- Stakeholders
- Business Owner(s)

Roles

For a complete list of all project roles, see the Project Role Definitions in the Glossary.

4.7.4 Practice Overview

Issue management practices are initially established during the Planning Process Phase. Issue management activities are performed throughout the project lifecycle, including project closeout, until all remaining issues have been closed or ownership of remaining issues is transferred outside of the project.

The issue management process provides an efficient and effective method for identifying, assigning and resolving project issues. It includes criteria for prioritizing issues based on their effect on the project's performance (scope, schedule, cost, and quality) and specifies the criticality and visibility accorded to the particular issue. Once identified, each issue is analyzed, potential resolutions are documented, and the outcomes are presented to an established decision-making and escalation process that involves the appropriate Stakeholders. Once a resolution is agreed to, the issue owner will work with the Project Manager to determine if the projects scope, schedule, or resources need to be adjusted to accommodate the resolution.

Figure 4.7-1 illustrates the inputs, skills, tools, activities, and outputs necessary to complete issue management activities.

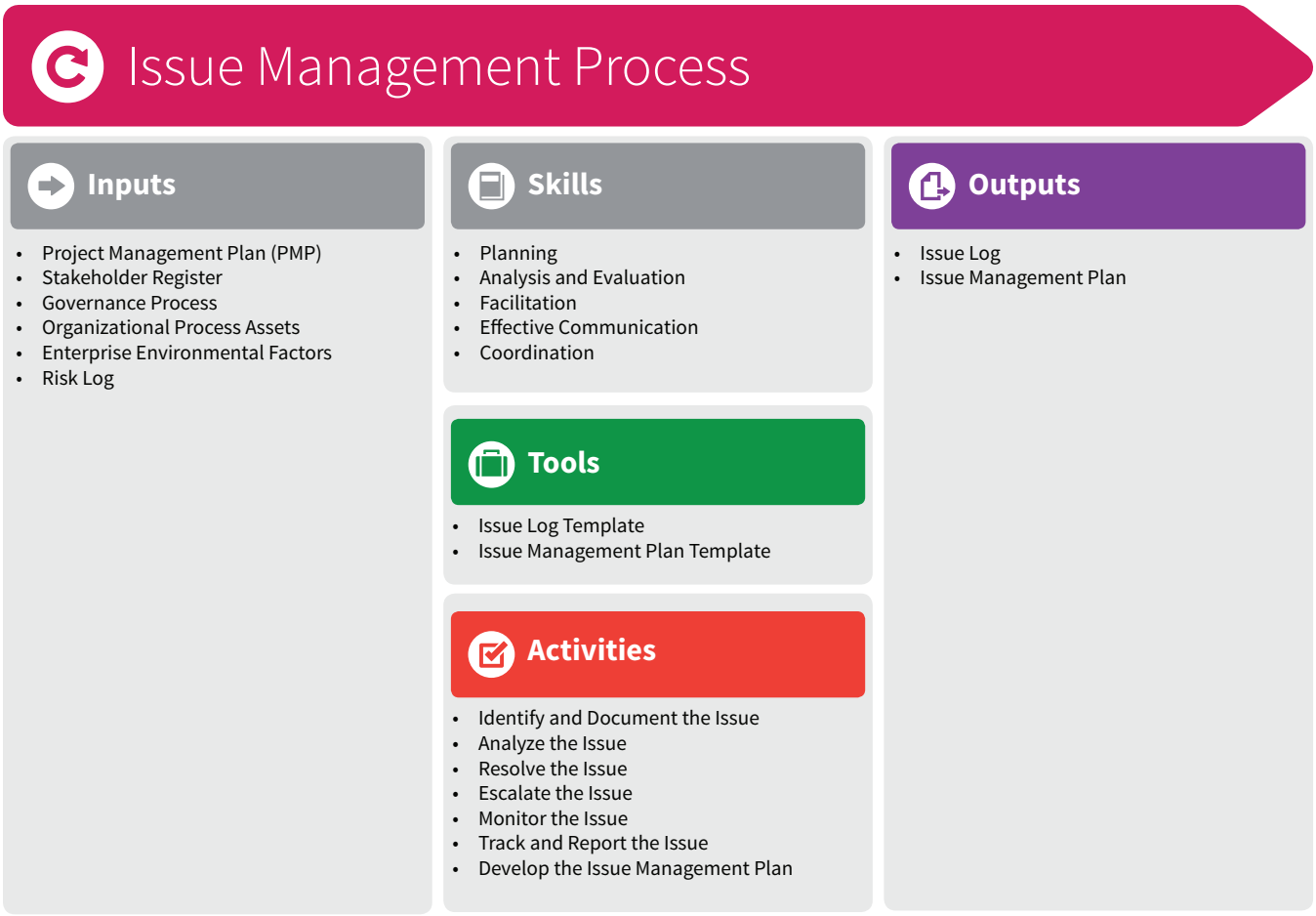


Figure 4.7-1

Identify and Document the Issue

Issue identification is a recurring event. Issues may arise from meetings, analysis, document reviews, work groups, risks that have been realized, and other project activities. Issues can be submitted by any project team member or Stakeholder (the Issue Originator) to the Issue Manager with the following information:

- Issue Originator (the person identifying the issue)
- Date issue identified
- Target resolution date

Skills

Use the following skills to complete tasks:
· Planning
· Analysis and Evaluation

- Issue description
- Issue impact (the impacts to project scope, schedule, cost or quality if the issue is not resolved)
- Issue status
- Proposed resolution(s)

Analyze the Issue

Issues are initially submitted to the Issue Manager for review. The issue is then entered into the Issue Log and assigned an Issue Owner. The assigned Issue Owner performs the required analysis to complete the issue evaluation and assigns a priority based on its impact:

- High - the project cannot proceed without resolving the issue
- Medium - the project may proceed, but there may be re-work if the issue is not resolved soon
- Low - the project may proceed, but the issue should be resolved prior to project completion

Some issues may require more in-depth analysis and evaluation to clearly understand the issue and the effect on the project. For issues that were previously identified as a risk, the risk mitigation strategies should be taken into consideration. The Issue Owner may seek additional subject matter expertise from other project team members to complete the analysis, if needed. For issues that have a high impact on a project, the Issue Owner should identify the root cause and modify project processes, where possible, to prevent similar issues from reoccurring as a component of the resolution.

Skills

Use the following skills to complete tasks:
· Analysis and Evaluation

Tools

A template is available:
Issue Log

When to Use?

Use the template for projects of the following complexities:

Resolve the Issue

Issues are reviewed at a regularly scheduled status meeting or possibly a dedicated issue management meeting. This provides consistent and on-going evaluation of issues and strategies to resolve them. When the Issue Owner had completed the analysis of the issue, the resolution options are presented to the Project Manager and/or designated management on the project. The resolution will contain a plan of action that needs to be carried out to resolve the issue and possible escalation triggers (events that indicate the resolution plan is not producing the desired results). The Project Manager and/or management team will make a choice of the best resolution and outcome for the project. As each issue is resolved, the solutions are incorporated into project artifacts, as appropriate, and the Issue Log is updated.

Skills

Use the following skills to complete tasks:
· Facilitation
· Effective Communication
· Coordination

Escalate the Issue

The escalation process ensures that critical issues reach the necessary decision-making authority for resolution, soon enough to prevent undesirable impacts to a project. The Project Manager, Issues Manager, Issue Owner, and project team should strive to make decisions and address issues at the lowest possible level. Issues that cannot be resolved at the project level are escalated to the Project Sponsor, who is responsible for escalating resolution to the Executive Steering Committee when appropriate.

> The escalation process ensures critical issues reach the appropriate decision maker.

Monitor the Issue

Upon approval of the resolution plan, the Issue Owner is responsible for implementing control activities and reporting status. During the course of implementing the plan for resolution, the Issue Owner also identifies and tracks possible escalation triggers. If the escalation triggers occur, the Issue Owner is responsible for recommending escalation of the issue.

Track and Report the Issue

The Issue Manager or Owner updates and tracks issues using an Issue log. Outstanding issues are reviewed with the project team on a weekly basis, or other periodic time frame determined by the Project Manager and the needs of the project. The Issue Owner is responsible for providing progress updates and any other relevant information to the project team. This can occur during meetings or as requested. Updates are noted in the Issue Log, including the date of the update and the location of any additional information. Critical issues require closer review and are monitored more frequently. An issue summary, including any issues resolved in the period since the last report, will be communicated to the project team, Stakeholders and customers in the weekly project status report and monthly project report.

Outputs

The following is an output of the process:

- Issue Log

When to Use?

Use the template for projects of the following complexities:

L M H

Develop the Issue Management Plan

The purpose of an Issue Management Plan is to ensure that issues are properly managed to reduce negative impacts on the project. The resolution of issues may have an effect on the project's scope, schedule, cost, and/or quality.

The Issue Management Plan defines the processes and procedures by which issues are identified, managed and resolved, throughout the project lifecycle. The Issue Management Plan should include processes for issue identification, documentation, analysis, control, tracking, reporting, and escalation. The issue management process will bring visibility, accountability, and timely resolution

Tools

A template is available:
Issue Management Plan

to issues. Analysis of the project's issues will provide information (data) and understanding for more informed decisions. Recording and reviewing issues will prevent the project team from neglecting the issues or having them escalate, which could adversely affect the project.

When developing the Issue Management Plan, consider the following inputs:

- **Project Management Plan (PMP)** - Ensure that the Issue Management Plan is aligned with the information that is contained in the PMP. After approval and baseline of the plan, it may be necessary to update the PMP.
- **Stakeholder Register** - Understand all of the potential Stakeholders and who the decision makers are when developing the plan.
- **Governance Process** - Ensure that the process for resolving issues is in alignment with the project's governance process.
- **Organizational Process Assets** - Review the organizational process assets which may include but are not limited to all of the documents, templates, policies, procedures, plans, guidelines, lessons learned, and historical data.
- **Enterprise Environmental Factors** - Includes but is not limited to the culture, standards, regulations, policy, records, procedures, processes, information systems, risk-tolerance of Stakeholders, political climate, and communication channels of the organization.

Outputs

The following is an output of the process:
· Issue Management Plan

4.8 Maintenance & Operations Transition Management

4.8.1 Introduction

The purpose of maintenance and operations (M&O) transition management is to ensure that the products and/or services produced by a project migrates smoothly into production operations even as the project winds down. This transition marks the hand-off from the designers and builders of a solution to its maintainers and operators. It is also where an organization begins business value realization for the efforts put forth to create the new environment.

As the nature of projects varies, so do the details in the transition from project to M&O. For instance, all projects should address roles and responsibilities in the M&O environment, but the roles and responsibilities will differ if the solution is premise-based or if it is offered as a software-as-a-service. Thus, the approach to M&O transition is specific to the project and must address and accommodate the project's specific characteristics.

4.8.2 Recommended Practices

Recommended Practices

These Recommended practices support effective maintenance and operations transitions.

M&O transition planning helps ensure the project's end product is successfully delivered and transitioned to the M&O organization. The following practices are recommended to assist the project team with managing the transition M&O.

Begin with the End in Mind

Just building something doesn't necessarily convey value; the "something" must be put to use via implementation. Similarly, just implementing something doesn't necessarily carry lasting value; the "something" must be operated and maintained effectively over time to continue to deliver business value. With that end in mind, M&O transition should be considered very early on in the project just like implementation management. Having a clear vision of how the project's outcome will transition into M&O helps to inform other planning decisions and enables more informed decision making as the project progresses.

Establish Ownership

Depending on the project, transition of a solution into production operations can involve many individuals, such as technical specialists, help desk technicians, and system administrators, doing many things concurrently. With so many moving parts, there is strong potential for a transition to become derailed before it completes. Assigning ownership to an individual with the necessary knowledge, skills, abilities and behaviors significantly improves the likelihood of a successful transition.

Don't Let Your Guard Down

Sometimes as a project nears completion, there is a tendency to relax project management discipline. Project discipline needs to be maintained through transition with the same rigor that was applied during the project, especially with regard to risk and issue management. Risk and issue management is required throughout the project lifecycle and no less so during M&O transition. In fact, M&O transition is usually a time when the project is even more vulnerable to the effect of unmanaged risks and issues due to the complexities of bringing on a new solution (especially if an old solution is winding down at the same time). Remaining watchful for emerging risks and responding quickly to issues helps to ensure success and maintaining diligence in project management practices critical to meeting transition objectives.

Use Your Resources

By the time the project has reached transition, a library of project documentation should have been accumulated. If done properly, this documentation should provide a rich source of information that is valuable in establishing the M&O transition approach.

Account for the Work Required

Transition to M&O takes work. The activities and tasks that need to be done should be integrated into the project's master schedule at least at the milestone level to account for and plan for the work. Including these tasks in the schedule help to expose dependencies that might otherwise go unnoticed. It also helps to ensure that the resources necessary to do the work have been identified and that any resource contention issues can be resolved in advance.

4.8.3 Roles in M&O Transition Management

Roles

For a complete list of all project roles, see the Project Role Definitions in the Glossary.

Overall definitions of project roles can be found in the Definitions of Project Roles section in the Additional Resources chapter. The following roles typically participate in M&O transition activities:

- Project Sponsor (approver)
- IT Sponsor
- Project Manager (lead)
- M&O Transition Lead (if applicable)
- Stakeholders
- IT product owners
- Business owner(s)

4.8.4 Practice Overview

M&O transition planning is initially performed during the Planning Process Phase. However, the activities take place throughout the project lifecycle, mainly during project implementation and closeout, until all remaining M&O activities have been completed.

Figure 4.8-1 illustrates the inputs, skills, tools, activities, and outputs necessary to complete M&O transition activities.

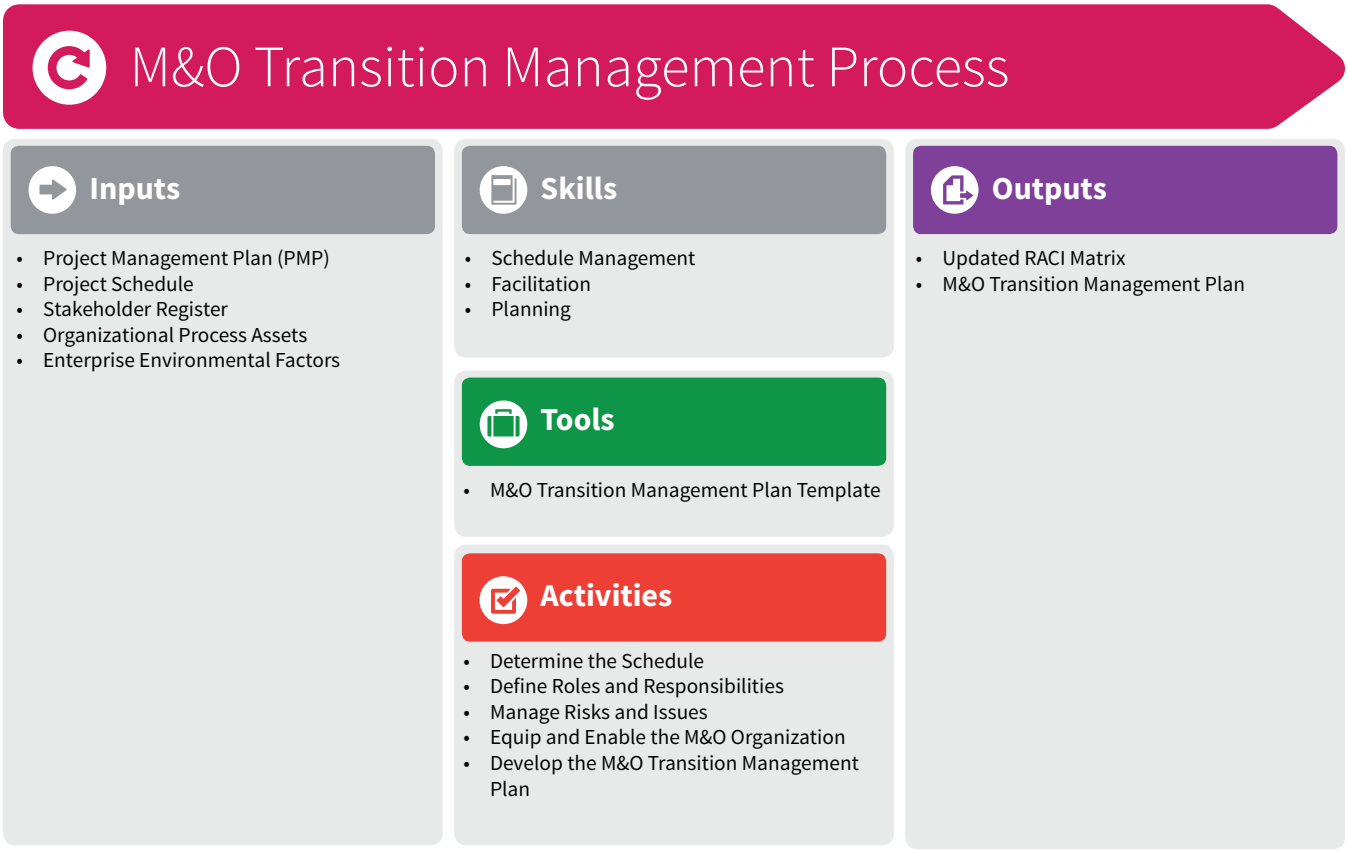


Figure 4.8-1

Determine the Schedule

M&O transition can be thought of as a sub-project within the overarching project and should be managed as such. All the normal best practices around project scheduling should be applied to the M&O transition effort. Task definition and timing should be integrated within the project's master schedule and implementation management activities to ensure that dependencies are understood, resource contentions are recognized, and that planned dates will meet Stakeholder expectations. Tasks to consider include:

- Determining the staffing needs and make-up of the M&O team.
- Determining the organizational and governance structure of the M&O team.

Skills

Use the following skill to complete tasks:
· Planning
· Schedule Management

- Completing knowledge transfer activities between the project team and the M&O team.
- Transition of technical responsibility from the project team to the M&O team.
- Transition of project artifacts from the project team to the M&O team, including operation manuals, technical documentation, and functional documentation.

Define Roles and Responsibilities

Transition can be a busy time with many people doing many things concurrently. Defining the roles involved in the transition and designating specific responsibilities to each of the roles sets clear expectations for the resources. Clear roles and responsibilities minimizes confusion and enables accountability throughout the transition period. This information may be incorporated in the RACI Matrix.

Outputs

The following is an output of the process:
· Updated RACI Matrix

Manage Risks and Issues

The project's risk and issue management disciplines, including conventions, processes and tools, should be carried on into the transition effort. The transition period can be particularly vulnerable to risks and issues due to the complexity of the effort and the pace and volume of activity. Diligence in risk and issue management is necessary to avoid delay or derailment of the transition effort.

Skills

Use the following skill to complete tasks:
· Facilitation

Equip and Enable the M&O Organization

Transition to M&O can be a delicate time. Stakeholder expectations of the new environment, especially when it is just coming available, are significant, and any perceived shortcomings are sometimes magnified. It's important to plan for extra effort in this period to ensure that problems are identified and addressed quickly, and that Stakeholder perceptions are well managed. Ensuring that the support organization has been equipped and enabled to respond effectively is fundamental to meeting Stakeholder needs. Policies, procedures, service level objectives, documentation, vendor support, tools and training should be in place in advance of transition. Over time, performance against objectives should be evaluated to determine what, if any, additional efforts are needed to maintain or improve M&O performance.

Skills

Use the following skill to complete tasks:
· Planning

Developing the Maintenance and Operations Transition Management Plan

Transition planning is the work done to create the foundation for successfully transitioning deliverables and to create an effective support structure. The M&O Transition Management Plan describes how deliverables, including products or services, are transferred to the operational environment and integrated into ongoing operations. The objective of this planning exercise is to ensure a smooth transition from roll-out to full operational status. Depending on the complexity of the project, M&O transition management activities can be included in the PMP, or a standalone plan may be required.

When developing the M&O Transition Management Plan, consider the following inputs:

- **Project Management Plan (PMP)** - Ensure that the M&O Transition Management Plan is aligned with the information that is contained in the PMP. After approval and baseline of the plan, it may be necessary to update the PMP.
- **Project Schedule** - M&O transition activities must be planned for and coincide with the implementation schedule.
- **Project Organization Chart** - Assess the organizational structure of the project and integrate or replace with the M&O team.
- **Organizational Process Assets** - Review the organizational process assets which may include but are not limited to all of the documents, templates, policies, procedures, plans, guidelines, lessons learned, and historical data.
- **Enterprise Environmental Factors** - Includes but is not limited to the culture, standards, regulations, policy, records, procedures, processes, information systems, risk-tolerance of Stakeholders, political climate, and communication channels of the organization.

Tools

A template is available:
Maintenance & Operations Transition Management Plan

When to Use?

Use the template for projects of the following complexities:

L M H

Outputs

The following is an output of the process:
- M&O Transition Management Plan

4.9 Procurement Management

4.9.1 Introduction

As is the case with almost every aspect of project management, it is essential and imperative that the project management team define and implement an effective and succinct approach to manage the various components of procurement throughout a project's lifecycle. A procurement management approach specifies the procurement framework for a project and describes the entire procurement process from the development of procurement documentation, to specifying product or services selection criteria, through contract execution. The procurement management processes should be developed and implemented as early in the project lifecycle as possible, to serve as a guide for managing procurement throughout the life of the project.

4.9.2 Recommended Practices

Recommended Practices

These recommended practices can help improve procurement management outcomes.

Established procurement management approach enables the project team to contemplate and address a wide range of factors that can impact acquisition of products and services. The following recommended practices are intended to assist with performing effective procurement activities.

Know the Scope

It is critical to the success of any procurement to specifically describe what items will be procured, when they need to be procured and under what conditions. Procurement management not only focuses on acquisitions in the technology domain, but also on necessary skills and services needed to bring the project to fruition.

Document Constraints

It is important to understand and describe any constraints which must be considered as part of the project's procurement approach. These constraints may be related to scope, schedule, cost, resources, technology, or buyer/seller relationships. As constraints are identified, they must be considered every step of the way as procurement activities are planned and conducted.

Apply Lessons Learned

When defining the project's procurement approach, collect and apply lessons learned from internal organizational sources, such as experienced project and procurement staff. The major benefit of leveraging existing procurement best practices and lessons learned is they allow a new procurement team to repeat successful activities and to avoid those that were not successful.

4.9.3 Roles in Procurement Management

Overall definitions of project rolls can be found in the Definitions of Project Roles section in the Additional Resources chapter. The following roles typically participate in procurement management activities:

- Project Sponsor (approval)
- Project Manager (lead)
- Business Owner(s)
- IT Sponsor
- Procurement Manager
- Procurement Analyst
- Department of Technology (CDT), Statewide Technology Procurement (STP) - IT goods and services
- Department of General Services (DGS) - non-IT goods and services

Roles

For a complete list of all project roles, see the Project Roles Definitions in the Glossary.

Web Links

Statewide Technology Procurement (STP)

Web Links

Department of General Services website

4.9.4 Practice Overview

Procurement planning is initially performed during the Planning Process Phase of a project and sets the procurement framework for a project. However, the activities take place throughout the project lifecycle. The plan identifies and defines the products and/or services to be acquired, the types of contracts to be used to support the project, the contract approval process, and decision criteria.

Figure 4.9-1 illustrates the inputs, skills, tools, activities, and outputs necessary to complete procurement management activities.

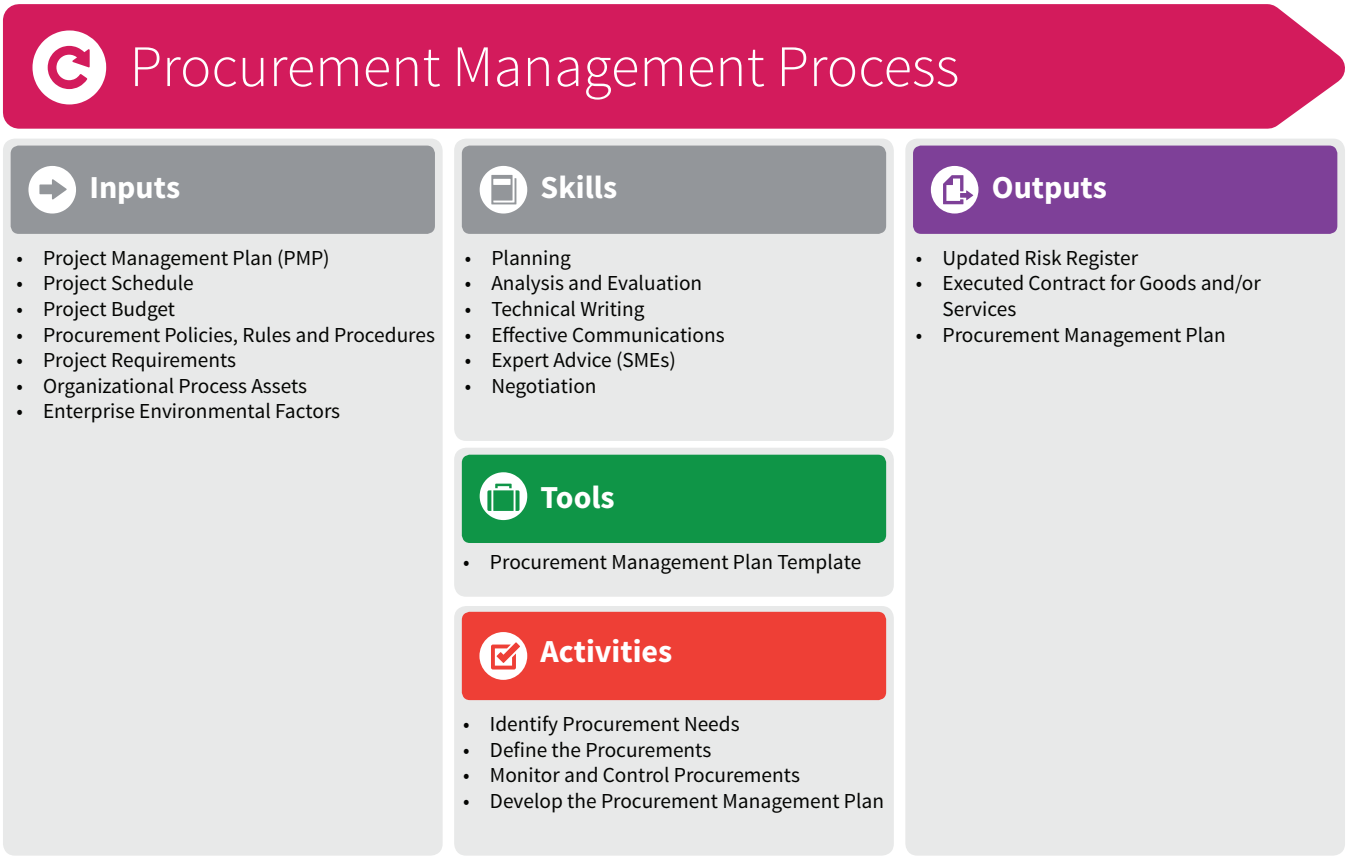


Figure 4.9-1

Identify Procurement Needs

Planning for procurements begin with a clear definition of the scope of each planned acquisition. Specifying what products and/or services will be procured and when they are required by the project creates the basis for the project's procurement approach. Once the scope and timing of procurements have been identified, consider the following assumptions, constraints, and risks:

- What is the pre-determined cost of the resulting contract? (For services, this can be estimated by taking the product of the number of staff needed, an average hourly rate extrapolated from available resources (e.g., Master Services Agreement or California Multiple Award Schedule rate schedules), and the duration of the contract).

Skills

Use the following skills to complete tasks:
· Planning
· Analysis and Evaluation

- What is the overall duration of the resulting contract?
- Does this procurement require external approval, such as from STP, DGS or the Legislature?
- Is there a contingency plan in place if the procurement is delayed or if none of the bidders are viable? (The Risk Register may need to be update).

Outputs

The following is an output of the process:
· Updated Risk Register

Define the Procurements

Once the scope and schedule for each acquisition are identified, the plan evolves to include the processes for developing the procurement documentation, obtaining response from suppliers, selecting a supplier, and awarding a contract for the required products and/or services. This includes developing the Statement of Work (SOW), and identifying the contract type and procurement method.

Skills

Use the following skills to complete tasks:
· Analysis and Evaluation
· Technical Writing

- **SOW -** The procurement SOW defines the work to be completed by the contractor. The level of detail may vary, but it should be clear and concise. SOW components typically include specifications; product and service requirements; quantities; quality levels; and performance information such as schedule and skills, work location expectation, and other requirements. Each procurement on the project includes its own SOW.
- **Contract type** - Contracts are generally grouped into two broad categories: fixed priced or time and material. Each type has advantages and disadvantages that should be considered when determining which type to use. Procurements with a clearly defined and detailed scope of requirements and schedule would benefit from a fixed price contract to hold the contractor accountable for completion of the work timely. If, however, the scope and schedule has not been clearly defined and detailed, a time and material contract can provide the flexibility needed to define those items as part of the contract activities.
- **Procurement method** - There are several ways a project can go about conducting a procurement. Depending on characteristics such as cost and what is being procured, and the delegated purchasing authority of the organization, options include using a Leveraged Procurement Agreement (LPA), conducting a formal procurement (e.g., Request for Proposal, Invitation for Bid), or even completing a non-competitively bid justification for those goods or services that are sole sourced. Refer to the DGS State Contracting Manual (SCM) for additional information.

Web Links

DGS: State Contracting Manual (SCM)

Monitor and Control Procurements

Each organization will have its own processes, procedures and templates for conducting procurements. The Procurement Manager/Analyst should reach out to and work with their organization's procurement team to conduct their procurements. In addition to the organization's internal procurement oversight, the Procurement Manager/Analyst may need to interface with the appropriate external oversight authority when needed - the procurement policies for IT goods and services are administered by STP, and DGS handles non-IT contracts.

Depending on each specific procurement, the Procurement Manager/Analyst may need participate in the following activities:

- **Forums and Q&As -** The procurement process may include bidder forums and question and answer activities to help address ambiguities regarding requirements, or for the bidders to communicate any challenges or concerns they have.
- **Evaluation and Selection -** Almost all procurements require an evaluation and selection process to award a contract, but the complexity of the task will vary with each procurement. Some procurements will be a simple comparison of costs, while more complex procurements will require an evaluation of an in-depth proposal that documents each bidder's proposed solution.
- **Negotiation -** Some procurement include contract negotiation as an aspect in order to obtain the best solution for the organization. Negotiations will need to be coordinated with the appropriate oversight authority, either STP or DGS.

Skills

Use the following skills to complete tasks:
- Effective Communication
- Expert Advice (SMEs)
- Analysis and Evaluation
- Negotiation

Outputs

The following is an output of the process:
- Executed Contract for Goods and/or Services

Develop the Procurement Management Plan

The Procurement Management Plan sets the procurement framework for a project. The plan serves as a guide for managing procurement throughout the life of the project and is revised as acquisition needs change. The plan identifies and defines the products and/or services to be acquired, the types of contracts to be used to support the project, the development of procurement documentation, and the procurement approval process. As with other subordinates planning areas, the Project Manager must assess whether the procurement needs of the project necessitates a stand-alone subordinate plan, or if the information can be contained within the PMP.

Tools

A template is available:
Procurement Management Plan Template

When to Use?

Use the template for projects of the following complexities:

L M H

When developing the Procurement Management Plan, consider the following inputs:

- **Project Management Plan (PMP)** - Ensure that the Procurement Management Plan is aligned with the information that is contained in the PMP. After approval and baseline of the plan, it may be necessary to update the PMP.
- **Project Schedule** - Procurement activities must be planned for and coincide with the implementation schedule.
- **Project Budget** - Ensure that the project budget accounts for the project's procurement needs.
- **Procurement Policies, Rules and Procedures** - Review the state's procurement policies, rules, and procedures to ensure that the project's practices are in alignment.
- **Project Requirements** - Ensure that the goods or services being procured are in support of achieving the project's requirements.
- **Organizational Process Assets** - Review the organizational process assets which may include but are not limited to all of the documents, templates, policies, procedures, plans, guidelines, lessons learned, and historical data.
- **Enterprise Environmental Factors** - Includes but is not limited to the culture, standards, regulations, policy, records, procedures, processes, information systems, risk-tolerance of Stakeholders, political climate, and communication channels of the organization.

Outputs

The following is an output of the process:

- Procurement Management Plan

4.10 Quality Management

4.10.1 Introduction

Quality management is a disciplined process that is deliberately applied over the project's life to ensure that customers of the products are satisfied. It is instituted early on in the project and is fundamental in guiding project efforts, because quality must be established from the beginning. Ultimately, quality management focuses on understanding customer requirements; defining/designing project outcomes to meet those requirements; developing, implementing and managing processes that can produce the project outcomes with accuracy and precision; and controlling, measuring and managing those process to ensure consistent performance. Creating quality is the responsibility of every team member.

4.10.2 Recommended Practices

Quality management helps ensure the project's end product fulfills the customer's requirements and meets their expectations. The following recommended practices are intended to assist a project team as it strives to develop a program to effectively define, measure, and support quality.

Recommended Practices

These recommended practices can help project teams develop an effective quality plan.

Prevention is Key

Project and product quality are of utmost importance to project success. The project team's emphasis should be prevention rather than fixing a deficiency or a defect after the fact. Generally, projects spend the most time and resources fixing problems rather than preventing problems in the first place. The cost of fixing one bug found in the production stage of software can be significantly higher compared to the effort when the same bug is found in the coding stage.

While it may be tempting to cut corners on quality to meet a specific delivery date or a budget target, quality seldom can be tacked on to a finished product. Such actions will delay the project or be costlier because of the time and expense needed to fix defects later in the development cycle.

Meet User Needs

Meeting user needs and expectations is key to project quality. This requires the project team to understand, define, and manage the provision of user requirements towards that end. The measure of quality very much centers on the user's perspective. Don't just consider whether the user can technically accomplish a task. Think about whether a user's task can be accomplished more simply, effectively, or quickly. It is the project team's job to do the hard work to make things simple for users.

User-Centered Approach

This recommended practice promotes a user-centered approach. For more information on this, see CA-Agile.

Continually Improve

Quality management is not a set-and-forget discipline. As projects evolve and respond to change, so too must a project's approach to quality management. Frequent inspection of the outcomes of the project's quality management efforts, especially early on, should occur and course corrections made when planning assumptions do not hold or quality measures indicate improvement is needed. Continuous improvement is particularly important for, and a key benefit of, incremental or modular delivery, as it provides projects with an ideal opportunity to implement changes with each increment or module.

User-Centered Approach

This recommended practice promotes a user-centered approach. For more information on this, see CA-Agile.

4.10.3 Roles in Preparation

Overall definitions of project rolls can be found in the Definitions of Project Roles section in the Additional Resources chapter. The following roles typically participate in the development of the Quality Management Plan:

- Project Sponsor (approver)
- Project Manager (lead)
- Quality Manager
- IT Sponsor
- Business Owner(s)

Roles

For a complete list of all project roles, see the Project Role Definitions in the Glossary.

4.10.4 Practice Overview

Figure 4.10-1 illustrates the inputs, skills, tools, activities, and outputs for the quality management process.

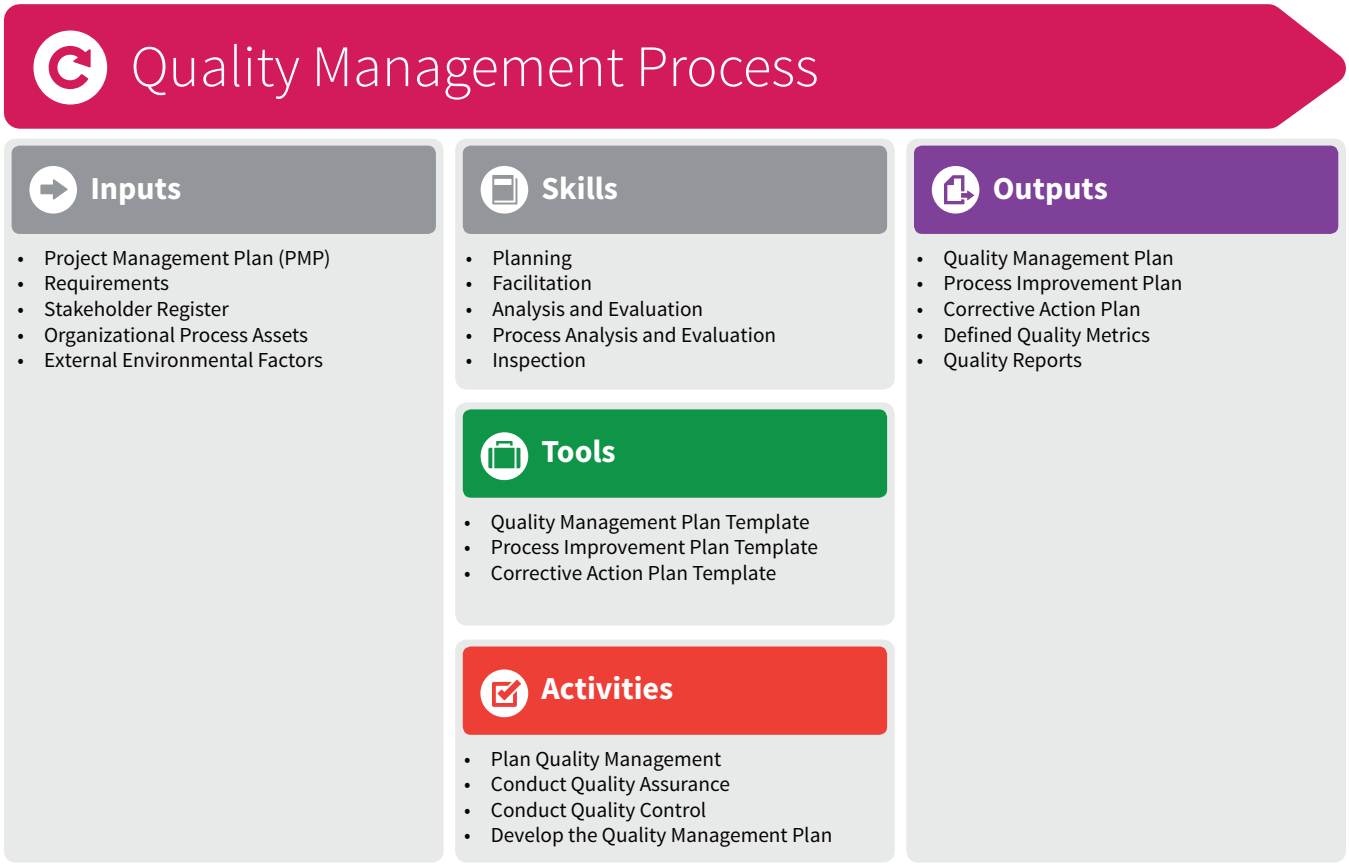


Figure 4.10-1

Quality management is an iterative process consisting of the following:

- Planning Quality Management (Plan and Implement) - a process in which the project defines quality standards and requirements that the project must meet; identifies project Stakeholders, their needs and expectations with regards to quality; and establishes an approach to measuring quality.
- Quality Assurance (Monitor) - tracking and measuring how well quality management practices are working via ongoing monitoring and periodic assessments and audits.

- Quality Control (Correct) - taking the ongoing results of quality assurance efforts and determining what changes, if any, are needed to ensure continued customer satisfaction. Quality control entails reviewing assessment results with Stakeholders, taking corrective actions as necessary, and continually improving the quality management approach.

Figure 4.10-2 depicts the continuous cycle of quality management activities.

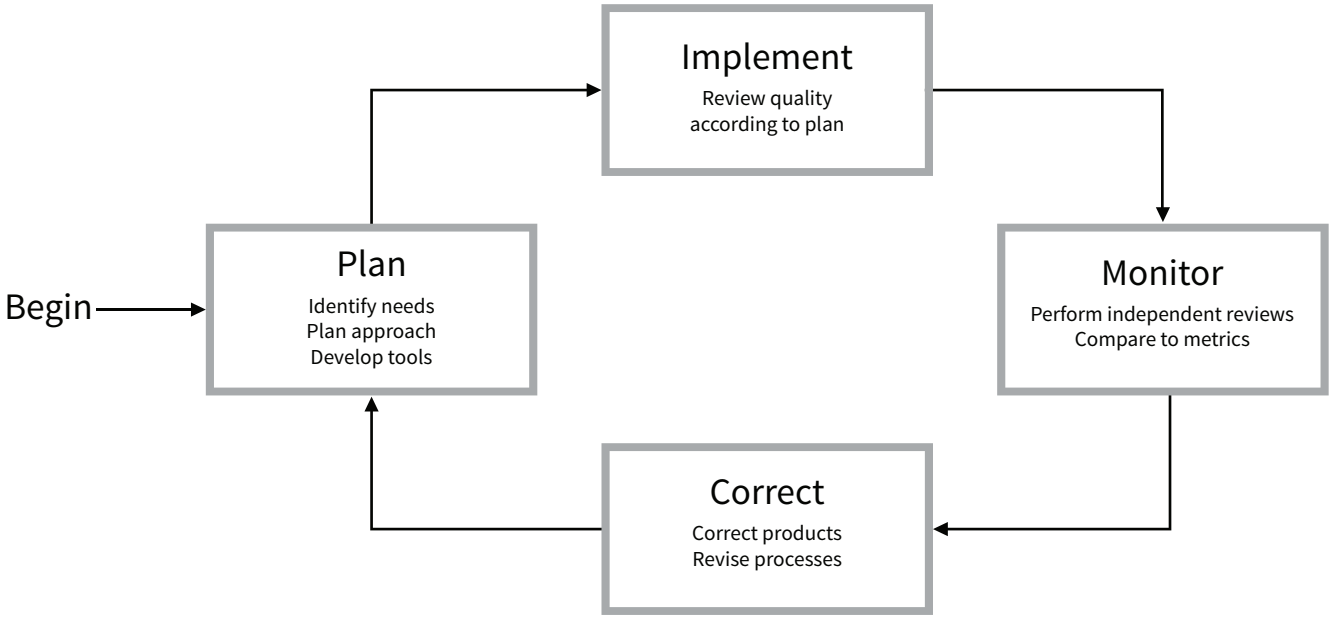


Figure 4.10-2

Plan Quality Management

The first step in quality management is planning for it.

Skills

Use the following skills to complete tasks:
- Planning
- Facilitation
- Analysis and Evaluation

Identify Quality Metrics and How They Will Be Gathered

Before a project can use metrics to measure quality and assess and control a project, it must first establish the requirements and targets that the collected quality metrics can be scored against. Quality standards vary from project to project, but they should be tied to the objectives of the project and the organizational goals. Tracking quality metrics can reveal weaknesses in a process or product, which in turn can provide information about which project areas require course correction due to a deficiency.

To accomplish this, determine the appropriate metric categories, specific metrics, data collection methods, data collection frequencies, and functional owners of the data to measure quality. Tips for success include:

- **Create a baseline** - Quality metrics by themselves do not necessarily help a project. They should be judged against a baseline. The baseline can be industry standards, an organization's own track record, or metrics associated with the objectives and goals found in the project business case, complexity assessment, Project Charter, or other documentation.
- **Know what you are collecting and how you will collect it** - When determining the methods for collecting data, determine the right data to use and how to collect it. Data collection methods include survey, report, and manual observation. It is best to incorporate all three methods if possible. General guidelines for collecting data include:
    - Do the best you can in current data environment – You may find that the project only has a subset of the data you'd like to collect. Gather what is available and do the best analysis possible with the subset.
    - Use data that are already collected when possible – Existing data sets can provide a rich source of historical data. Depth in data can improve the overall accuracy, precision and credibility of the analysis.
    - Avoid non-value-added data gathering and calculations – Collecting data/making calculations that are not relevant to the questions being asked is just "white noise" and wastes effort that could otherwise be applied to quality improvement efforts.
    - Know when your data are "good enough" – Data collection can be an endless effort. "Good enough" means collecting enough data with acceptable accuracy and precision such that management can make decisions with relative confidence. Delay in decision making due to excessive data collection can be more harmful to the project than not.
- **Gather data consistently** - Determining the data collection frequency will vary from project to project. Key topics to address in planning the data collection approach include when the baseline will be established, when the first post-baseline measurement be performed, estimating how frequently things will change, and determining how observable the changes will be. These characteristics, and others as individual project needs dictate, help determine how frequently data needs to be collected to be useful in managing overall project quality.
- Assign Responsibility - In order for the quality metric assessment to succeed, a functional owner should be assigned to the data collection process. The

Outputs

The following is an output of the process:
· Defined Quality Metrics

owner should be selected based on the ability and willingness to do the task and the ability to meet the responsibilities of the task. This includes establishing the data collection assessment method, performing the baseline assessment and follow up assessments, analyzing and interpreting the results, and communicating the results to the Project Manager.

Process Improvement Planning

Process improvement can be described as a systematic, iterative approach through which an organization identifies, documents, and optimizes its processes in order to improve the efficiency of its business results or achieve new organizational goals and objectives. As part of quality management planning, process improvement activities should be outlined for how a project will analyze its current processes, determine how they could be changed to work better, implement needed changes, and repeat as necessary.

Process Improvement planning activities include:

- **Assessment** - Conducting a quality assessment helps establish the measures for evaluating progress towards the project's goals as stated in the business case and Project Charter.
- **Process Analysis** - Process analysis is used to analyze project processes. Conduct a step-by-step breakdown of the phases of a process, and convey the inputs, outputs, and operations that take place during each phase. Substantial analysis and evaluation is required as part of process improvement. Use rigorous analysis and mapping to fully understand project processes, including owners of process, inputs and outputs, process boundaries, and the relationships between processes.
- **Plan Development** - Metrics and information gathered in the assessment and process analysis activities is used to formulate a process improvement plan. Stakeholder input regarding key project processes can help establish/refine the requirements and targets that the collected quality metrics can be scored against. It is important that process improvement planning efforts mesh with the overall quality management planning effort.
- **Plan Execution** – Act on improvement plans and ensure proposed process changes are considered through the project's established procedures, such as Change Requests and/or Corrective Action. Provide for periodic (iterative) assessment, monitoring, and improvement of critical (core) project processes as appropriate to the individual project.

Tools

A template is available:
Process Improvement Plan

When to Use?

Use the template for projects of the following complexities:

L M H

Additional considerations for process improvement planning:

- **Process Boundaries** – Process are bounded by their start, end, inputs, outputs, owners and Stakeholders. Documenting these characteristics defines a process scope and enables focusing improvement efforts.
- **Process Configuration** – A graphic visualization of a process, such as a swim line diagram with interfaces identified, helps to communicate the process steps, process participants and decision events that affect process flow. Increased understanding facilitates better analysis.
- **Process Metrics** – Quantifiable metrics, along with control limits and thresholds express characteristics that can be measured to determine efficiency and efficacy of the process.

Outputs

The following is an output of the process:
- Process Improvement Plan

Conduct Quality Assurance

Quality assurance activities include the assessment of both process quality and product quality. Quality reports are generated based on audits and analysis. Quality reports are published for Stakeholders, with any deviations escalated to appropriate project management levels. Corrective action plans are put in place to remedy quality issues identified in the report. If formal changes are necessary, Change Requests are generated.

Outputs

The following is an output of the process:
- Process Improvement Plan

Process Quality

Process quality ensures that project participants follow applicable standards, processes, policies, procedures, and checks as they create project deliverables. During this process, audits are conducted against quality metrics identified while planning for quality management. Audit results typically are presented to the Project Manager. Deficiencies in quality are flagged, and corrective actions are put in place. This ensures that the processes being employed to produce project deliverables are sound and will improve the likelihood of project success.

Skills

Use the following skills to complete tasks:
- Process Analysis and Evaluation

Product Quality

Assessment of product quality focuses on project deliverables. Product quality assessments ensure that deliverables meet quality standards and that deliverables are complete and correct. Quality standards include items such as documentation standards, design and coding standards, testing standards, and test coverage requirements.

Skills

Use the following skills to complete tasks:
- Analysis and Evaluation
- Inspection

Corrective Action

Findings resulting from the assessment of process quality or from the inspection of product quality may require corrective action in order to address the deficiency. Corrective actions help identify the root causes of a problem and provide action steps to prevent such problems from surfacing again. The following recommended practices are intended to assist project teams in their development of corrective actions.

Problem Diagnosis

Conduct the problem diagnosis through an investigation to determine the root causes of the problem.

- **Define the Problem: Determine what occurred, where it occurred, when it was identified, when it began, and how significant is it.**
- **Understand the Process:** Determine the process steps that should have been taken before the problem was found.
- **Identify Possible Causes:** If process steps did not occur as planned, determine which of the steps could have caused the problem.
- **Collect Data:** Determine what information could indicate which of the possible causes actually occurred in a way that would create the problem.
- **Analyze Data:** Determine what the data indicate about what each possible cause contributed or did not contribute to the problem.

Solution Implementation

Take action to prevent the causes of the problem from recurring again later in the project or in a future project.

- **Identify Possible Solutions:** determine what changes to the processes of project planning and execution might keep those processes from failing in the future.
- **Select Solutions:** Determine which of the identified possible solutions are the most viable.
- **Identify Resources:** Identify specific resources needed to complete the task.
- **Determine the Due Date:** Establish a realistic deadline. Involve staff that will perform the task and understand what job responsibilities might need to be shifted to complete the task **Implement Solutions:** Plan and carry out the selected solutions.

Tools

A template is available:
Corrective Action Plan

When to Use?

Use the template for projects of the following complexities:

L M **H**

Skills

Use the following skills to complete tasks:
· Facilitation

- **Evaluate the Effects:** Determine if the solutions were implemented and whether they worked. Document the metrics that it will be measured against.
- **Institutionalize the Change:** Update project management guidelines and tools to ensure that future projects are carried out in alignment with the improved processes.

Outputs

The following is an output of the process:
· Corrective Action Plan

Conduct Quality Control

Continuous Quality Improvement

The continuous improvement process ensures the organization is improving quality on an ongoing basis. The process includes both project process and product improvements.

The continuous improvement process has a dual purpose:

1. Improve quality within the project (such as tactical and/or corrective).
2. Improve quality of the overall organization (such as strategic and/or preventive).

The tactical and/or corrective quality improvement process involves:

- **Reviewing deficiencies –** Deficiencies are identified through the project's on-going quality assessment/audit activities.
- **Determining root causes of deficiencies** – Root cause analysis looks at the symptoms of the problem and traces them back to their source. A fish bone diagram is typically used to document the observed deficiencies in an organized way to promote identification of a root cause or causes.
- **Evaluating need for action to prevent recurrence of deficiencies** – Depending on the nature of the deficiency, the organization may or may not determine that action is necessary. If it is necessary, a response plan is developed. If not, a good practice is to put the deficiency on a watch list so that it can be monitored for change.
- **Determining and implementing needed actions –** Depending on the deficiency, a response plan is developed and executed.
- **Reviewing and recording results of actions taken** – Post-remediation, the observed deficiency is monitored and measured to determine if the remediation effort was successful in resolving the issue.

The strategic and/or preventive quality improvement process involves:

- **Determining potential deficiencies and root causes** – Looking at a group of identified deficiencies, not just specific events, helps to identify systemic issues in the quality management effort.
- **Evaluating need for actions to prevent occurrence of deficiencies** – Because of their scope of impact, systemic issues typically need to be resolved. Rarely should a system issue go unaddressed.
- **Determining actions needed to correct** – Planned actions should be effective in addressing systemic issues, not just single events. The perspective in planning the response should be strategic and come from an enterprise view.
- **Reviewing and recording results of actions taken during the project lifecycle** - Post-remediation, the observed deficiency is monitored and measured to determine if the remediation effort was successful in resolving the systemic issue.
- **Ensuring that results of quality actions are disseminated** – An organization's ability to maintain quality is only as strong as its weakest link. Because quality management touches upon an organization's people, process, technology, and governance, any changes to the established approach should be communicated deliberately in a disciplined fashion.
- **Incorporating results from the PIER (Post Implementation Evaluation Report) and lessons learned surveys** – ongoing collection of lessons learned in any project effort is a fundamental behavior of a learning organization. This information feeds directly into an organization's strategic, tactical and operational improvement efforts.

Monitoring and Controlling Quality

A Project Manager should ensure that these critical processes are closely monitored and managed:

1. **Customer Requirements Gathering Process:** Ensure that customer requirements are accurately and completely captured. If customer requirements are not accurately reflected in a requirements specification, customer expectations will not be met, and the product will not meet the intended goal. Ensure that the requirements process is sound and that the project team fully follows the process. Gather product requirements at different project levels and stages. Correctly capture and document the specifications covering different project aspects. Examples include business requirements, functional requirements, detailed design

requirements, and use cases. Apart from product functionality, it is important to ensure that the requirements specifications also address other product aspects, such as usability, reliability, maintainability, availability, flexibility, affordability, and social and environmental acceptability.

2. **Procurement Process:** Procurement often plays an important role in state project success. In addition to having comprehensive requirements specifications, it's critical to pay considerable attention to:

   - Vendor qualification – Establishing vendor qualification criteria is critical in ensuring that the right vendor is acquired to deliver needed services. An ineffective vendor can derail a project no matter how well it is managed.

   - Bid package accuracy, completeness, and review – Solicitation documents can be tricky. Typically, the customer knows what they want. Translating that accurately into a solicitation document is critical so that what the solicitation document asks the vendor community for is what the customer wants. Diligence in creating a complete and accurate solicitation, coupled with frequent customer review, is required to ensure a successful project outcome.

   - Vendor quality control processes - Quality must be considered when making price versus quality trade-offs. While the state requires selection of "best value," quality should play an important role in the formula used to evaluate value.

3. **Development Methodology and Technical Solution:** The Project Manager should ensure that sound development methodologies are deployed and the technical solution is sound. From this point of view, it is helpful for the Project Manager to have knowledge about the domain and technical acumen, or to have qualified and trusted team members to draw on for validation. If not, a third-party review might be worth the time and effort.

4. **Change Control Management:** Project tracking and control depends on a reliable Change Control Process that identifies, analyzes, and records decisions about proposed changes. Project success can be threatened by changes made outside of these critical controls. When this happens, the project team loses a common understanding of what changed and when changes occurred, putting the project at serious risk.

Other plans and processes supporting the System Development Lifecycle (SDLC) are closely related to quality. This includes the System Test Plan and the Configuration Management Plan.

Develop the Quality Management Plan

The purpose of a project's Quality Management Plan is to define "how" quality is managed throughout the project lifecycle to meet the stated quality definition. Remember, quality is not refining or further enhancing the product well beyond the point where extra effort adds any value, but preferably it is to ensure the product will meet the committed intent and requirements from a customer point of view.

When developing the Quality Management Plan, consider the following inputs:

- **Project Management Plan (PMP)** - Ensure that the Quality Management Plan is aligned with the information that is contained in the PMP. After approval and baseline of the plan, it may be necessary to update the PMP.
- **Stakeholder Register** - Understand who the Stakeholders are that may define quality metrics.
- **Requirements** - Ensure that the product(s) are satisfying the requirements and user needs.
- **Organizational Process Assets** - Review the organizational process assets which may include but are not limited to all of the documents, templates, policies, procedures, plans, guidelines, lessons learned, and historical data.
- **Enterprise Environmental Factors** - Includes but is not limited to the culture, standards, regulations, policy, records, procedures, processes, information systems, risk-tolerance of Stakeholders, political climate, and communication channels of the organization.

Tools

A template is available:
Quality Management Plan

When to Use?

Use the template for projects of the following complexities:

L M **H**

Outputs

The following is an output of the process:
- Quality Management Plan

4.11 Requirements Management

4.11.1 Introduction

A requirement is a condition or capability that must be met by the product or service being developed. The main objective or goal in defining requirements is to communicate Stakeholder objectives, needs, and outcomes, along with providing the objective criteria used to measure project success. Requirements management is the discipline of identifying, planning, analyzing, communicating, and managing (monitoring and controlling) requirements throughout the project's lifecycle.

4.11.2 Recommended Practices

A requirement is a condition or function that must be met or possessed by a solution or solution component to satisfy a contract, standard, specification, or other documented criteria. They connect business goals, objectives and outcomes to the more detailed solution requirements developed as part of solution development phase and refined during project execution. Successful development of requirements requires the use of sound requirements definition practices. The following recommended practices will assist in creating high-quality requirements that are correct, complete, clear, consistent, and relevant.

Recommended Practices

These recommended practices can help support creation of high-quality project requirements.

Early and Ongoing is Best

Define, represent, and agree on the project's scope and baseline requirements early in the initial stages of a project and progressively elaborate them through each of the System Development Lifecycle (SDLC) phases. Early definition of requirements will help manage "scope creep" – the unrestrained expansion of requirements as the project proceeds. Scope creep is one of the greatest risks to a project.

Involve Users in Requirements Gathering

Identify and involve the users early as a source for requirements identification and verification. Users understand how the current system operates (people, process, and enabling technologies) in ways that are distinct from Subject Matter Experts (SMEs) and can provide insight to the goals and objectives of the future system. Remember that systems exist to serve user and business needs.

User-Centered Approach

This recommended practice promotes a user-centered approach. For more information on this, see CA-Agile.

Group and Provide Context to Requirements with User Stories

One purpose for documenting requirements is to communicate Stakeholder needs. Key roles in this process may include users, SMEs, Business Owners, IT professionals, developers, and testers. While requirements are traditionally documented individually, grouping and describing the context of each requirement with user stories communicates requirements more effectively.

User stories are high-level statements that capture discrete piece of needed system functionality from the user's perspective, focused on the "what," "why" and "for whom", but which does not define the "how."

Project teams should conduct user research upfront to gather user stories, leverage these user stories to determine the initial requirements for the service being developed, and then conduct ongoing user research as the project moves forward and more information becomes available about user needs. In this manner, requirements will have the context of the users' needs and what the individual and grouped requirements are trying to accomplish.

User stories also help with requirements analysis to identify or discover missing, incomplete, or unnecessary requirements. Because user stories should always be aligned to the project scope and objectives, the project team has a better chance of understanding what is required to achieve the project outcomes.

User-Centered Approach

This recommended practice promotes a user-centered approach. For more information on this, see CA-Agile.

Communicate Requirement Updates Often

Communicate with Stakeholders to ensure they clearly understand the requirements management process. Regular communication should be established to review and approve any proposed changes to requirements and address any requirement questions they may have.

Review Often

Regular reviews of requirements and their traceability is an effective practice. These reviews help ensure that the project is on track to meet the Stakeholders' needs. Prior to implementation, the project team should perform an audit to make sure all requirements have been satisfied.

4.11.3 Roles in Requirements Management

Overall definitions of project rolls can be found in the Definitions of Project Roles section in the Additional Resources chapter. The following roles typically participate in requirements management activities:

- Project Sponsor (approver)
- Project Manager (lead)
- IT Sponsor
- Stakeholders
- Subject Matter Experts
- Requirements Lead
- Requirements Analyst
- Business Owner(s)

Roles

For a complete list of all project roles, see the Project Role Definitions in the Glossary.

4.11.4 Practice Overview

Requirements management is the systematic approach to eliciting, documenting, organizing, and tracking requirements, and the changes that may occur. Requirements management helps ensure products, services, or other project results meet Stakeholder needs and expectations.

Figure 4.11-1 illustrates the inputs, skills, tools, activities, and outputs necessary to complete requirements management activities.

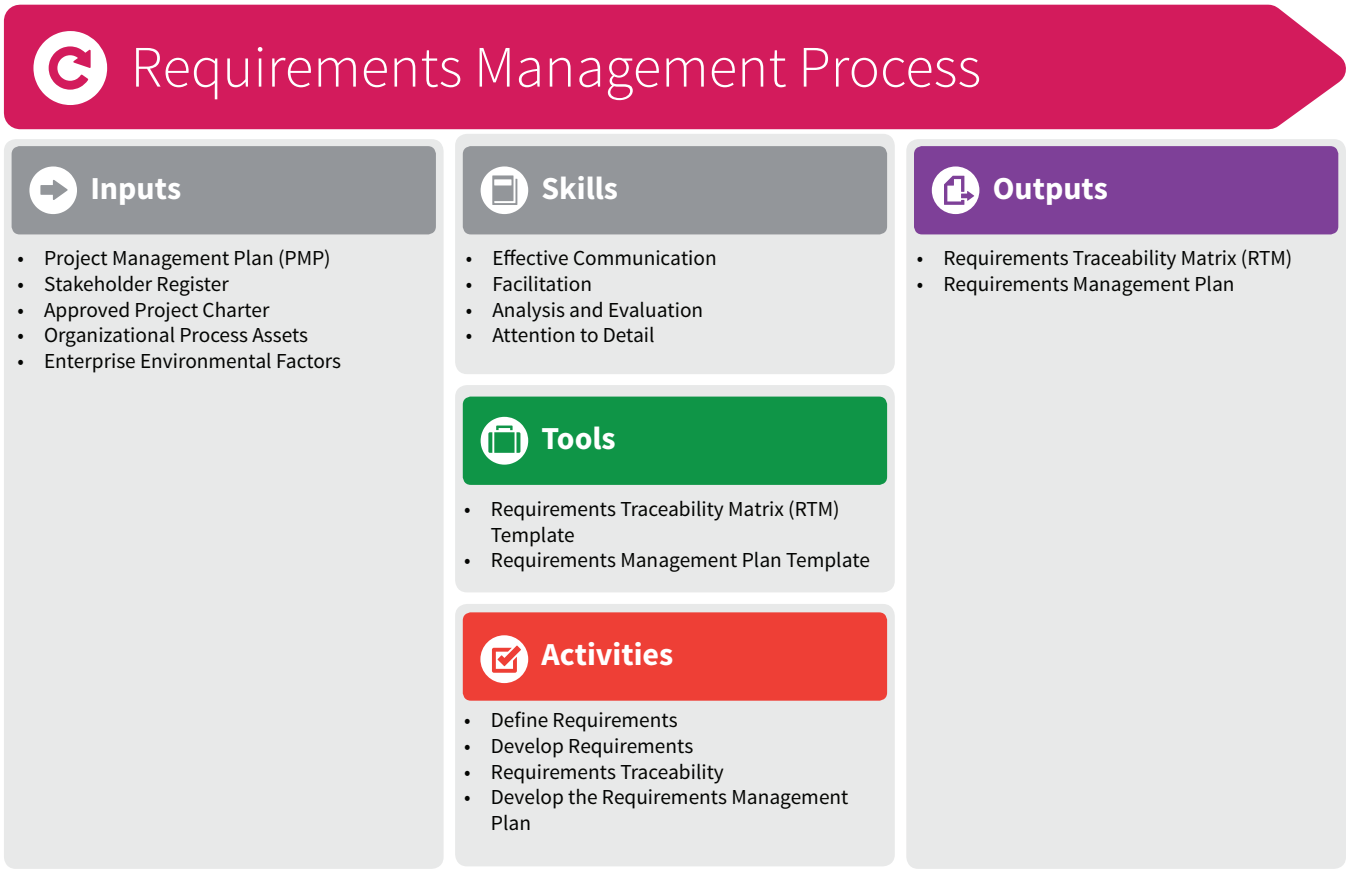


Figure 4.11-1

Define Requirements

A well-orchestrated requirements definition provides clarity and a solid foundation for the project. It provides a representative view of what the intended product must do and clear descriptions of how the product should perform. Requirements definition also provides a basis for design, and it serves as a foundation for testing and user acceptance. Requirements definition captures all levels of the project's requirements and helps ensure that the project meets its stated objectives within agreed-upon limitations for time, cost, and scope (functionality).

Requirements definition is used to identify goals, needs, and objectives which are typically represented as "user requirements." User requirements are one of three types of requirements. The other two types are related to the mission or business, or describe the product itself.

- **User requirements** define requirements from the user's point of view, describing tasks users need to accomplish with the product and the users' quality requirements. Users can be broadly defined to include not only people who access the system, but also inanimate users such as hardware devices, databases, and other systems.
- **Business requirements** are statements of the business rationale for the project. These requirements grow out of the product vision, which in turn is driven by mission or business goals and objectives. The product's vision statement is a long-term view of what the product will accomplish for its users. Normally captured in a project charter or scope statement, these are requirements that describe "what" the results should be once the system or application is designed and produced. It should also clarify what capabilities will not be provided by the resulting system or application.
- **Product requirements** are detailed descriptions of all functional and nonfunctional requirements that must be fulfilled to meet business and user needs. Examples of nonfunctional requirements include software design constraints, external interfaces, and quality attributes such as performance, security, installation ability, availability, safety, and reusability. Product requirements establish an agreement among technical specialists and business managers on what the product must do.

Well defined requirements strive to include SMART attributes in their definition. The table below introduces the attributes for SMART requirements and provides a short definition of each.

Attribute	Definition
Specific	A good requirement is specific and not generic. It should not be open to misinterpretation when read by others. Avoid using conjunctions (such as “and,” “or,” “but”) as conjunctions can confuse or misconstrue the meaning. Avoid indeterminate amounts of time (such as “soon,” “fast,” “later,” and “immediately”) as requirements are then open to wide interpretation.
Measurable	Measurable requirements demonstrate exactly how to perform verification.
Actionable/ Appropriate	Actionable requirements complete feasibly in a reasonable period, and appropriate requirements fit within expected system parameters.
Realistic	Realistic requirements fit within the scope, schedule and quality expectations of the project.
Traceable/ Testable	Traceable requirements document both a source and verification process, and testable requirements allow for the design of a feasible and objective test.

Develop Requirements

Requirements development is a set of activities that will produce requirements for the system and sub-systems. Common requirements development activities are provided below. Be sure to engage Stakeholders in these activities to ensure that their needs are captured.

Skills

Use the following skills to complete tasks:
- Effective Communication
- Facilitation
- Analysis and Evaluation

Elicitation

Elicitation involves identifying requirements sources (Stakeholders) and how best to solicit requirements from these sources. Elicitation is an iterative and inventive activity that usually involves asking Stakeholders “What if ...” questions. Another very useful technique to use is to ask “Why?” These questions can reveal missing or unspoken requirements, or offer additional details to enhance the understanding of a requirement. Creating this type of dialog is an effective way to increase the completeness and quality of the requirements.

Analysis

The goal of requirements analysis is to sufficiently understand and define requirements, so that Stakeholders can prioritize which requirements are satisfied first. This activity involves developing detailed requirements from elicitation. These detailed requirements don't need to be just textual in nature. They can be of different forms, such as business process diagrams, data models, use cases, and prototypes. Analysis offers an effective way to refine the understanding of the initial elicited requirements. This is also where you will settle priorities of requirements between Stakeholders and arbitrate between conflicting requirements.

Specification

This process examines each requirement to see if it meets the characteristics of a good requirement (such as if it is a SMART requirement). Each requirement will be decomposed into a more refined set of requirements that can be eventually grouped into sub-systems. Newly derived requirements, along with performance requirements, are expected to emerge from this process, which continues until all requirements are defined, analyzed, and validated.

Validation

Validation examines requirements to ensure they will satisfy user needs. This will be done through Stakeholder walk-throughs and tracing requirements to an associated need.

Joint Application Design (JAD)/Joint Application Requirements (JAR) Sessions

JAD/JAR sessions consist of a cross-functional team of subject matter experts and analysts/designers/developers (depending on the focus of the session) getting into a room together with a facilitator to lead the group in the delivery of a sound, well-developed requirements.

Requirements Traceability

Requirements traceability is an activity that is part of the overarching requirements management discipline and extends from requirements definition through to implementation. It captures all levels of requirements and helps ensure that the project meets Stakeholder expectations. Tracing requirements back to their source is sometimes called backward or upwards traceability. Tracing requirements throughout the project is called forwards allocation or forwards traceability.

Skills

Use the following skills to complete tasks:
- Attention to Detail
- Analysis and Evaluation

Requirements traceability can be considered the backbone of a project and helps verify that what the project delivers meets Stakeholder expectations. Traceability ensures what Stakeholders identified and agreed to throughout the project lifecycle is developed, tested, and delivered by the system. Traceability also ensures that what is delivered by the completed system is neither more nor less than what was agreed to by the Stakeholders.

Figure 4.11-2 illustrates the concept of backward and forward traceability.

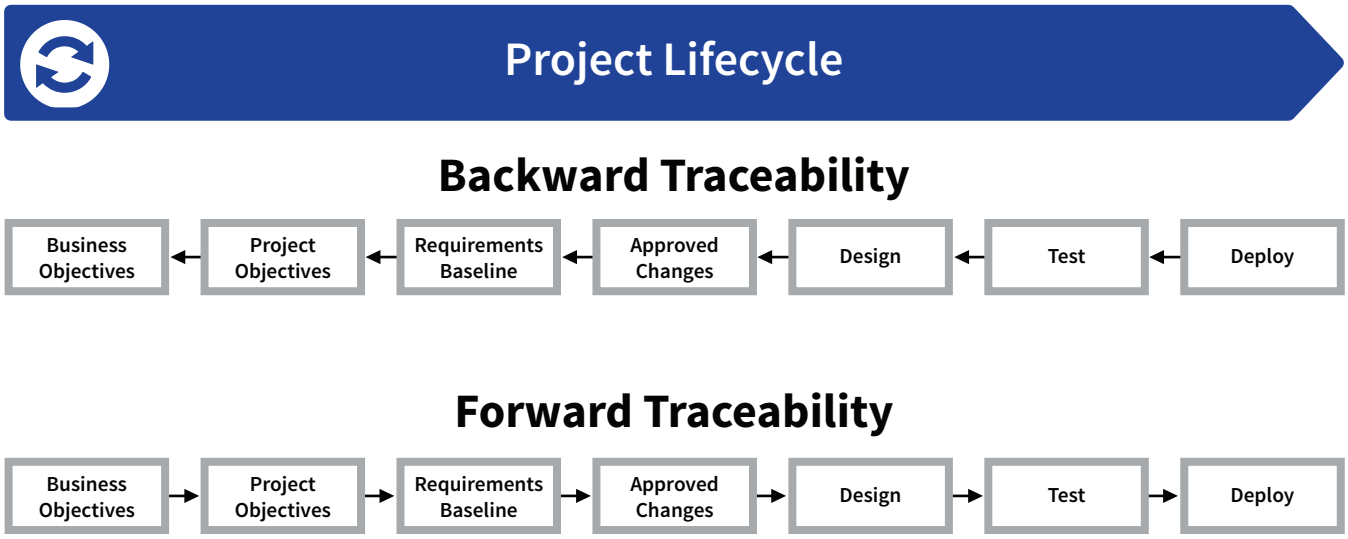


Figure 4.11-2

The Requirements Traceability Matrix (RTM) is the tool used for requirements traceability activities, to verify that all stated and derived requirements are adequately defined, documented, and tracked through the project development lifecycle. It helps ensure that all requirements defined for a deliverable are tested, and that the implemented deliverable (product or service) conforms to the requirements. The RTM is normally developed concurrently with the initial list of requirements. As design specifications and test protocols are developed, the RTM is updated.

Tools

A template is available:
Requirements Traceability Matrix (RTM)

When to Use?

Use the template for projects of the following complexities:

L M H

Requirements Change Management

Requirements change management describes how requirements changes will be handled during the project. Requirements that are baselined and stored in the RTM provide a point-in-time reference to the original approved requirements and are controlled for accurate accounting of version history and documentation. Changes to requirements should be controlled using the Change Control Process defined in the Project Management Plan or Change Control Management Plan.

When a requirement change has been approved via the Change Control Process:

- Identify the impacts of the changes to the requirements by identifying all traced-to and traced-from requirements.
- Incorporate approved changes to requirements into the RTM that contains the requirements baseline and verify that all impacted requirement artifacts and verification/validation traceability links are still valid and correct.
- Communicate the requirement changes to the project team to enable them to incorporate the changes into downstream project activities, such as design, build, test activities.

Outputs

The following is an output of the process:
- Requirements Traceability Matrix

Developing the Requirements Management Plan

This Requirements Management Plan addresses the managing, assessing, and controlling of changes to project requirements over the entire development lifecycle to increase the probability of a project's success. It also describes how the project team will capture, manage, assess, and control changes to those requirements. The plan removes ambiguity and clarifies roles and responsibilities for requirements management and defines activities and tasks to be performed as part of the requirements management effort.

Tools

A template is available:
Requirements Management Plan

When to Use?

Use the template for projects of the following complexities:

M H

When developing the Requirements Management Plan, consider the following inputs:

- **Project Management Plan (PMP)** - Ensure that the Requirements Management Plan is aligned with the information that is contained in the PMP. After approval and baseline of the plan, it may be necessary to update the PMP.
- **Stakeholder Register** - Review the register to understand the universe of Stakeholders to elicit requirements.
- **Project Charter** - Ensure that the requirements are within the project's approved scope.
- **Organizational Process Assets** - Review the organizational process assets which may include but are not limited to all of the documents, templates, policies, procedures, plans, guidelines, lessons learned, and historical data.
- **Enterprise Environmental Factors** - Includes but is not limited to the culture, standards, regulations, policy, records, procedures, processes, information systems, risk-tolerance of Stakeholders, political climate, and communication channels of the organization.

Outputs

The following is an output of the process:
- Requirements Management Plan

4.12 Resource Management

4.12.1 Introduction

Without the proper resources it will be challenging to successfully implement your project. All projects require an array of resources which include, but are not limited to, any equipment, hardware, software, services, materials, staffing, facilities, infrastructure, etc. Resources not related to staffing are commonly referred to as Operating Expenses & Equipment (OE&E) within California state government. Resource management is used to identify, acquire, and manage the resources needed for completing your project, and includes not just what you need, but also when you need it.

Project success is highly dependent on how well the project team is resourced throughout the project. Proper planning is essential to ensuring the project is adequately and properly staffed. Establishing the processes to organize, manage, and develop the project team will help to select the right resources. The primary objective is to match the best resources with the right job at the right time.

The guidance in this section describes methods useful in planning the project's approach to resource management. Acquiring the appropriate resources, and building an effective team with the necessary knowledge, skills, abilities, and experience to do the needed work will prepare your project for success.

Recommended Practices

Review these recommended practices to better understand how to plan project staffing.

4.12.2 Recommended Practices

Effective resource management planning ensures that the right resources and team members are ready at the right time to complete their assigned project tasks. The following recommended practices can assist a project team with the resource management activities.

Be Realistic and Gain Commitment

When planning staffing needs, be realistic about the project's resource requirements. Try not to overestimate or underestimate. Once a plan is developed, it is essential to gain support and commitment for project staffing needs from the Project Sponsor and business managers. Documentation of organizational commitments and decisions is particularly valuable in organizations with significant turnover and management attrition.

Skills and Experience Matter

Part of getting the right people on the project includes assigning people with the requisite knowledge, skills, abilities and experience to ensure project success. The use of project management tools, methods and processes, along with control agency oversight, will not guarantee a successful project outcome. Having an experienced team is critical to navigating project complexities and making the right decisions.

Don't Ignore the Soft Skills

It is important to keep in mind that the "right skills" are not limited to technical skills. Soft skills include interpersonal skills such as communication, conflict resolution, organizational leadership, and decision making. The right combination of hard and soft skills is helpful to ensure a well-rounded project team.

Invest in Training

Incorporate resource training and development into the project budget and schedule. The project should anticipate investing in training to augment and improve team member skills in relation to the project's needs. This may include technical training, internal cross-training, or even interpersonal and team development activities. Getting the project team firing on all cylinders will improve performance and productivity.

Plan Appropriately for all Resources

It is important to plan for all resources that a project may need in addition to the human resources. Refereed to as Operating Expenses & Equipment (OE&E) this includes the equipment, hardware, software, services, materials, facilities, infrastructure, etc. Without proper planning for all types of resources, the project may suffer delays or other consequences.

Be Intentional About Shaping Team Culture

Project culture will be a significant force in achieving desired project outcomes, but it must be intentionally cultivated. Culture is simply "how we do things around here." The relationship between leadership and culture is tightly woven, and it is difficult to distinguish where one ends and the other begins. Therefore, the Project Sponsor and Project Manager must be intentional about shaping the project team culture.

If contractors are part of the project team, make sure they are made aware of the culture. Project Managers should strive to hold contractors accountable for contractual obligations while also building a cohesive state/contractor project team.

Take Care of the Team

As a project leader, it is important for the Project Manager to be proactive with the project team. This can include enforcing reasonable hours to avoid burnout, investing time in team-building activities to improve collaboration and morale, and celebrating successes along the way. The Project Manager should take time to understand the unique needs and motivations of individual team members and to treat each person with respect.

Schedule Enough Time for Hiring

Make sure to allocate enough lead time for the hiring process. Consider the mantra "hire hard; manage easy." Take time to involve other project team members in the hiring process, and don't just fill a position with a body. If necessary, conduct another hiring round if a good fit is not found in the first round of candidates.

Plan for Turnover

Change is inevitable, but project turnover can significantly affect project performance. Turnover can disrupt the project team's continuity of knowledge. It's important to plan for turnover by proactively implementing turnover strategies to deal with loss of key staff. A proactive plan is needed especially for scarce or specialist resources that may be difficult to replace. Some projects ensure that these key positions have a "backup" team member who can at least help carry the project while a replacement resource is sought.

4.12.3 Roles in Resource Management

Overall definitions of project roles can be found in the Definitions of Project Roles section in the Additional Resources chapter. The following roles typically participate in the development of the Resource Management Plan:

- Project Sponsor (approver)
- IT Sponsor
- Project Manager (lead)
- HR lead
- Training lead
- Business Owner(s)

Roles

For a complete list of all project roles, see the Project Role Definitions in the Glossary.

4.12.4 Practice Overview

Identifying and documenting the necessary project resources that the project requires is an iterative process. As the preliminary resource plan is developed, insight is gained into the project's short-term needs for tasks such as conducting market research, alternative analysis, or upcoming procurements. As the project progresses and additional information becomes available, the project resource plan should be updated with additional details about the requirements, such as roles, quantity, and competencies that are required for the Executing Process Phase.

Figure 4.12-1 illustrates the inputs, skills, tools, activities, and outputs necessary to complete resource management activities.

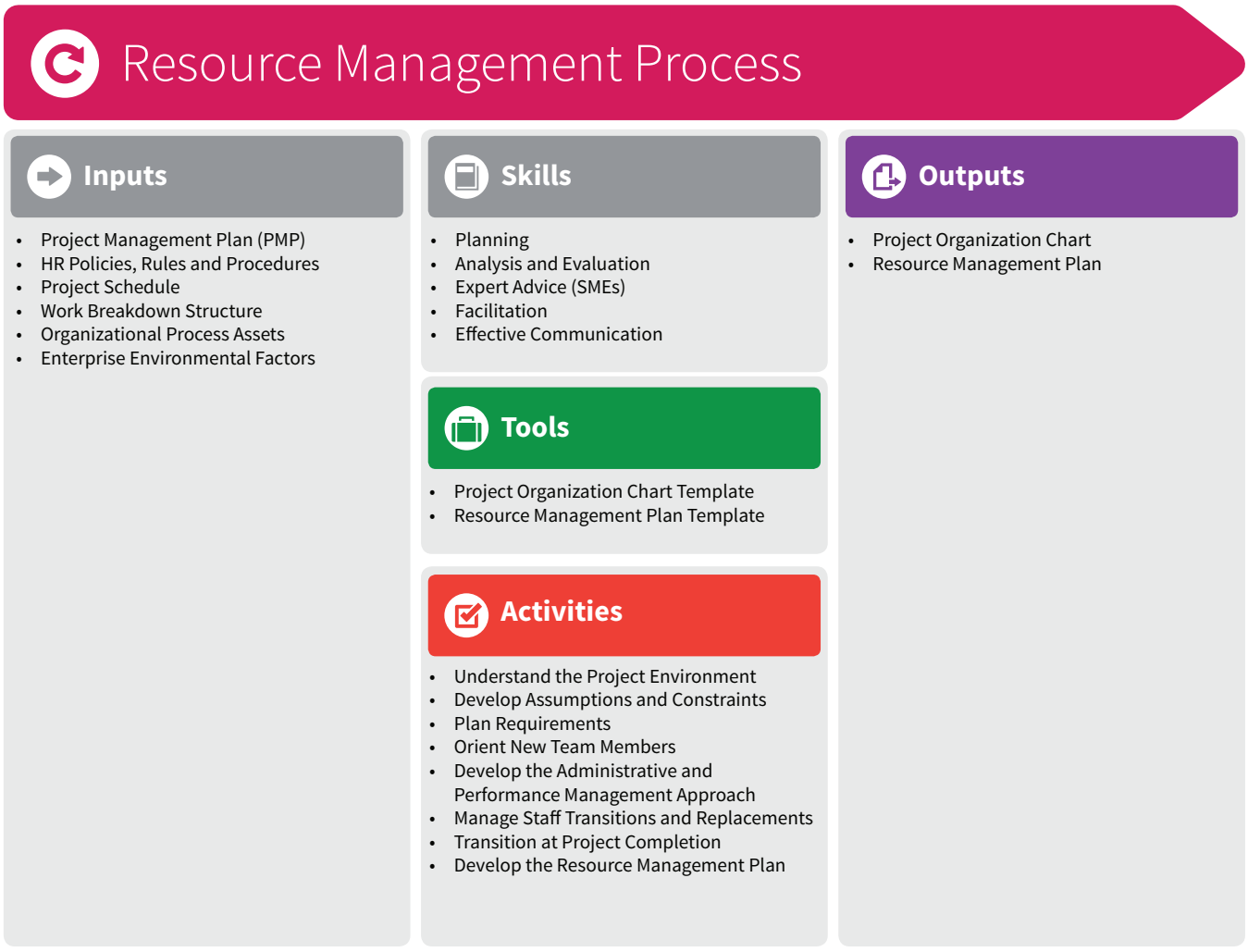


Figure 4.12-1

Understand the Project Environment

Managing the project's resourcing is multi-faceted and will occur throughout the project lifecycle. It is a key component of project success and sufficient effort must be placed in its planning activities. The Project Manager should take the opportunity to understand the project's characteristics by reviewing the following:

- The RACI matrix identifies project resources and their relationship to particular project events or deliverables. Identifying who is responsible for the project event or deliverable, who has approval authority, and who is to be consulted or informed along the way helps to identify the kinds of knowledge, skills, abilities and experience that may be needed by the designated resource.
- Collect various inputs that will influence the planning activities. The Project Manager should take advantage of existing documentation relating to all resource availability within the organization, including current organizational charts, HR Policies, and even previous project documentation such as lessons learned.
- Project scope information will also help determine the project's resource needs. Review identified project risks, documented constraints, the Project Charter, Project Scope Statement, Work Breakdown Structure (WBS), and project schedule.
- Determine the necessary planning sessions and key participants required to adequately prepare the requirements and resource management activities. Having the right people involved in a defined and structured process is critical to ensure development of a pragmatic and effective approach.
- Review available resources along with checking on inventory and procurements in addition to potential external resources that may be required.

Skills

Use the following skills to complete tasks:
· Planning

Develop Assumptions and Constraints

The Project Manager should document the assumptions and constraints made during the resource management planning process. Examples of assumptions include availability of resources, internal commitments, budget for training and development, project duration, the use of outside contractors, and other aspects of acquiring and managing staff. Examples of constraints include the project budget, the ability to use outside contractors, requirements to use internal training curriculum, resource availability, compliance with labor contracts, or other elements limiting the project's needs. The assumptions and constraints will allow Stakeholders the ability to understand why the project

Skills

Use the following skills to complete tasks:
· Analysis and Evaluation
· Expert Advice (SMEs)

has been resourced as it has, and this should reviewed and updated on an ongoing basis.

Plan Requirements

The Project Manager will work with the project team to develop and capture the requirements including the appropriate HR needs for the project. This information will evolve over the life of the project, so scheduled review and maintenance of the information is needed to ensure accuracy and to support look-ahead planning.

Operating Expenses & Equipment (OE&E) Estimates

Estimate the required non-staffing resources including when each is needed along with the appropriate quantity. This may include, but is not limited to any equipment, hardware, software, services, materials, facilities, infrastructure, etc., or any other resource that may be used as part of the project.

Resource Staffing Estimates

Projects will typically document the project's estimated staffing requirements by project phase (e.g., SDLC phase) to understand which project roles are needed when. Estimate when each resource is to start on the project, the duration of the work assigned to the resource, and the associated classification level of the resource. The WBS and project schedule is a useful input to help determine the staffing estimates.

Required Staffing Skills and Competencies

Successful projects must possess resources with the appropriate set of skills and experiences. Every skill critical to the completion of tasks and deliverables needs to be identified and assessed. The Project Manager should document the required skills and experience needed by each role based on the anticipated duties. Project team members with the requisite competencies and capabilities will improve the likelihood of the completion of assigned tasks and activities within the time and quality parameters established.

Create Staff/Team Development Plan

The Project Manager should enhance project performance by documenting the process for improving competencies, team member interaction, and the overall team environment. Team development is important not only to ensure that resources are equipped and enabled to do the work, but also for solidifying resource commitment. Providing resources development opportunities to improve their overall skill sets creates a relationship in which both the project and the team member wins.

Develop the Staff - Assess whether staff members require any training to competently fulfill their project duties. Some projects may require team members to be trained in specific technologies or vendor-specific solutions. If project team members do not have the required level of competency, identify the training required and include the training costs in the project's baseline cost. This effort should be ongoing as project needs for knowledge, skills, abilities and experience may change over time.

Develop the Team - Developing effective project teams is a primary responsibility of the Project Manager. A high-performing project team can be formed by:

- Using open and effective communication – Sometimes, especially in larger projects with many moving parts, it's difficult for individual team members to be heard. The project manager should promote inter- and intra-team communication that is focused on problem solving and operational improvements.
- Fostering trust among team members – Building team trust is an effective way to improve morale and overall team performance. Creating special team building events bolsters team trust and improves camaraderie, and allows the team opportunities to get to know each other outside the confines of the project.
- Establishing team norms, values, and guiding principles – Setting and communicating standards for team behavior project wide ensures that every team member knows what is expected of them as they conduct their daily work.
- Creating rewards and recognition for positive contribution – Taking advantage of opportunities to reward good work/behavior publicly helps to reinforce management's message about what is important to the project.
- Managing conflicts in a constructive manner – In a creative endeavor conducted by creative individuals, conflict is expected. Conflict in this context is not necessarily bad and can serve to create new and innovative approaches to solving problems. Project Managers and team leads should encourage collaborative, constructive discourse that enables thorough vetting of conflicting ideas in the pursuit of the best solution.

When to Use?

Use the template for projects of the following complexities:

L M H

Tools

A template is available:
Project Organization Chart

Develop a Project Organization Chart

Once the project staffing needs have been defined, create a project organizational chart that contains all of the project roles. This helps to convey the relationships between the project team members, and enables them to understand their place in the project. Visibility and transparency is also important to ensure that everyone has common knowledge regarding

the project's organizational construct, so it is important to publish and share the organization chart project-wide. Project organizational charts should be periodically updated throughout the project lifecycle as additional information becomes known.

Develop Staff Acquisition Strategy

The Project Manager should document the process for confirming staff availability, as well as obtaining commitments to assemble the team. For state staff, this often includes obtaining commitments to utilize the staff for specific durations. If new state positions need to be filled, account for lead time to accommodate the state hiring process.

When acquiring staff, assess whether the resources possess the required skills to perform the assigned responsibilities. Document all skill gaps and undertake the proposed development activities required to overcome any deficiencies.

Outputs

The following is an output of the process:
- Project Organization Chart

Skills

Use the following skills to complete tasks:
- Facilitation
- Effective Communication

Orient New Team Members

Orienting new team members can help them understand the full context of the project. Project Managers should determine the project's orientation process for project team members and identify who is responsible for completing orientation activities. The following topics should be considered for project orientation:

- Background and project purpose – Grounding the new team member in the driving factors and vision for the project is important to establish context. Context is important as the resources decision-making processes will be influenced by what they understand the project to be.
- Project status – Knowing where the project stands, the challenges and risks it faces, and the accomplishments to date provides additional contextual detail for new resources.
- Review of the project organization chart – This helps the new resource understand their place in the project, their reporting relationships, and with whom they will be working.
- Specific job duties and expectations – To be effective, team members must know what they are being asked to do and what is expected of them in terms of their role. Reviewing project policies, processes standards, and tools makes project "rules" explicit. Reviewing the project calendar, status meetings, and team meetings establishes the foundations for communications. Setting clear expectations enables the resource to be successful, establishes accountability, and provides the basis for performance measurement.

- Introduction to the project team – Formal introduction to the team is important to begin the process of building trust and camaraderie with the new resource.

Develop the Administrative and Performance Management Approach

In a matrixed environment, day-to-day management of assigned project staff is the responsibility of the Project Manager and designated team leaders. However, performance evaluations, performance issues and recognition, promotions, and disciplinary actions are typically still the responsibility of the supervisor.

The Project Managers should determine and document the process for tracking team member performance, providing feedback, resolving issues, and managing changes to optimize project performance. There must be open and honest communication, about both the negative and positive, to ensure that the supervisor can appropriately manage the resource.

Manage Staff Transitions and Replacements

Commonly in projects, the same staff that started the project will not be the same staff to implement and close out the project. The Project Manager should document how staff replacement and staff transition will be managed during the project lifecycle, including opportunities for knowledge transfer. Make use of cross-functional training to avoid being solely dependent on a single individual to complete project tasks.

State staff vacancies are typically filled through the state hiring processes. The Project Manager will work with the HR team to advertise positions and conduct interviews. Staff may also be replaced by redirecting resources from within or outside of the project, or their workload may be absorbed by other staff.

Transition at Project Completion

The process for releasing and transitioning state staff members should be documented, so that once their project responsibilities are complete or the project ends it will be smooth. Consider knowledge transfer opportunities before a project team member leaves, and be sure to archive any project documentation developed by that project team member.

Developing the Resource Management Plan

The purpose of the Resource Management Plan is to document the processes to identify, acquire, allocate, develop, monitor and control, and overall manage the resources necessary to successfully complete a project. The plan should describe the planning and acquisition of all resources including project staff, document the responsibilities assigned to each staff person, and outline on-boarding and training activities necessary to ensure the correct resources are available at the right time for the right task.

The resource planning process will begin to answer questions such as:

- What project roles will be required?
- What are the skills required for the various project tasks?
- What equipment, hardware, software, services, materials, staffing, facilities, infrastructure, etc. are needed?
- How many resources will be necessary and for what duration?
- How will the project team be selected and acquired?
- What internal agreements will be required to commit resources?
- Will the project require both state and contracted staff?
- How will team members be trained and developed?
- How will the team be organized and managed?
- How will labor contracts affect the project?
- How will staff be transitioned on and off the project?

Answers to the above questions should be documented in the Resource Management Plan. Development of the plan takes place during the Planning Process Phase, with updates and refinements made as necessary. The plan can be developed as a standalone plan or, depending on the project's size and complexity, the content can be incorporated into the PMP.

When developing the Resource Management Plan, consider the following inputs:

- **Project Management Plan (PMP)** - Ensure that the Resource Management Plan is aligned with the information that is contained in the PMP. After approval and baseline of the plan, it may be necessary to update the PMP.

Tools

A template is available:
Resource Management Plan

When to Use?

Use the template for projects of the following complexities:

M H

- **HR Policies, Rules and Procedures -** Review the HR policies of the state and your organization, along with any rules and procedures to ensure that the project's practices are in alignment.
- **Project Schedule** - Review to understand the project's time frames and plan the staffing needs accordingly.
- **WBS** - Review to understand the project's WBS and plan the staffing needs accordingly.
- **Organizational Process Assets** - Review the organizational process assets which may include but are not limited to all of the documents, templates, policies, procedures, plans, guidelines, lessons learned, and historical data.
- **Enterprise Environmental Factors** - Enterprise environmental factors include but are not limited to the culture, facilities, infrastructure, capital equipment, standards, regulations, policy, records, procedures, processes, information systems, risk-tolerance of Stakeholders, political climate and communication channels of the organization.

Outputs

The following is an output of the process:
· Resource Management Plan

4.13 Risk Management

4.13.1 Introduction

Risk management can be defined as the processes and structures that are directed towards realizing potential opportunities, while simultaneously managing possible adverse impacts. From a project management perspective, risk management is a continuous activity conducted throughout the life of the project. It seeks to identify potential risks, evaluate their likely impact, develop mitigation plans, and monitor progress. The objectives of project risk management are to increase the likelihood and impact of positive events while decreasing the likelihood and impact of negative events.

4.13.2 Recommended Practices

Successful risk management is a continuous activity to identify, analyze, track, and mitigate risks during the entire life of a project. Positive, rather than negative, outcomes are the goal. The following recommended practices can help project teams complete risk management activities.

Recommended Practices

These recommended practices can assist with developing a Risk Management Plan.

Utilize Formal and Informal Risk Identification Methods

Formal risk identification consists of conducting a formal brainstorming session at the beginning of the project along with regularly scheduled risk meetings throughout the project lifecycle. Informal Risk Identification is identifying risks during informal working sessions or as a result of individual project work. Both methods are effective but may produce different outcomes.

Make Sure Your Risk Statements are Complete

All risk statements should include 1) the set of conditions or events that would cause the risk, and 2) the risk's impact upon the program goal, objective, or value criterion under consideration. It is difficult to assess the risk without this basic information.

Use All Available Risk Response Strategies

Risks, whether positive or negative, can have multiple response strategies. For negative risks, this includes trying to avoid, transfer, mitigate and accept. For positive risks, the options include exploit, enhance, share, and accept. Each scenario may also require escalation. Explore each option to determine which is most feasible and produces the most favorable outcome.

Concentrate Efforts on High Risks First

All risks should have a response plan; however, project resources are typically limited and not all risks can be afforded the same level of attention. Develop risk response plans for those risks that are considered to have the highest risk severity.

4.13.3 Roles in Risk Management

Overall definitions of project rolls can be found in the Definitions of Project Roles section in the Additional Resources chapter. The following roles typically participate in the development of the Risk Management Plan:

- Project Sponsor (approval)
- Project Manager (lead)
- IT Sponsor
- Risk Manager
- Risk Owners
- Business Owner(s)

Roles

For a complete list of all project roles, see the Project Role Definitions in the Glossary.

4.13.4 Practice Overview

Risk management provides a basic methodology to identify, analyze, plan, control, monitor and communicate risks during the lifecycle of a project. Identifying and managing risk increases the likelihood of project success by reducing uncertainty associated with the project. Planning for risk allows for risk prevention, mitigation, and/or avoidance, and enables pursuit of improvement opportunities as they arise.

Figure 4.13-1 illustrates the inputs, skills, tools, activities, and outputs necessary to complete risk management activities.

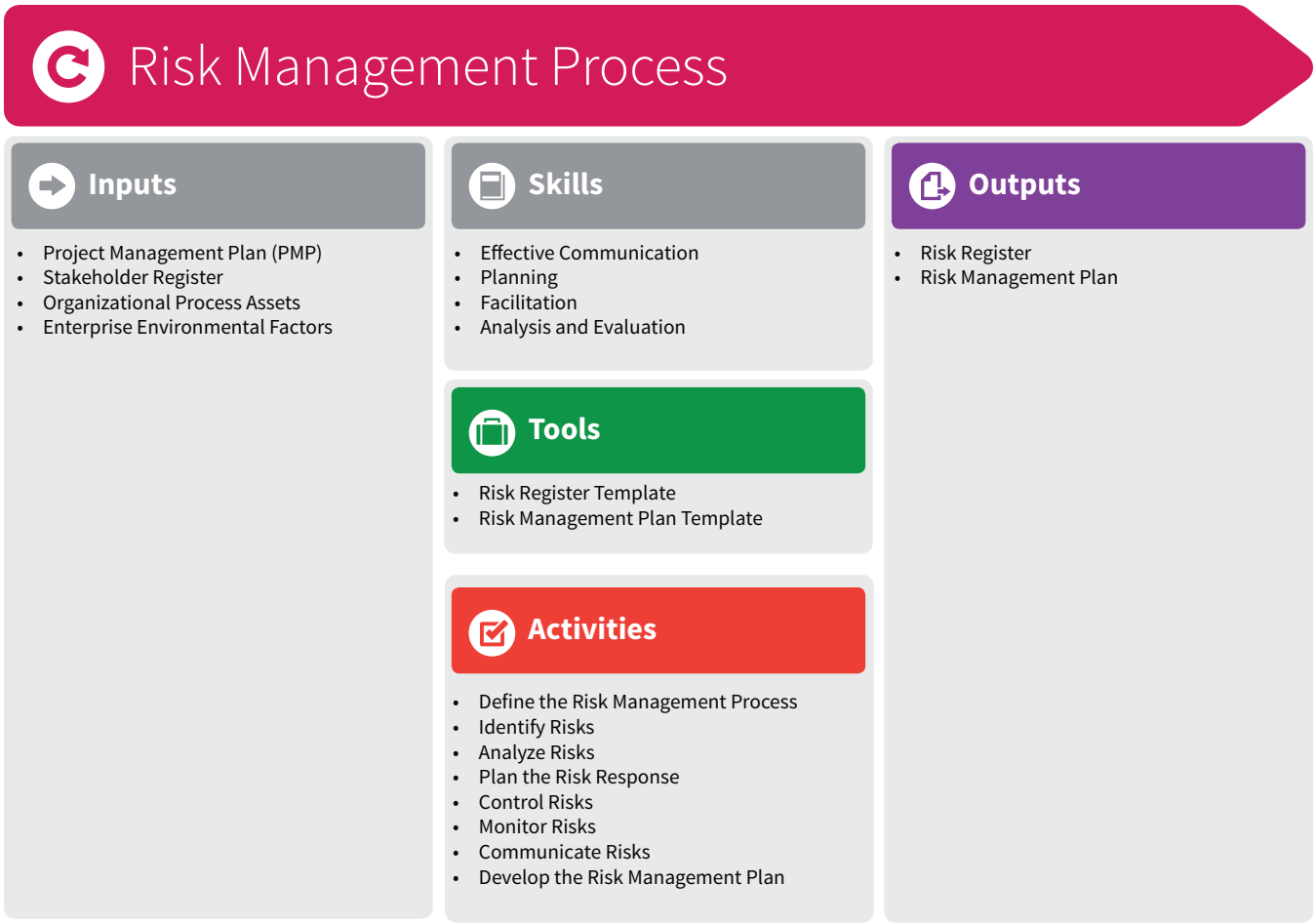


Figure 4.13-1

Define the Risk Management Process

Effective risk management is hallmarked by the identification of risks/opportunities as early as possible, clearly stating the benefit/threat and the steps that can be taken to lessen the impact of a negative risk or exploit the benefits of a positive risk. A key effect of the Risk Management Process is to increase management confidence that the project is likely to succeed and outcomes will be realized as planned.

As shown in Figure 4.13-2, risk management is a continuous process that has six defined activities for managing risks: identify, analyze, plan, control, monitor, and communicate.

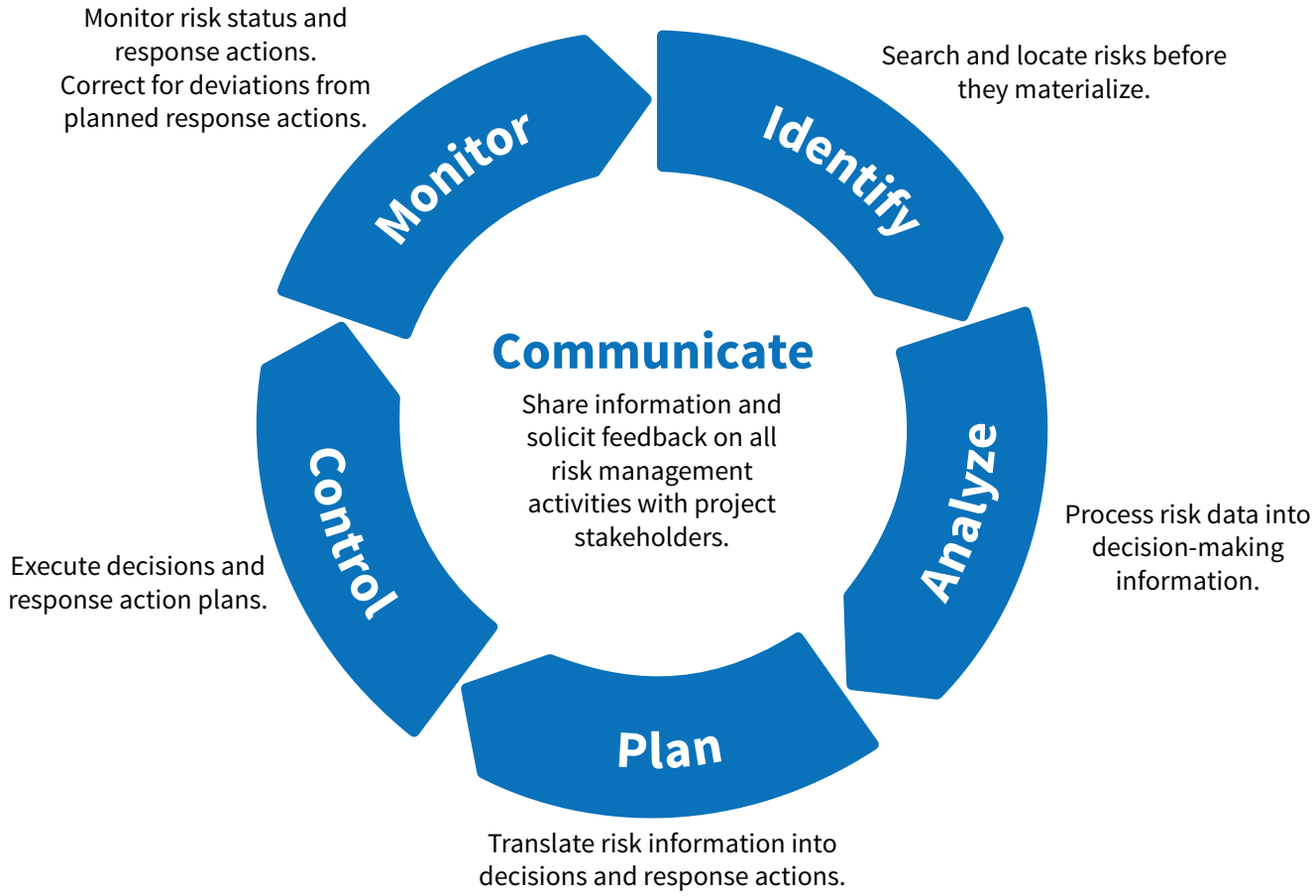


Figure 4.13-2

A risk management process includes:

- **Identify** - The process of discovering project opportunities and risks, and documenting their characteristics.
- **Analyze** - Determining the impact of a risk/opportunity by combining the process of Qualitative Analysis (prioritizing opportunities /risks for further analysis or action by assessing and combining the risks' probability of occurrence and impact) and Quantitative Analysis (numerically analyzing the effect of identified risks on overall project objectives).

- **Plan** - The process of developing options and actions to enhance opportunities and reduce threats to project objectives.
- **Control** - The process of implementing risk response plans, tracking identified risks, monitoring residual risks, identifying new risks, and evaluating the effectiveness of risk processes throughout the project.
- **Monitor** - The ongoing process of evaluating how well planned responses are addressing opportunities/risks and making course corrections as necessary.
- **Communicate** - The process of communicating project opportunities and threats in a timely and orderly fashion to enable project decision makers to respond effectively.

Identify Risks

Risk identification is the process of discovering and recording risks that can directly affect the project scope, schedule, cost, or quality. Risk identification is an ongoing activity throughout the project lifecycle. Any project Stakeholder (Risk Originator) may identify potential risks to the project. This can be done through formal, informal, or even ad-hoc risk identification activities. Timely risk identification and documentation is important to ensure proper risk validation, assessment, and management.

Skills

Use the following skills to complete tasks:
· Facilitation

A good understanding of a risk begins with a consistent, clear, and unambiguous risk statement. The risk statement clearly indicates the concern, likelihood, and possible consequences of the risk. The risk statement can be thought of as follows:

Risk Statement = Risk Concern + Likelihood + Consequence

The risk description includes the potential impact to the project scope, budget, schedule, or quality. It includes the impact to Stakeholders, assumptions, constraints, and relationships to other project risks, issues, or activities.

Formal Risk Identification

A facilitated formal risk identification activity should be conducted at the beginning of both the project's Planning and Executing Process Phases, as well as at each subsequent major project milestone. Risk identification activities help prepare Stakeholders for ongoing risk management activities and bring to light risks that might otherwise not be known.

Informal Risk Identification

Informal risk identification occurs as a result of normal project execution. Any project Stakeholder is encouraged to identify potential risks. The Stakeholder should report the information to one of the project meetings (any of the periodic project meetings or risk management meetings) or directly to the Project Manager or Risk Manager. Other informal communication channels, such as email, also can be used to bring a potential risk to the attention of the Project Manager.

Project status meetings should include possible risks as a topic for discussion. Once the potential risk is identified, it then follows the normal process of documenting, analyzing, responding, and controlling. It is recommended that larger projects hold regularly scheduled weekly risk meetings.

Risk Information Gathering Techniques

The following risk information gathering techniques may help ensure that risks are identified. Each technique has strengths and weaknesses and should be chosen to match project needs.

- **Documentation review** can provide a good indication of the project risk. A structured review of documentation, such as project plans, schedule, assumptions, previous and current project files, contract(s), agreements, and other information is often a good place to start.
- **Information gathering:**
    - Brainstorming is a group technique used to find a comprehensive list of project risks. The group should include a multidisciplinary set of members. Brainstorming is an effective method for gathering a list of risks spontaneously contributed by participant members. The effort should be led by a facilitator, and risks should be identified and categorized by type and then further refined. This technique often is comprised of two parts: idea generation and analysis.
    - Interviewing experienced project participants, Stakeholders, and subject matter experts is a method of identifying risks. However, this can introduce bias or miss risks based on a lack of corresponding experience.

  - Delphi Technique is a systematic, structured technique, typically relying on an expert panel. The experts answer questionnaires in two or more rounds. After a round, the facilitator provides an anonymous summary of the experts' forecasts from the previous round and the rationale for their judgments. The process is stopped after it reaches a predefined stop criterion, such as the number of rounds, achievement of consensus, or stability of results. The results are determined by a mean or median score. A benefit is a reduction of both bias and the influence of any single person.

- **Root cause analysis** is an analytical technique that can be used to determine the underlying causes that may lead to an issue or problem which can be used to identify risks. Then preventative action can be taken.
- **Checklist analysis** can be an effective source of risk identification, because it is typically based on historical information and knowledge accumulated from previous projects. Use caution since these checklists can be based on similar – but not identical – types of projects. Because most checklists aren't exhaustive, the team should consider items that are not on the checklist.
- **Assumptions analysis** re-examines the validity of assumptions as the project progresses. Every project relies on assumptions at the outset, since much of the detail needed for planning is not yet known. Through progressive elaboration, these details become clearer and previous assumptions may or may not remain valid. Changes in project assumptions are a source of project risk. New assumptions may be generated as project details become clearer.
- **Diagramming** techniques may include:
  - Cause and effect diagrams, also called fish bone diagrams. These can be good tools for identification of risk causes.
  - System or process flow charts, which show how system elements interrelate and their causal relationships.
  - Influence diagrams, which are a compact graphical representation of a decision condition. These show causal influences, time ordered events, and other variable relationships and outcomes.
- **Process flow charts** can be used to outline the steps or a sequence of activities that may show areas where there may be potential risk.
- **SWOT analysis** offers a structured approach to identify the strengths, weakness, opportunities, and threats to be able to identify risks.

When to Use?

Use the template for projects of the following complexities:

L M H

Tools

A template is available:
Risk Register Template

- **Expert judgment** may be used to identify risks through persons with knowledge and experience with similar projects and program business areas. Such expert information may be limited and biased based on the individual's experience.

Document Risks

Project risk management can be supported by use of the Risk Register tool, which documents and catalogs project risks. The Risk Register contains identified risks as well as results of risk analysis and risk response planning. Over the project's lifecycle, the Risk Register is updated to include the outcomes of other risk management processes as they are conducted. Use of the Risk Register begins when a risk is identified and referred to risk management processes. The Risk Register helps the project team maintain risk awareness as well as adhere to the risk management processes.

Analyze Risks

Risk analysis processes are used to determine the potential impact of a risk and to prioritize risks.

Skills

Use the following skills to complete tasks:
· Analysis and Evaluation

Perform Qualitative Risk Analysis

Qualitative risk analysis is a process for prioritizing individual risks by evaluating risk attributes for probability of occurrence and impact. This allows Project Managers to focus response plans and effort on high-priority risks. Comparing risks by their priorities determines which risks require attention first for development of response actions. The following tables is an example of a three-point structure that can be used to categorize probability and impact:

Probability	Criteria
High	Very likely or almost certain (66% - 99%) risk will occur
Medium	A likely chance (33% - 66%) risk will occur
Low	Unlikely or will probably not (1% - 33%) occur

Risk Impact	Criteria
High	The Risk presents a significant negative impact on project scope, schedule, or quality. • Project cost increase of 10% or more • Project schedule increase of 10% or more • Failure to meet required performance • Failure to provide required functionality
Medium	The Risk presents a moderate impact on project scope, budget, schedule, or quality. • Project cost increase between 5% and 10% • Project schedule increase between 5% and 10% • Significant discrepancies in desired system-wide performance • Significant discrepancies in desired system-wide functionality
Low	The Risk does not present a significant or material impact on project scope, schedule, or quality. • Project cost increase of less than 5% • Project schedule increase of less than 5% • Minor discrepancies in desired performance • Minor discrepancies in desired functionality

Perform Quantitative Risk Analysis

Quantitative risk analysis is performed on risks prioritized by the qualitative risk analysis process. Quantitative risk analysis determines the effect of the risks on the overall project objectives and produces quantitative risk information to support decision making. Quantitative analysis usually follows qualitative risk analysis, but it sometimes can be done without it or may not be done at all. The following are just a few examples of quantitative risk analysis methods:

- Decision Tree Analysis - This method evaluates the implications of multiple options in the presence of uncertainty. A decision tree is a simple way to get a visual display of the uncertainty and the various decision options for project risks.

- Monte Carlo Simulation - This method involves determining the impact of the risks by running simulations to identify the range of possible outcomes for different scenarios. This is typically done by using a mathematical model to estimate the impact of project risks to help forecast the likely outcome of an event.
- Sensitivity Analysis - This technique is used to determine which risks have the most potential impact on the project by developing what-if models or simulations to see the impact of a risk on either the budget or the schedule.

Determine Risk Exposure

Risk exposure is a simple calculation to assign a numerical value to the risk for the purpose of comparison. In the example of the three-point structure, a numerical value of 1 to 3 is assigned to each probability and impact rating, with 1 being low and 3 for high. The product of the probability and the impact produces the risk exposure.

	Risk Probability		
Risk Impact	**High Probability (3)**	**Medium Probability (2)**	**Low Probability (1)**
High (3)	9	6	3
Medium (2)	6	4	2
Low (1)	3	2	1

Determine Risk Response Time Frame

Once the risk exposure rating is determined, determine the risk timing or risk response time frame. The response timing scale is used to assess the urgency for undertaking risk management activities. The following criteria provide an example for determining the estimated time frames.

Time Frame	Criteria
Short	Response action should occur within one month
Medium	Response action should occur within one to three months
Long	Response action can occur after three months

Determine Risk Severity

The Risk Manager uses the risk exposure rating and the risk response time frame estimates, again converted to a number rating and multiplied to produce a total risk severity score, as shown in the following table. The higher the number, the more severe the risk and the more focused the effort required to address the risk. Grouping risks by severity helps to establish their priority because the severity rating separates risks into high, medium and low categories. In the table, high severity is shown in red, medium severity in yellow, and low severity in green.

	Risk Exposure Rating					
Risk Time Frame	**9**	**6**	**4**	**3**	**2**	**1**
Short (3)	27	18	12	9	6	3
Medium (2)	18	12	8	6	4	2
Long (1)	9	6	4	3	2	1

Plan the Risk Response

Developing a response for each risk lays out the options, approach, and resources required to either prevent or mitigate a risk from negatively affecting the project, or to take advantage of an opportunity that may affect the project in a positive way. Risk response planning provides courses of action, should a risk materialize and affect the project.

The risk response strategy may be determined when a risk is first identified or after additional information is gathered to complete the analysis. The following table includes various risk response strategies.

Risk Response Strategy	Description
Escalate	If the risk is outside the scope of the project or the project team is unable to appropriately respond, the risk should be escalated. In this case, the risk should still be monitored.

Skills

Use the following skills to complete tasks:
· Planning

Risk Response Strategy	Description
Accept	If the project can continue and be successful with the anticipated risk impact, the project may choose to accept the risk, document acceptance, and spend no further resources managing it. In addition, risks that cannot be influenced by any act of the project team or project management are considered accepted (out of your hands). In these cases, the risk will be monitored, but no effort is spent towards response or contingency actions.
Avoid/ Exploit	If the risk cannot be accepted, the project team can use a strategy to avoid or exploit the risk. Actions will be taken to eliminate the risk threat or take advantage of an opportunity. This may require a change to the project plan or project scope.
Mitigate/ Enhance	Action may be taken to limit the probability of risk occurrence or to limit the impact on the project. The project team will develop and implement a response plan for each risk. The actions can be performed immediately or over a period of time. Typically, if the actions implemented do not adequately "drive to zero" the risk probability or impact on the project within a designated period of time (such as 60 days), a new risk response plan may need to be created.
Transfer/ Share	Transferring or sharing a risk involves shifting risk ownership to a third party. The third party is either completely or partially responsible for managing the risk. The risk is not eliminated.
Watch	If the risk does not pose an immediate threat or opportunity to the project, the project team may choose to watch the risk rather than use resources to analyze the risk.

Control Risks

Risk control consists of implementing risk response plans and evaluating outcomes, monitoring residual risk (element of a risk that remains after the risk

Skills

Use the following skills to complete tasks:
· Facilitation

assessment is complete and the response has been implemented), watching for new/emerging risks, and evaluating overall effectiveness of the project's risks management approach and processes. Risk control in an ongoing effort throughout the project lifecycle and is critical to ensuring that the assumptions made in planning risk responses continue to hold even as the risk is addressed. The Project Manager and Risk Manager should discuss the current state of the project's risk response efforts on a regular basis.

Typically, the Risk Manager is responsible for coordinating the review and validation of the risk with the risk team through regularly scheduled meetings. Risk review can be done in a dedicated risk review meeting or it can be a standing agenda item on the project's regular status meeting depending on the project's governance plan. During risk review, Risk Owners (individuals assigned to implement the risk response) will provide the status of each risk assigned to them, and the Risk Manager will review, discuss, and evaluate the Risk Owner's assessment, plans, impacts and probabilities. Risks are brought to the review meeting based on their assigned update frequency or review period which allows for the re-evaluation and assessment of previously identified risks.

The standard review periods that can be assigned to each risk are weekly, bi-weekly, monthly, or quarterly. Other topics addressed during risk review include validating specific mitigation strategies for particular risks, assessing the impact of risk management on the project in terms of scope, cost, and time, identification of emerging risks, and maintenance of the project's Risk Register.

Outputs

The following is an output of the process:
- Risk Register

As a result of review and discussion, new risks may be discovered. If so, the potential risk follows the normal process of identify, analyze, plan, control, monitor, and communicate. Also, if warranted, risks may be elevated in priority and urgency when preventative or contingency plans are either not implemented or not effective. During re-assessment, risk severity can be elevated or downgraded depending upon circumstances.

Risks that have not been mitigated within a reasonable time frame and require additional intervention should have their severity rating evaluated as the time to implement the risk response is growing shorter. Alternately, if partial risk preventative plans have been implemented but the risk has not been closed, the risk may be downgraded in severity as the exposure to the risk is lessened by mitigation.

During the course of a project lifecycle, a risk can also escalate into an issue and the mitigation or result of a risk that significantly impacts scope, schedule, or budget may cause a change. Once a risk has been escalated to an issue or change, the risk is closed and tracked following the processes and procedures outlined for those areas.

Monitor Risks

Risk monitoring is the ongoing process of evaluating how well risks are being addressed, and making course corrections as necessary to increase effectiveness. Once a risk is established, it is monitored on an ongoing basis by the project Risk Manager. The Risk Manager systematically monitors a number of conditions across all project risks using specific techniques to validate that the project's risk management efforts are effective. Risk reassessment is a technique in which risks, particularly those with high exposure and severity, are regularly reviewed to validate that risk response planning assumptions are holding and that the response plan is still appropriate for the risk.

If it is not, additional response planning will be needed to control the risk. Risk auditing is generally used to evaluate the overall efficacy of the risk management process and to do a deeper inspection of specific risks and their response plans. Audit findings are fed back into the risk management process to improve any deficiencies in the overall approach to risk management or in how specific risks are being managed.

Skills

Use the following skills to complete tasks:
· Effective Communication

Communicate Risks

Risk communication is the process of sharing information and soliciting feedback on all risk management activities with project Stakeholders. It is an integral and ongoing part of the risk management process. The project's risk communication strategy should be discussed and agreed upon early in the process to ensure two-way communication and should be documented in the communication section of the Project Management Plan or in the Communication Management Plan.

Decisions on risk communication, including what risk information needs to be communicated, when risk information needs to be communicated, how risk information will be communicated and to whom, should be part of an overall risk communication strategy. Likewise, the project should agree on which risks are worth discussing. While all documented risks are possible, not all are probable. Sometimes trying to discuss all of the documented risks can have the effect of drowning out those that are specific, immediate, and in need of Stakeholder attention. Most projects keep a constant narrative around risks that are high severity or high exposure to help Stakeholders maintain focus on the most credible threats and opportunities.

Risk communication is most effective if undertaken in a systematic way, and it generally starts with the gathering of information on about a particular risk. Communication must then continue throughout the entire risk lifecycle process. Once available information has been used to fully identify and assess the risk, then the preparation and dissemination of this information should take

place. This is then followed by further discussion with Stakeholders, leading to corrections, amendments, and additions as appropriate, resulting in the final risk assessment and resulting action items.

A good approach is to consistently include risk communication in the project's daily events. Most project meetings offer an opportunity to discuss risks, and making risk a part of the standing agenda promotes communication. However, sometimes a risk event of some importance takes place between regular meetings, so the risk communication strategy must include methods to get the information to the right decision makers outside the project's normal planned meetings.

Talking about risk frequently and consistently demonstrates its importance to the overall success of the project, helps make risk management easier and embeds it as a fundamental part of the overall project process.

Developing the Risk Management Plan

The Risk Management Plan is typically created early in the project's Planning Process Phase. The Risk Management Plan describes how the organization will identify and address events or occurrences that could negatively or positively affect the success of a project. The plan provides a methodology to identify, analyze, plan, control, monitor, and communicate risks during the lifecycle of a project.

When developing the Risk Management Plan, consider the following inputs:

- **Project Management Plan (PMP)** - Ensure that the Risk Management Plan is aligned with the information that is contained in the PMP. After approval and baseline of the plan, it may be necessary to update the PMP.
- **Stakeholder Register** - Understand all of the potential risk originators and decision makers when developing the plan.
- **Organizational Process Assets** - Review the organizational process assets which may include but are not limited to all of the documents, templates, policies, procedures, plans, guidelines, lessons learned, and historical data.
- **Enterprise Environmental Factors** - Includes but is not limited to the culture, standards, regulations, policy, records, procedures, processes, information systems, risk-tolerance of Stakeholders, political climate, and communication channels of the organization.

Tools

A template is available:
Risk Management Plan

When to Use?

Use the template for projects of the following complexities:

L M H

Outputs

The following is an output of the process:
· Risk Management Plan

4.14 Schedule Management

4.14.1 Introduction

Schedule Management encompasses the approach to developing, managing, executing, and controlling the project schedule throughout the project lifecycle. The project schedule is the tool that communicates what work needs to be performed, which resources of the organization will perform the work, and the time frames in which that work needs to be performed. It is the central source of information regarding "who does what by when." The project schedule should reflect all of the work associated with delivering the project on time. Without a full and complete schedule, the Project Manager will be unable to communicate the complete cost and resources needed to deliver the project.

4.14.2 Recommended Practices

Recommended Practices

Review Recommended Practices as you develop the project's Schedule Management Plan.

Realistic estimates, schedule analysis, and schedule traceability are all important elements in developing an effective project schedule. The following are some recommended practices for performing schedule management activities.

Estimate Activity Durations and Resources Realistically

Realistic activity durations and resource estimates help the project team gain a better understanding of project risks and opportunities. Often, project teams either underestimate activity durations and resources, or they do not follow a process or method for determining activity duration and estimating resource effort.

To improve your results, estimate the schedule from two perspectives: pessimistic (or worst case) and optimistic (or best case) to determine the realistic (or likely case) schedule somewhere in between. Include practitioners –people with experience performing the activities – to participate in building the schedule to improve your estimate's accuracy.

Keep Track

Once the project team takes the effort to estimate and establish project baselines, it's critical to track actual performance in a timely and methodical manner. Collect information at regular intervals. Establish a routine to report time and progress. A reporting and collection routine can reduce issues associated with collecting schedule progress information.

Communicate Schedule Updates Often

Communicate with Stakeholders to ensure they clearly understand the schedule management process. Regular communication should be established to review and address any schedule questions.

Schedule Risk Analysis and Modeling

Project schedule risk analysis and modeling should be ongoing activities throughout the project. This supports awareness, transparency, and risk management. Without ongoing analysis and modeling activities, risk associated with schedule inaccuracies can be overlooked.

Develop the Schedule Incrementally for a Project Delivered Incrementally

For incrementally delivered projects, decide the high-level milestones for the entire project scope, then focus on flushing out the activities for the first module. Detailed schedule development for subsequent modules should be delayed until those activities are in the near term. Take lessons learned from each completed module so that the accuracy of the schedule can improve with each increment.

User-Centered Approach

This recommended practice promotes a user-centered approach. For more information on this, see CA-Agile.

Look for Warning Signs

Be watchful for signs that the project schedule may be at risk. Examples include team members inaccurately reporting time and/or progress, or misreporting incomplete activities as complete.

Verify Schedule Traceability

Verify that milestone and deliverable dates match what is recorded in other Project Management Plan (PMP), subordinate plans, and project documentation. Ensure that the project schedule reacts correctly to schedule changes with a test (sample schedule change). This will help reveal any problem with the schedule structure.

Watch the Critical Path

Monitor the project schedule's critical path which is the longest set of tasks that must individually be completed on time to ensure that the project completes on time. Shortening or extending task durations in any of the tasks on the critical path will directly impact the project end date, so keep an eye on critical path tasks as the project progresses.

4.14.3 Roles in Schedule Management

Overall definitions of project rolls can be found in the Definitions of Project Roles section in the Additional Resources chapter. The following roles typically participate in the development of the Schedule Management Plan and the project schedule:

- Project Sponsor(s) (approver)
- Project Manager (lead)
- Project Scheduler
- Business Owner(s)
- IT Sponsor
- Project Team Members

Roles

For a complete list of all project roles, see the Project Role Definitions in the Glossary.

4.14.4 Practice Overview

In many ways, the project schedule is the single most impactful project artifact to project participants and Stakeholders. It is the central source of information for communicating "who is doing what by when," it establishes the basis for project resource accountability, and enables performance measurement by comparing planned outcomes versus actuals. As such, the schedule is a critical component of the overall project and effective development, management, execution, and control of the schedule in fundamental to the project's success.

Figure 4.14-1 illustrates the inputs, skills, tools, activities, and outputs necessary to complete schedule management activities.

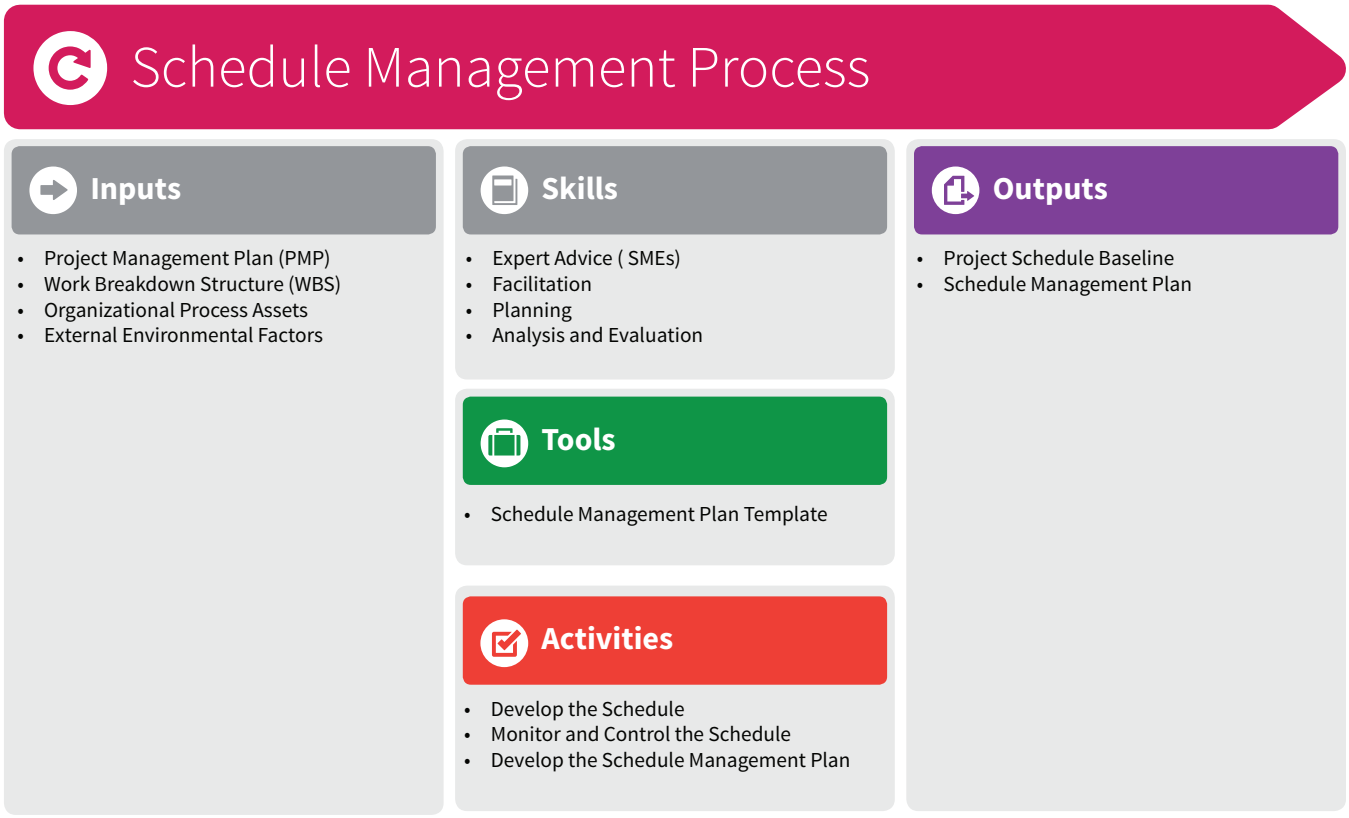


Figure 4.14-1

Develop the Schedule

Project schedules can be created using a variety of tools, such as Microsoft Project or even a simple spreadsheet (Microsoft Project will be required for a reportable IT project). The process starts with the tasks and deliverables identified in the project's Work Breakdown Structure (WBS). Project Managers or their designees then perform a series of steps to decompose those tasks and build out a project schedule.

Skills

Use the following skills to complete tasks:
- Planning
- Analysis and Evaluation

The following are schedule-building activities that can be accomplished using a scheduling tool of choice. The goals are to define work activities, logically sequence and organize activities, estimate activity durations, and finally estimate the resources (team members) who perform work activities.

- **Define Activities** - The process of identifying and documenting specific actions performed to produce project deliverables. In this process, the activities and tasks defined in the WBS are incorporated into the schedule. Since the WBS expresses the totality of project scope, translating it to the schedule helps to ensure that the defined scope, and only the defined scope, will be accomplished by project completion.
- **Sequence Activities** - The process of identifying and documenting relationships among project activities. Establishing how tasks relate to each other is key to ensuring that the project schedule is both reasonable and technically correct. From a reasonableness perspective, tasks usually must execute in a logical order (i.e. you cannot conduct testing before the software has been developed). As such, tasks have predecessors (other tasks that must be completed before the specific task itself can begin) and successors (other tasks that cannot start until the specific task itself completes). Such relationships are described as "finish-start"; one task must finish before the next can start. However, other variations such as "start-start" (both tasks must start concurrently), "finish-finish" (both task must finish concurrently) and others are possible as well. These relationships directly affect technical correctness as well in that the relationships must be in place so that the critical path can be established, monitored, and maintained.
- **Estimate Activity Duration** - The process of estimating the number of work periods needed to complete individual activities with estimated resources. In this process, project managers consider the number of resources assigned to the task, task interdependencies, and other environmental factors to decide how long it will take to do all the work needed to complete the task. It's important to note that duration does not necessarily equate to effort (how many hours it will take to complete the work). For instance, a task that will take 10 hours of effort may be scheduled for five days of duration because the resource doing the work is only available to work on the project two hours per day.
- **Estimate Activity Resources** - The process of estimating the type and quantities of materials, human resources, services, equipment, and/or supplies required to perform each activity. In this process, project managers use expert judgment, lessons learned from previous projects, and knowledge of the specific project to define what it will take to accomplish the defined project tasks.

Skills

Use the following skill to complete tasks:
· Facilitation
· Expert Advice (SMEs)

Once a preliminary schedule is developed, the project team reviews the schedule along with resources tentatively assigned to specific project tasks. The project team, resources, and resource managers must agree to the proposed assignments, durations, and schedule. The project team also verifies that work hours are normalized for each resource to ensure estimates are realistic

and that resources are not over-committed. Once agreement is achieved, the Project Sponsor(s) reviews and approves the schedule. After acceptance, the project schedule becomes the initial baselined schedule.

Outputs

The following is an output of the process:

- Project Schedule Baseline

Tips for Creating an Effective Schedule

This section provides some tips for creating an effective schedule.

Approximate Durations

Approximate the duration of each task. This should be conducted by someone with experience performing the type of work, even if that individual will not be performing any of the other project tasks. This is only an approximation as the project team does not have enough information to make accurate estimates at this juncture. The project team members can help this process by providing assumptions about the size and complexity of the work. Later, the project team will confirm or revise the assumptions into estimates.

Sequence Tasks

To help sequence tasks in the WBS:

- Place several large sheets of paper on a long table or wall.
- Create a “start” milestone at the far left edge of the paper.
- Create a “finish” milestone at the far right edge of the paper.
- Task owners use sticky notes to place tasks that they own on the paper.
- Working as a team, members identify the dependencies among the tasks.

This exercise is complete when all tasks are positioned somewhere between the start and finish milestones. At this stage of the process, it is unnecessary to build a timeline. Focus instead on establishing the sequence of events.

As the tasks are positioned, most teams find that there are some tasks missing, some tasks that are redundant, and others that are conflicting. Seek to clarify issues as they arise and document assumptions. As questions regarding project boundaries come up, check them against the Project Charter and make note of needed clarifications. Once the sequence of tasks is complete, any required changes can be made to the WBS, task descriptions, and assumption documents.

Examine Critical Path

The critical path is a project management technique that allows the project to calculate the earliest and latest that each activity can start and finish without making the project longer. Look at the critical path to identify the sequence of

activities that must be accomplished for the entire project to be completed on schedule. It generally includes the following:

- A list of all activities required to complete the project.
- The time (duration) that each activity will take to complete.
- The dependencies between the activities.
- Logical end points such as milestones or deliverables.

The critical path is deemed "critical" because it drives the project end date. It is very difficult to effectively manage the work plan without identifying the critical path. When a project is behind schedule, the critical path must be considered before implementing any schedule changes.

After all tasks have been estimated and sequenced, it helps to use a technology tool with features for determining critical path, such as Microsoft Project.

Load Resources

Using a tool such as Microsoft Project, assign project resources (such as people or equipment) to specific tasks. At this stage, it is not necessary to consider availability or utilization of resources, which will be resolved when determining schedule optimization.

Monitoring and Control the Schedule

Schedule monitoring begins with performance measurement. This includes activities to track project status and progress relative to the established project schedule baseline. The objective is to either affirm the project is on track and performing well, or recognize deviation from the baseline and take corrective and preventative actions to minimize risk.

Changes to the project schedule baseline are accomplished using the project's Change Control process. As project performance information is captured, the Project Manager evaluates the information, manages any issues, and escalates to the Change Control Board (CCB) or authorized Change Control authority and the Project Sponsor(s) as appropriate. Schedule control is concerned with:

- Accurate project schedule status
- Schedule change influences
- Schedule variance or deviation
- Managing risks, issues, and changes as they occur
- Change control

Schedule control processes serve to minimize schedule changes. Some control techniques reveal status of the schedule while others suggest corrective action to bring the project back on schedule. The following table lists schedule control techniques and associated definition.

Technique	Definition
Performance Reviews	Performance Reviews measure, compare, and analyze schedule performance, such as actual start and finish dates, percent complete, and remaining duration for the work in progress.
Adjust Leads and Lags	**Lead** - A modification of a logical relationship that allows an acceleration of the successor activity. For example, when a task has a finish-to-start dependency with a 10-day lead, the successor activity can start as much as 10 days before the predecessor activity has finished. **Lag** - A modification of a logical relationship that directs a delay in the successor activity. For example, when a task has a finish-to-start dependency with a 10-day lag, the successor activity can't start until 10 days after the predecessor activity has finished. Adjusting leads and lags is used to find ways to bring lagging project activities into alignment with the plan.
Monte Carlo Simulation	Monte Carlo Simulation is a technique used to compute and quantify the total project cost and/or project schedule a number of times. This is done through the use of input values, selected at random through careful use of probability distributions or potential costs and/or potential durations. The purpose of the Monte Carlo analysis is to calculate a defined distribution scenario of possible total costs associated with the project as well as a range of possible completion dates for the project.
Resource Histogram	A Resource Histogram is vertical bar chart used to show resource consumption and availability by time period. Also called a resource-loading chart.

Technique	Definition
Variance Analysis	Variance Analysis is used to determine the causes of a variance, such as the difference between an expected result and an actual result.
Critical Path Method	Critical Path is a method used to predict project duration by analyzing the sequence of activities (network path) that has the least amount of scheduling flexibility. Early dates are calculated by a forward pass using a specified start date. Late dates are calculated by a backward pass starting from a specified completion date.

Developing the Schedule Management Plan

The Schedule Management Plan defines how the project schedule is managed throughout the project lifecycle. The plan provides guidance and sets expectations for project schedule policies and procedures for planning, developing, managing, executing, and controlling the project schedule over the life of the project. Depending on the nature of the project in size and complexity, the schedule management activities may be included as part of the PMP, or it may exist as a stand-alone Schedule Management Plan subordinate to the PMP.

When developing the Schedule Management Plan, consider the following inputs:

- **Project Management Plan (PMP)** - Ensure that the Schedule Management Plan is aligned with the information that is contained in the PMP. After approval and baseline of the plan, it may be necessary to update the PMP.
- **Work Breakdown Structure** - The WBS defines the scope of the project. As such, the work necessary to create the projects deliverables must be accounted for in the project schedule.
- **Organizational Process Assets** - Review the organizational process assets which may include but are not limited to all of the documents, templates, policies, procedures, plans, guidelines, lessons learned, and historical data.
- **Enterprise Environmental Factors** - Includes but is not limited to the culture, standards, regulations, policy, records, procedures, processes, information systems, risk-tolerance of Stakeholders, political climate, and communication channels of the organization.

Tools

A template is available:
Schedule Management Plan

When to Use?

Use the template for projects of the following complexities:

L M H

Outputs

The following is an output of the process:
- Schedule Management Plan

4.15 Scope Management

4.15.1 Introduction

Project scope is defined as all the work that goes into the project to create the planned outcome. Managing scope over the life of the project is fundamental to keeping the project on track. Scope management is the set of process a project applies to ensure that the project includes all the work, and only all the work required to complete the project successfully. Its primary purpose is to control what is included in the project and what is not. Project Managers are concerned with maintaining scope as close as possible to plan. Expanding scope (scope creep) is especially problematic in that, unchecked, it can significantly delay delivery of working product or prevent the project from ever completing. Given the nature of projects, it's likely that scope change will occur (and should be expected). The goal, however, is to keep scope fixed as much as possible in hopes of staying on schedule and delivering value to the Stakeholders.

4.15.2 Recommended Practices

When a project's scope is clearly defined and managed, the project team can maintain its focus on the project's goals. When a project faces uncontrolled "scope creep," the team may lose its focus and the project's likelihood of success may be reduced. The following practices are recommended to help product teams plan comprehensive scope management.

Recommended Practices

Review Recommended Practices as you develop the project's Scope Management Plan.

User-Centered Approach

This recommended practice promotes a user-centered approach. For more information on this, see CA-Agile.

Define and Prioritize the Scope Based on User Needs

Whether it is a system replacement, legislative mandate, or a business opportunity prompting the initiation of a project, it is important to remember who ultimately interacts with or benefits from the system – the users.

Make sure that the project scope takes into account the users' perspective and needs. Employ user research to understand their current environment, day-to-day activities, and what is needed from a new system. Once the project scope has been adequately defined, prioritize each item based on user research and what users find to be the most important aspect of the project.

Scope prioritization is critically important for planning project activities, such as releases, to promote the early delivery of system functionality that brings users the most value. By developing scope items that meet the users' highest priorities first, the risk of not delivering core functionality is reduced, and user satisfaction and probability of project success goes up.

Validate the Scope Based on User Feedback and Outcomes, Not Just Deliverables

There are many ways to validate that work is progressing and the scope is being met – through deliverable review and acceptance, requirements traceability, design documents, and working code. However, to make sure that the project is producing and will meet the intended outcomes, the project must engage users to make sure there isn't a large gap between what users thought they were getting and need, and what the project delivers.

Give users the opportunity to participate throughout the project and provide feedback as a primary source of scope validation. Doing regular and frequent user research, having users participate in product reviews and demonstrations, or embedding them within project activities will provide the team with valuable timely feedback. There is no substitute for the feedback you can get from users using the product. As a major Stakeholder in the project, user involvement early and often helps prevent or reduce disconnects between the project and the users at the end.

User-Centered Approach

This recommended practice promotes a user-centered approach. For more information on this, see CA-Agile.

Define, Agree Upon, and Communicate the Scope

For a project to achieve success, the scope must be commonly understood by project Stakeholders. If individual Stakeholders have differing perceptions of the project's scope, it is unlikely that they will agree on the definition of "done" for the project. Scope definition takes the high-level product descriptions, assumptions and constraints, which were documented in the Project Charter, and creates from them a more detailed description of the scope in the Project Scope Statement. The process result is a detailed definition of the product and/or service the project will produce, and a description of the work it will take to produce it. Equally important, the scope statement typically declares what is not included in the planned project outcomes to ensure that scope boundaries are explicit. The project scope statement should be agreed to be decision makers, such as the Project Sponsor, Project Manager, and key Stakeholders. Upon agreement, the scope statement should be communicated project-wide.

Formalize Change

Changes to scope do happen, and sometimes there's a good reason for doing so. Conversely, sometimes the value of adding scope is outweighed by the negative impact on the project's schedule or cost. Each conceptual change should be formally managed via the project's Change Control Process and assessed for project impact.

Document the Work to Be Done

Projects typically define scope using a Work Breakdown Structure (WBS). A WBS represents the work to be done in a hierarchy of activities that are made up of

tasks. In total, the WBS presents the work to be done and the deliverables that will be produced as a result of the project effort. The WBS should be a baselined once approved and maintained over the life of the project as a normal part of change control.

4.15.3 Roles in Scope Management

Overall definitions of project rolls can be found in the Definitions of Project Roles section in the Additional Resources chapter. The following roles typically participate in the development of the Scope Management Plan with assistance from other project team members:

- Project Sponsor(s) (approver)
- Executive Project Sponsor if applicable (approver)
- Project Manager (lead)
- Contract Manager

Roles

For a complete list of all project roles, see the Project Role Definitions in the Glossary.

4.15.4 Practice Overview

Scope management uses defined processes and procedures for planning, developing, confirming, refining, verifying, and controlling project scope. The project scope should include all work necessary, and only the work necessary, to successfully complete the project. A clearly defined and managed scope helps the project team maintain its focus on achieving project goals and objectives. These activities promote scope clarity and understanding, and help to reduce the risk of "scope creep." By adhering to an agreed upon scope, the team improves scope control and improves the odds of project success.

Figure 4.15-1 illustrates the inputs, skills, tools, activities, and outputs necessary to complete scope management activities.

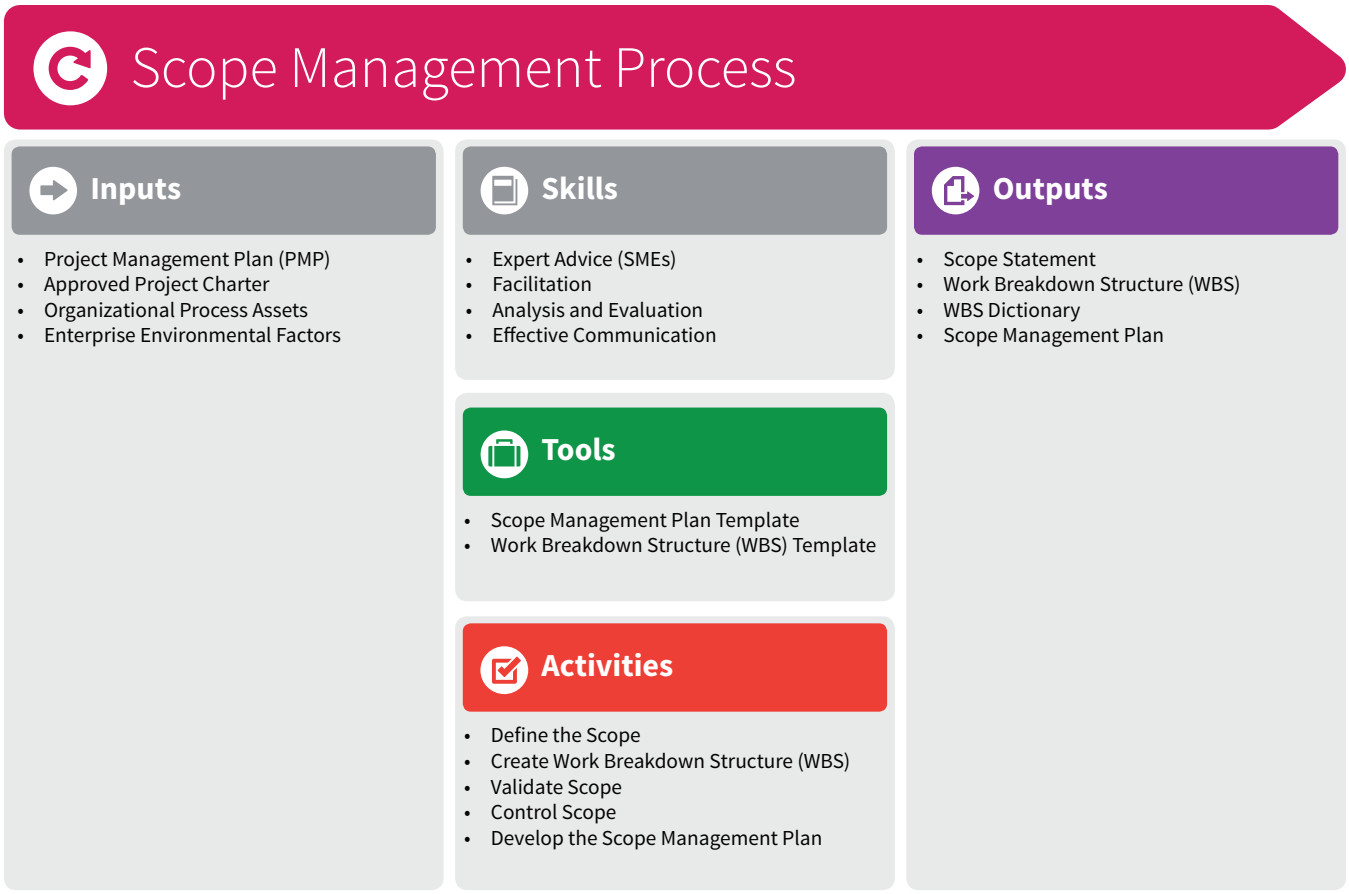


Figure 4.15-1

Define the Scope

The scope definition process results in a detailed definition of the product, service, or other results the project will produce. The project's formal scope is comprised of the Scope Statement and the Work Breakdown Structure (WBS).

Skills

Use the following skill to complete tasks:
- Analysis and Evaluation
- Effective Communication
- Facilitation

Development of the Scope Statement

The Scope Statement is a result of the scope definition process, in which the preliminary Scope Statement recorded in the Project Charter is further refined to develop a more detailed and formalized Scope Statement. The Scope Statement is a detailed description of the product and the work to produce the product. This forms the basis of other scope documents, such as the WBS and deliverables list.

Effective communication between the Project Manager and the Stakeholders is critical to creating a Scope Statement that clearly reflects the needs and ensures mutual agreement. Conflict and rework are almost guaranteed if the scope is not agreed upon and accurately described.

Generally, a Scope Statement contains the following four attributes:

1. **Detailed product description** - This can be developed by fleshing out the high-level product description as documented in the Project Charter, with additional input from requirements documents.
2. **Deliverables** - A list and description of deliverables that are required to complete a process or phase, or meet project objectives.
3. **Acceptance criteria** - A set of criteria with conditions used by Stakeholders to judge if the project has met its objectives.
4. **Exclusions** - A list of features, functionalities, or tasks that are not a part of the project scope. These are important, as many times Stakeholders make assumptions about goods or services to be delivered. These exclusions help to more clearly define project boundaries.

Outputs

The following is an output of the process:
· Scope Statement

Tools

A template is available:
Work Breakdown Structure

When to Use?

Use the template for projects of the following complexities:

L M H

Develop the WBS

Once the project Scope Statement is developed, the next step is developing the project WBS. In the WBS development process, the entire work that needs to be accomplished to achieve project goals and objectives is broken down in a top-down fashion (hierarchically decomposed) into smaller manageable components. It is a key project deliverable that organizes the project work into manageable work packages. A WBS element may be a product, data, service, or any combination thereof.

The development of the WBS normally occurs at the start of a project and provides the foundation for detailed project and task planning. The WBS is used to define the scope of a project and to give it cohesiveness, so that the project can be managed as a unique one-time effort. The WBS shows the integration of all project activities and deliverables.

The WBS appears to look like an organizational chart, but it is not. The organizational chart represents people responsible for performing work, while the WBS represents tasks and deliverables to be developed for a final system or solution. Similar to how an organizational chart shows the relationship between people, the WBS shows the relationship between deliverables and work products.

The WBS is a tree structure that shows a subdivision of effort required to achieve an objective. The WBS is developed by starting with the end objective and successively subdividing it into manageable components in terms of size, duration, and responsibility. This includes all the steps necessary to achieve the objective. The WBS provides a common framework for the natural development of the overall planning and control of a project.

The following activities describe the process to develop the WBS:

- **Determine the major deliverables or products to be produced** - Determine what major final products or deliverables must be produced to achieve the project's objectives. You can get these from your Project Charter or Scope Statement.
- **Divide these into their component deliverables or subtasks** - Work downward from the high-level deliverables and break each high-level task into the lower level subordinate tasks required to produce the deliverable. Check your work by looking at all the subtasks, and determine whether they add up to the highest level tasks and if there are any gaps. Eventually, a point is reached where there is no practical reason to break tasks down any further. At the lower detail level of the WBS, no single activity group of activities should require more than 80 hours of effort to produce a single deliverable.

  It is important that there is no overlap in scope definition between different elements of a Work Breakdown Structure. This ambiguity could result in duplicated work or miscommunication about responsibility and authority.
- **Describe each task** - Add a description of each task. The description typically answers the who, what and where. Save the "when" for later. This is addressed when you construct the project work schedule. Project team members use this description to determine the scope of the work packages that they have been assigned.

  It is common for WBS elements to be numbered sequentially to reveal the hierarchical structure. The purpose of the numbering is to provide a consistent approach for identifying and managing the WBS across similar systems, regardless of vendor or service.
- **Generate a WBS Dictionary** - The WBS Dictionary is created to help control what work is done and when, to prevent scope creep, and to increase understanding of the effort required for each task. The WBS Dictionary lists each WBS element, its attributes, and a short description.

Once the initial WBS is created, it is reviewed and a baseline is established. At this point, the WBS is subject to the project's Change Control Process.

Outputs

The following are outputs of the process:
- WBS
- WBS Dictionary

Validate Scope

Scope validation is the process of comparing deliverables to the original project scope. This is to determine if the deliverables cover the scope baseline captured in the project's Scope Statement, the WBS, and/or WBS Dictionary. Project deliverables should be validated relative to the deliverables' previously defined scope, and then formally accepted by appropriate Stakeholders. As the project progresses, the Project Manager should validate that interim deliverables correspond to the deliverables originally identified.

Skills

Use the following skill to complete tasks:
- Analysis and Evaluation
- Expert Advice (SMEs)
- Facilitation

To validate project scope:

- **Review original project scope** - Validating scope starts with reviewing the original project scope identified in various project documents, including the initial baselined scope.
- **Inspect and evaluate completed deliverable** - Carefully examine a deliverable for completeness and for meeting acceptance criteria.
- **Develop Change Request(s)** - If changes to scope are required, complete and submit a change request utilizing the Change Control Process.
- **Accept completed deliverables** - Carefully examine a deliverable for completeness and to ensure it meets acceptance criteria.

Control Scope

Projects may fail to meet intended goals, exceed budget, or deliver late due to poor scope control. It is important that a Project Manager ensures scope is monitored very closely, and that changes are very tightly controlled. Scope control is the process of monitoring the project and product scope status and managing changes to the scope baseline. The Project Manager and the project team should work together to control the scope of the project. The project team should leverage the WBS Dictionary, using it as a description of work for each WBS element. The project team members should ensure they perform only work described in the WBS dictionary and generate defined deliverables for each WBS element. The Project Manager should oversee the project team and their progress to ensure the scope control process is followed.

Develop the Scope Management Plan

The Scope Management Plan describes the approach the project will take to manage scope. Topics typically include a description of the steps needed to develop an accurate, effective project scope statement, the approach to developing the WBS and WBS dictionary, how the WBS will be maintained, the anticipated project deliverables, scope baselining and change process, and roles and responsibilities associated with scope management.

When developing the Scope Management Plan, consider the following inputs:

- **Project Management Plan (PMP)** - Ensure that the Scope Management Plan is aligned with the information that is contained in the PMP. After approval and baseline of the plan, it may be necessary to update the PMP.
- **Project Charter** - The Scope Statement and WBS should align with the initial scope statement approved in the Project Charter.
- **Organizational Process Assets** - Review the organizational process assets which may include but are not limited to all of the documents, templates, policies, procedures, plans, guidelines, lessons learned, and historical data.
- **Enterprise Environmental Factors** - Includes but is not limited to the culture, standards, regulations, policy, records, procedures, processes, information systems, risk-tolerance of Stakeholders, political climate, and communication channels of the organization.

Tools

A template is available:
Scope Management Plan

When to Use?

Use the template for projects of the following complexities:

L M H

Outputs

The following is an output of the process:
· Updated Stakeholder Register

4.16 Stakeholder Management

4.16.1 Introduction

During the Initiating Process Phase, the project team identifies an initial Stakeholder list and records names and contact information in a Stakeholder Register. The team also completes a preliminary categorization of how much each Stakeholder will influence or be influenced by the project, and which Stakeholders need early engagement in project planning.

In the Planning Process Phase, the project team takes the next step and defines Stakeholder management activities needed to appropriately engage Stakeholders in project activities. Stakeholder management describes the processes and procedures for how to effectively identify, analyze, engage, and manage Stakeholders throughout the project lifecycle.

4.16.2 Recommended Practices

Continuous Stakeholder input is important to project success. Stakeholders can provide key information for project requirements gathering, implementation, and other critical processes. The following recommended practices are intended to help project teams plan for strategic Stakeholder involvement throughout the project lifecycle.

Recommended Practices

Review Recommended Practices as you develop the project's Stakeholder Management Plan.

User-Centered Approach

This recommended practice promotes a user-centered approach. For more information on this, see CA-Agile.

Feel Their Pain

It is important for the Project Sponsor and the Project Manager to understand the concerns, apprehensions, and fears of their Stakeholders. They should provide Stakeholders with a clear idea of how and when uncertainties will be resolved and how risks can be managed.

Regular, frequent and candid communication about how the project will meet Stakeholders' needs and the ongoing project progress reduces the risk of failure. Pay specific attention to users to ensure that their needs have been captured and will be addressed, since their adoption, utilization, and satisfaction with the new system ultimately defines project success.

User Input is Vital throughout the Project Lifecycle

It is hard to achieve project success without user contributions. The likelihood of success will be enhanced by timely user input on requirements, design, and implementation activities. Project success is dependent on how beneficial users find the product or service, so it is mutually valuable to collect their feedback early and often, especially during design, development and implementation. Good Project Managers constantly look for opportunities to involve users in ways that contribute to the success of the project.

4.16.3 Roles in Stakeholder Management

Overall definitions of project rolls can be found in the Definitions of Project Roles section in the Additional Resources chapter. The following roles typically participate in stakeholder management activities:

- Project Sponsor (approver)
- Executive Sponsor, if applicable (approver)
- Project Manager (lead)
- Business Owner(s)
- IT Sponsor

Roles

For a complete list of all project roles, see the Project Role Definitions in the Glossary.

4.16.4 Practice Overview

Figure 4.16-1 depicts the overall inputs, skills, tools, activities, and outputs associated with the performance of Stakeholder management.

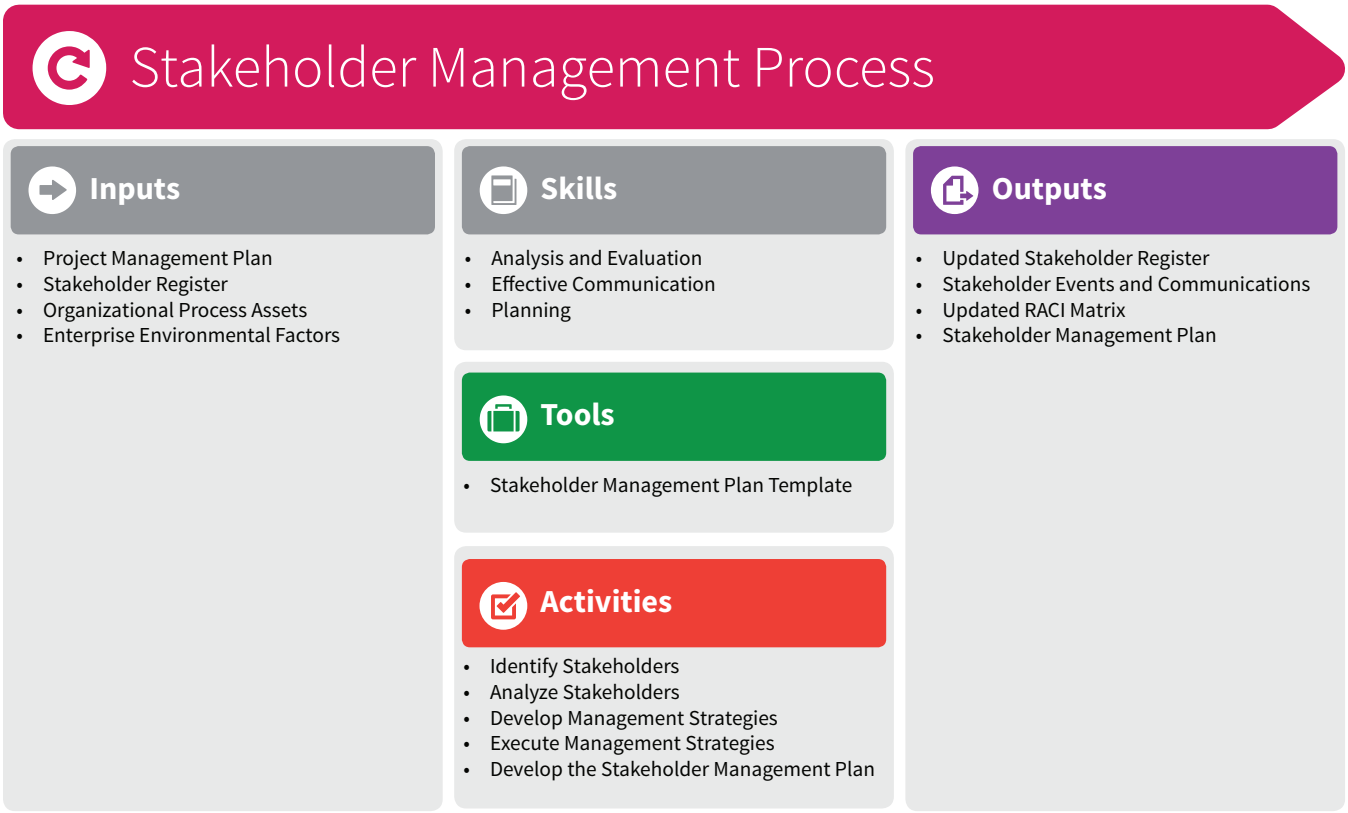


Figure 4.16-1

Identify Stakeholders

When developing the Project Charter and the initial Stakeholder Register during the Initiating Process Phase, the project team began identifying project Stakeholders and analyzing their project needs. The Stakeholder Register identifies those key Stakeholders and their associated levels of influence on the project.

During the Planning Process Phase, the Stakeholder Register should be updated as more project details emerge and additional Stakeholders and Stakeholder needs are identified. In addition, previously identified Stakeholders should be reviewed to determine if their interest levels or influence is greater or less than originally documented. Additional Stakeholders may not yet be identified, so it is important to revisit the Stakeholder Register periodically.

Outputs

The following is an output of the process:
· Updated Stakeholder Register

Analyze Stakeholders

Stakeholder analysis continues during the Planning Process Phase to identify important communication and engagement factors. In the initial high-level analysis, Stakeholders were identified and classified based on the level of influence and impact for:

- Influence over the project - How much control or sway does a Stakeholder have over project decisions that affect cost, schedule, scope, and ultimately project success?
- Impacted by the project - How much do the project's business processes, actions, and outcomes affect Stakeholders?

These two dimensions help the project team define spheres of influence around the project. Some Stakeholders will be closer to the center where they have direct control over project decisions, such as the Project Sponsor, Project Manager, and steering committees. Other Stakeholders may be more heavily affected by project changes, such as end users, interface partners, and the project team.

Skills

Use the following skill to complete tasks:
· Analysis and Evaluation

Based on that analysis, Stakeholders can generally be sorted and categorized into four possible groups as shown in the table below.

	High Impact	Low Impact
High Influence	**A.** Manage closely; keep informed and solicit ongoing input and participation	**B.** Keep informed; meet their needs
Low Influence	**C.** Manage, but less closely; periodically keep informed and solicit input	**D.** Monitor periodically

Category A

The Stakeholders typically most critical to project success are in Category A, the high influence/high impact group. They must be active project participants. Some are on the project team itself (such as a project advisor or subject matter expert), but others may be external Stakeholders who have direct contact with the project team and provide input to the project decision-making process. These Stakeholders must be provided the opportunity to represent their perspectives on an ongoing basis.

Category B

The second most important Stakeholder group is Category B. These Stakeholders have significant influence over the project's success but are not greatly affected by the project. Category B includes state control agencies that are concerned about the project's overall cost or the prospects for success, but don't directly benefit or lose from the project's outcome. The project should manage these Stakeholders by providing ongoing, accurate, reliable, and timely project information. When a project encounters increased costs, delays in schedule, or issues raised by other influential Stakeholders, the Project Manager and Project Sponsor should convey information about these issues to this group of Stakeholders.

Category C

Category C is the third most important. These Stakeholders are significantly affected by the project's outcome but have little influence over the daily operations of the project. In many public sector projects, this group often includes the program beneficiaries and end users.

Category D

The final Stakeholder group, Category D, has little influence over the project and is least affected by the project's outcomes. These Stakeholders should be monitored to ensure their status is unchanged during the project. Less effort is necessary for these Stakeholders barring a change that moves them into a different category.

Develop Management Strategies

Management strategies will vary based on Stakeholder category and expected Stakeholder viewpoint. Focus on a strategy for handling Stakeholders external to the project team, with the assumption that internal Stakeholder engagement is covered by the project's Communications Management Plan, Governance Plan, and other project processes.

Management strategies focus on method, content, direction, and frequency of communication with each of the Stakeholders. On method to track Stakeholder engagement is to integrate activities into the project schedule. This ensures the entire project team is clear about who is responsible for completing related tasks and when. The project schedule should identify:

- Events scheduled to provide information for Stakeholders (e.g., forums or periodic meetings)
- Other modes of communication and activities (e.g., newsletters and emails)
- Tasks related to preparation and review of materials to support the events and other communication activities
- Responsibilities for capturing input gathered from Stakeholders
- Assess input for incorporation into project activities
- Providing feedback to Stakeholders about the results of their input

The RACI Matrix may also be a useful tool to help organize who is responsible for completing related tasks.

Outputs

The following is an output of the process:
- Stakeholder Events and Communications

Skills

Use the following skills to complete tasks:
- Effective Communication
- Planning

Outputs

The following is an output of the process:
- Updated RACI Matrix

Execute Management Strategies

Stakeholder management strategies should be performed and monitored as in any other project activity. The Project Manager and Project Sponsor should include a review of Stakeholder management activities during project status meetings as an agenda item or, if activities are included in the project schedule, any schedule review will in turn include an assessment of those tasks.

Stakeholder management activities should be reassessed on a regular basis to determine:

- If the project team is effectively engaging Stakeholders
- If the Stakeholder levels of interest or impact have changed
- Whether more activities need to be done to obtain the needed level of Stakeholder support

Develop the Stakeholder Management Plan

All projects need to plan for managing Stakeholders. This is especially true when the project has a diverse group of end users without a single point of contact for exchanging project information. Generally, a main goal for projects is to satisfy key Stakeholder needs as defined early in the project. The Project Manager typically develops the Stakeholder Management Plan with input from the Project Sponsor(s), the project team, and any appropriate Stakeholders.

When developing the Stakeholder Management Plan, consider the following inputs:

- **Project Management Plan (PMP)** - Ensure that the Stakeholder Management Plan is aligned with the information that is contained in the PMP. After approval and baseline of the plan, it may be necessary to update the PMP.
- **Stakeholder Register** - Review the Stakeholder Register prior to completing the plan to understand the universe of Stakeholders. The scope of Stakeholder management activities should be commensurate with the size and variations of the Stakeholders.
- **Organizational Process Assets** - Review the organizational process assets which may include but are not limited to all of the documents, templates, policies, procedures, plans, guidelines, lessons learned, and historical data.
- **Enterprise Environmental Factors** - Includes but is not limited to the culture, standards, regulations, policy, records, procedures, processes, information systems, risk-tolerance of Stakeholders, political climate, and communication channels of the organization.

Tools

A template is available:
Stakeholder Management Plan

When to Use?

Use the template for projects of the following complexities:

L M H

Outputs

The following is an output of the process:
- Stakeholder Management Plan

Process Phase Checklist

5.1 Complete the Checklist

Once all of the activities within the Planning Process Phase are complete, the process phase checklist should be completed. Why a checklist? Checklists are comprised of a list of questions built around why, how, what, who, where, and when, which can help verify whether everything required for executing the project is in place. Many of these tasks are repeatable from project to project. Checklists document these repeatable steps and can help ensure that the correct things are done at the right time, every time.

A checklist can assist the project team with quickly and confidently identifying areas of concern within this phase of the PMLC. In this case, completion of the checklist provides a clear milestone that the Planning Process Phase is complete. These milestones include:

- Completed Complexity Assessment
- Completed Project Management Plan (PMP) and Subordinate Project Documents
- Completed Development of Project Policies
- Updated RACI Matrix
- Initial Risk Register
- Completed Development of the Preliminary Plans
- Optimized Project Plans
- Completed Project Approval Lifecycle (PAL) Documents
- Completed Planning Process Phase Checklist

Tools

A template is available:
Planning Process Phase Checklist

When to Use?

Use the template for projects of the following complexities:

L M H

Outputs

Complete the Planning Process Phase Checklist to validate that all phase activities are complete.

Executing

In the Executing Process Phase chapter, the project team performs the processes of the Project Management Plan (PMP). This involves coordinating people and resources, managing Stakeholder expectations, monitoring project performance, and making any needed course corrections.

In this chapter...

1

Approach

Page 3

- 1.1 Introduction
- 1.2 Recommended Practices
- 1.3 Roles and Responsibilities
- 1.4 Processes and Activities
- 1.5 Tools and Outputs

2

Deliverable Expectation Documents

Page 27

- 2.1 Introduction
- 2.2 Recommended Practices
- 2.3 Roles in Preparation
- 2.4 Practice Overview

3

Surveys

Page 31

- 3.1 Introduction
- 3.2 Recommended Practices
- 3.3 Roles in Preparation
- 3.4 Practice Overview

4

Process Phase Checklist

Page 34

- 4.1 Complete the Checklist

Approach

Figure 1-1

The project's Executing Process Phase begins after the Planning Process Phase and funding has been approved. As illustrated in Figure 1-1, monitor and control activities are still prevalent in this process phase to provide oversight to project work; these activities are performed to help ensure continued project success.

In the Executing Process Phase, the project team will perform the tasks defined during the Planning Process Phase. This involves coordinating people and resources to achieve project outcomes, managing Stakeholder expectations, and performing activities in accordance with the Project Management Plan (PMP).

1.1 Introduction

The Executing Process Phase is usually the longest process phase, and it typically consumes the most energy and resources. During this phase the project executes the tasks outlined in the PMP. Particular attention is given to the production and quality of deliverables while simultaneously balancing time, cost, scope, and quality of the project as a whole.

During the course of the project, progressive elaboration and the discovery of new information will require re-planning or updates to project baselines. This includes changes to expected activity durations, task completion dates, resource availability, and the identification of new risks and issues. Depending on severity, these changes may trigger the need for change requests, which, if approved, may alter project baselines.

Detailed analysis completed during the Executing Process Phase will require the development of appropriate project management responses. This will require consistent monitoring of scope, schedule, costs, quality, risks and issues, and overall project performance. The Project Manager is typically responsible for directing, managing, monitoring, controlling, and communicating all work associated with the project outcome. The Project Manager also is responsible for ensuring work is completed with the appropriate level of discipline and rigor to reduce project risk and meet quality standards. Figure 1-2 shows the flow of project activity during the Executing Process Phase.

Executing

Concept | Initiating | Planning | **Executing** | Closing

Recommended Practices

- Communicate, Communicate, Communicate
- Don't Ignore the Users
- Capturing Action Items From Team Meetings
- Early and Effective Testing Can Prevent Major Project Cost Issues Down the Road
- Problems Don't Go Away – They Only Get Bigger Over Time
- Engage the M&O Team Sooner
- Leadership is the Project Manager's Job
- Have Clearly Defined Go/No Go Checkpoints
- Be Honest About Project Progress to Continually Improve
- Think Globally and Act Strategically

(continued in the text)

Roles

- Executive Sponsor(s)
- Project Sponsor
- IT Sponsor
- Business Owner(s)
- Project Manager
- Stakeholder(s)
- Department of Technology (CDT)
- Department of Finance (DOF)
- Project Support Staff
- Solutions Vendor

Processes

- Assemble the Resources
- Prepare for the Executing Process Phase Activities
- Direct and Manage Project Work
- Monitor and Control Project Work
- Develop Project Status Reports
- Executing Process Phase Review

Activities

- Acquire the Project Team and Commit Resources
- Conduct Contractor On-Boarding
- Hold Executing Process Phase Kick-Off
- Transition the Project Manager Responsibilities
- Execute the Project Management Plan
- Integrate Project and Contractor Plans
- Review and Update the RACI Matrix
- Confirm Scope and Requirements
- Lead and Manage the Project Team
- Manage the Contractor Team
- Manage Stakeholder Expectations
- Carry Out Project Communications
- Monitor and Control Project Activities
- Complete the Executing Process Phase Checklist

Tools

- Project Status Reports (Oversight)
- Deliverable Expectation Document (DED) Template
- Work Authorization Template
- Process Improvement Plan Template
- Operational Readiness Assessment (ORA) Template
- Formal Product Acceptance Template
- Sponsorship Commitment Survey Template
- Team Effectiveness Survey Template
- Executing Process Phase Checklist Template

Outputs

- Completed System Development Lifecycle (SDLC) Documents
- Completed Status Reports (Oversight)
- Completed Deliverable Expectation Document (DED)
- Completed Work Authorizations
- Completed Process Improvement Plan
- Completed Operational Assessment Review (ORA)
- Completed Formal Product Acceptance
- Completed Sponsorship Commitment Survey
- Completed Team Effectiveness Survey
- Completed Executing Process Phase Checklist

Monitoring & Controlling

Figure 1-2

1.2 Recommended Practices

The Executing Process Phase's critical activities include coordinating people and resources, managing Stakeholder expectations, and performing activities in accordance with the Project Management Plan (PMP). Recommended practices for these activities include the following.

Recommended Practices

Review Recommended Practices at the start of the process phase.

Communicate, Communicate, Communicate

Projects can involve a large and diverse group of people all working together towards a defined goal. There is a consistent need to ensure that the project team recognizes what needs to be done and how each piece of the overall work affects other pieces. It is equally important to keep Stakeholders abreast of the project's status and any critical issues. This requires active and frequent communication across the project.

Don't Ignore the Users

Don't forget about your users when your project starts the execution phase. Include users in project activities throughout development so that their business needs and requirements can be better understood and met.

For example your users should be involved in the feedback cycles necessary for continuous improvement. As part of an incremental delivery strategy as product is delivered to the user, the users are engaged to provide feedback which informs the goals associated with delivering the next product increment. This gives users a way to inject into the development process new or refined user needs and preferences and enables the team to better meet user needs.

Proper user research and engagement increases the likelihood that the project business and user needs will be met. In the end, IT systems exist to fulfil a business need, which is achieved through meeting user needs.

User-Centered Approach

This recommended practice promotes a user-centered approach. For more information on this, see CA-Agile.

Capturing Action Items From Team Meetings

Project teams typically conduct many meetings, which in turn produce action items assigned to meeting participants. Tracking these action items can be critical to measuring project progress and maintaining team accountability. Concise and accurate written minutes should be prepared for each project meeting. The minutes should include a record of each action item considered or assigned at the meeting, the owner responsible for the action item, and the date the action item was completed or is scheduled to be completed. Approved minutes should be distributed to all meeting participants, project managers and other interested Stakeholders. Well-written minutes help coordinate and document project work and drive meeting action towards product completion.

> "The earlier defects are found in the development lifecycle, the more efficient and cost effective testing becomes."

Early and Effective Testing Can Prevent Major Project Cost Issues Down the Road

Testing is the process of planning, preparing, and evaluating software and related work products. Testing is performed to determine that the specified requirements are met, defects are detected, and ultimately to demonstrate that the system does the job it was designed to do.

The earlier defects are found in the development lifecycle, the more efficient and cost effective testing becomes. Testing can prevent problems when applied early in the process. It can continue to be used two detect problems once the software has been developed.

The difference between testing earlier is in the cost of defect correction. The cost of finding and removing defects increases each time the defect escapes to a later lifecycle phase. Industry practices show a multiplicative increase from the cost for defects found in the requirements stage compared to production.

For example, there is a cost increase from requirements to post-release of 1:5 for simple systems to as high as 1:100 for complex systems. Early detection and correction of defects in the development lifecycle is critical to the success of an IT project. This can be accomplished through well-planned testing strategies.

Tools

Templates are available:
Issue Management Plan

When to Use?

Use the templates for projects of the following complexities:

L M H

Problems Don't Go Away – They Only Get Bigger Over Time

Managing conflicting goals and objectives is critical. Unresolved or unmanaged conflicts can quickly escalate and disrupt the project's progress, as people spend more effort focusing on the conflict than working towards project and organizational goals. Any issues or conflicts between the project, program, contractor, and other Stakeholders only get larger, more complex, and costly if not resolved in a timely manner. It is therefore vital to address and resolve issues immediately as they are identified.

Engage the Maintenance and Operations (M&O) Team Sooner

Maintenance and Operations transition planning will help the project team verify and document the primary activities needed to transition the project to Maintenance and Operations (M&O). The M&O team needs to be involved early. Transition planning is perhaps the most complex part of implementing and maintaining the future state of the project. Rolling out new solutions and maintaining processes, procedures, workflows, roles, and responsibilities across an enterprise requires careful planning. It is highly recommended to involve the M&O team early and often to ensure a smooth transition to the organization that will be responsible for maintaining the new system.

Leadership Is the Project Manager's Job

Put simply, the Project Manager's job is to lead. This means the ability to guide the project at times of project success and when the project is facing difficulties. The Project Manager must be able to openly and honestly communicate that a project is off track and requires corrective action to improve project performance. Effective Project Managers are able to focus on the immediate task at hand and lead the project team to achieve course correction.

Have Clearly Defined Go/No Go Checkpoints

Project checkpoints provide a basis for analysis and evaluation to determine whether the project is proceeding as planned or whether corrective action is needed. Every project development and process group phase should pass through a go/no go checkpoint to ensure that essential goals and deliverables are being met, and to identify potential risks before they become major issues to the project. Checkpoints must be structured to answer one primary question: Are you ready for the next phase of the project and/or the next phase of development? If the answer is yes, the project proceeds. If the answer is no, corrective action is required.

Individual project elements should have metrics identified and tracked. As the project go-live date approaches, regular checkpoints need to be established to assess readiness and to consider contingencies if any metrics indicate a problem.

Be Honest About Project Progress to Continually Improve

If the project realizes that a significant milestone will be missed, immediately take the time to understand the reasons behind the delay. Was it:

- An incorrect assumption?
- An incorrect level of effort estimate?
- A resourcing issue?
- An additional constraint that wasn't considered?

Take the delay as an opportunity to reassess downstream activities and re-plan if necessary. Continuous improvements to project planning and processes will help the team adapt and, hopefully, smooth the path ahead.

For projects undertaking an incremental or modular approach, lessons learned should be gathered at the completion of each module, if not more frequently, even when the project completed the planned scope on time and on budget. Taking lessons learned and carrying them forward to each module will make the project planning and processes even better and more efficient.

User-Centered Approach

This recommended practice promotes a user-centered approach. For more information on this, see CA-Agile.

Think Globally and Act Strategically

The job of the Project Manager and project team is also to think. Project management processes, tools, and reports alone won't achieve the desired result, nor will oversight get the project team to the goal. The project team has to reason, solve problems, and make decisions. Sometimes, Project Managers are too focused on green, yellow, and red indicators versus judgment and critical thinking. Red does not always mean disaster, and green does not always mean everything is on course.

> "The project team has to reason, solve problems, and make decisions."

Testing and Training Activities are NOT Schedule and Cost Buffers

It's not recommended to reduce planned durations for activities such as testing and training to make up for schedule delays. This often results in reduced quality and additional schedule delays due to undiscovered defects and problems.

Warning Signs: Be on the Lookout

Watch for early warning signs that trouble is ahead. The following are some of the common indicators:

- Inadequate resources and/or skills
- Over-allocated resources
- Disengaged Sponsor(s)
- Frequently missed task or milestone completion dates
- Frequent changes to the project scope
- Confusion regarding requirements
- Not adhering to best practices
- Not adhering to established processes and procedures
- Lack of leadership, decision making, support, or direction from executive management
- Lack of involvement from the business area in the specification, design, testing, business process re-engineering, or implementation
- Inappropriate development methodology

Don't Skimp on Quality

Include processes and activities that determine quality policies, objectives, and responsibilities. This helps a project meet the objectives for which it was undertaken. Quality management addresses the management of the project itself as well as the deliverables. Good quality management helps ensure that the project delivers while meeting or exceeding expectations.

Don't be Afraid to Pull the Plug

If the project is in trouble (such as if the vendor is not performing) you may need to do more than just send up a flare. If the environment has changed, the business value isn't there, or a significant issue has arisen, don't just keep going.

Speak Up to Achieve a Project Win

Effective project leaders create an environment that is conducive to open and honest communication, giving project team members and other Stakeholders the opportunity to participate. In this preferred project environment, information is shared, issues are discussed, and people are more willing to voice concerns and offer innovative ideas.

1.3 Roles and Responsibilities

The following table identifies the primary Executing Process Phase participant roles and responsibilities. Use the RACI Matrix (also known as the responsibility assignment matrix) and the Resource Management Plan to identify the roles and their associated responsibilities during the Executing Process Phase.

Role	Responsibilities
Executive Sponsor(s)	• Provides agreement for executive intervention to overcome organizational roadblocks. • Key to driving the project goals and objectives to align with the organization's strategic direction.
Project Sponsor	• Key to driving the project goals and objectives to align with the organization's strategic direction. • Key to resolving escalated issues related to the Triple Constraint: scope, schedule, cost, and quality.
IT Sponsor	• Provides technical information, resources, and support to complete tasks in the Executing Process Phase.
Business Owner(s)	• Provides information pertaining to a preferred product or solutions. • Able to validate that requirements are met.
Project Manager	• Responsible for directing, managing, monitoring, controlling, and communicating all work associated with the project outcome.
Stakeholder(s)	• Any person or group that has an active interest in the project outcome or process, and wishes to participate, or is invited to participate, in the tasks associated with the Executing Process Phase. • At this point in the project, a Stakeholder is usually receiving project status reports.

Roles

For a complete list of all project roles, see the Project Role Definitions in the Glossary.

Recommended Practices

The Project Management Triangle can help to evaluate the relationship of the Triple Constraint.

Role	Responsibilities
Department of Technology (CDT)	• Provides input and guidance and receives updates on the project status and/or project activities.
Department of Finance (DOF)	• Provides input and guidance and receive updates on the project status and/or project activities.
Project Support Staff	• Supports the project with activities as needed during the Executing Process Phase of the project.
Solutions Vendor	• A contracted company that provides goods or services in support of the project.

1.4 Processes and Activities

The processes, activities, and baselines established in the Planning Process Phase and documented in the Project Management Plan (PMP) prepare the project team with the necessary information to manage the Executing Process Phase of the project.

The Project Manager typically prepares for the Executing Process Phase activities by reviewing project documentation, such as the Project Charter, PMP, RACI Matrix, and any supporting contracts. The Project Manager begins by assembling the project team and conducting a project kick-off meeting. Additional work may also be required, such as activating/implementing the schedule, issue, risk, and change control systems. The Project Manager leads by executing the PMP.

1.4.1 Assemble the Resources

Acquire the Project Team and Commit Resources

The Project Manager should execute the strategy approved in the Resource Management Plan. This includes confirming resource and staff availability including their skills. It's critical to obtain a project team that is capable of completing the defined tasks.

Begin the team development activities described in the plan. This may include training activities designed to improve the project team's skills and competencies, as well as team-building activities to create a dynamic, cohesive, and collaborative team environment across all sub-teams.

When to Use?

Use the template for projects of the following complexities:

L M H

Tools

A template is available:
Contract Management Plan

Conduct Contractor On-Boarding

Many projects use contractors to support implementation of proposed solutions. The project may engage a prime contractor with responsibility for the design, development, test, and/or the implementation of solutions. Alternatively, the project may procure contractors to augment staff in the completion of other project activities. In all scenarios, appropriate and timely on-boarding is an essential step.

If a procurement for contract services has been executed, the Project Manager should bring the contractor on board using the procedures created in the Planning Process Phase. These activities typically include site preparation, technology configuration, finalization of contracts, security and badge access, and signing of conflict of interest statements, non-disclosure agreements (NDAs)

and security forms. The project team may repeat this activity throughout the project lifecycle as additional contractor resources join the project.

Hold Executing Process Phase Kick-Off

Each project, regardless of size, should have a kick-off meeting. Large, multi-phased projects may conduct a series of kick-off meetings at various times throughout the PMLC as new staff and contractors join the project. It is highly recommended that the Project Sponsor attend the kick-off meeting to convey how the project supports the organization's strategic direction and, in turn, how the organization supports the project's goals. The kick-off meeting should include a review of:

- The project scope
- The project objectives
- Team members and their roles and responsibilities
- Overview of project management processes in place
- The project schedule
- Upcoming assignments and milestones

1.4.2 Prepare for the Executing Process Phase Activities

Transition the Project Manager Responsibilities

At the beginning of the Executing Process Phase, some projects may transition project management responsibilities to a new Project Manager with special skills and experiences associated with the type of project underway. In this case, proper knowledge transfer is vital and the new Project Manager should be fully briefed on the project's history, contents of the PMP and other plans and documents, along with any open risks and issues, and project status.

Execute the Project Management Plan

The Project Manager should review the PMP and all subordinate plans in preparation for kicking off the Executing Process Phase activities. As the project team begins executing the plan, it is important to remember that all plans have been baselined and are now under the project's Change Control Process (CCP).

Integrate Project and Contractor Plans

As applicable, the Project Manager works with any contractor-assigned Project Manager to integrate state and vendor Project Management processes and procedures. However, contract documents will dictate whether the contractor will maintain a separate Project Management Plan (PMP), project schedule, Issue Log, and Risk Register, or whether the plans will be integrated. A significant level of planning and effort is required between the state and contractor teams, whether or not the approach requires a single integrated plan or two separate plans with coordinated updates, changes, and communications.

Review and Update the RACI Matrix

The RACI Matrix identifies the deliverables for a project and the role of various Stakeholders (such as approver, signatory, responsible, or informed) with respect to completing those deliverables. The RACI Matrix is initially drafted during the Initiating Process Phase and updated during the Planning Process Phase. If additional System Development Lifecycle (SDLC) artifacts and deliverables are identified during the Executing Process Phase, the RACI Matrix should be updated based on this new information.

Confirm Scope and Requirements

Confirmation of scope and requirements will solidify the understanding of what is actually going to be accomplished during the project. If a contractor is involved in delivering any aspect of the project, it is essential that they also be included in the scope and requirements confirmation process.

Project contractors should be familiar with the scope and requirements of the project based on the Request for Proposal (RFP), Statement of Work (SOW) or other contract documents. Once on board, it is recommended that contractors and appropriate state staff review the project vision and expected outcomes together in a formal walk-through to ensure mutual understanding. This will allow any gaps or conflicts to be noted early in the process, when discrepancies and any misunderstandings are usually easier and less costly to resolve.

1.4.3 Direct and Manage Project Work

Directing and managing project work consists of leading and performing the work defined in the Project Work Plan to achieve the project's objectives. Key Project Manager responsibilities include leading and managing the project team, managing the contractor team (if applicable), managing project Stakeholders' expectations and directing project communications and performance.

Lead and Manage the Project Team

The Project Manager is key to leading and managing the project team to success. Leading the project team requires the Project Manager to skillfully influence the team's behavior, resolve conflicts, motivate staff, support the project vision, and foster a collaborative team environment. Managing the project team requires the Project Manager to analyze project performance data, track team member performance, resolve issues, address staffing changes, and implement strategies to optimize the team's overall performance.

Manage the Contractor Team

Projects may utilize contractors in varying degree to achieve project outcomes, either in small support roles to fill gaps in knowledge and experience within the project team, or in large roles to fully design, develop, and implement a new system. Specific processes will need to be developed and put in place to manage the approval and on-boarding of contractor staff, the review and acceptance of contract deliverables, and escalation when there is disagreement between the state and contractor. In this mixed environment, contractor staff should be integrated with the project team to the extent possible for state staff to work collaboratively with their contractor counterpart(s). This will help facilitate knowledge transfer and the development of state staff with the ultimate goal of delivering better work products.

Manage the Stakeholder Expectations

The Project Manager should implement strategies developed in the Stakeholder Management Plan and/or the Communications Management Plan to ensure Stakeholders are kept aware of project status and significant milestones and decisions. This also includes managing expectations and engaging Stakeholders at the appropriate time and for the appropriate reasons, to achieve commitment to the project. Effective Stakeholder communication addresses Stakeholder needs and requirements, thereby preventing future misunderstandings. The goal is to increase support and minimize resistance from Stakeholders, thus reducing project risks and increasing the chances of project success and acceptance.

Carry Out Project Communications

The Communication Management Plan becomes the basis for executing project communication strategies. This plan provides the framework for creating, collecting, distributing, storing, and retrieving project information. The goal is to ensure effective and efficient project communications. This can be

accomplished through project team meetings, presentations, status reports, emails, project portals, and other communication activities. All communications should be appropriately timed and include the appropriate information for the target audience.

Manage Project Knowledge

Knowledge management is more than just maintaining existing knowledge or creating new knowledge. It is about working to achieve the project's objectives and contribute to further organizational learning. This includes being able to leverage the skills, experience, and expertise of the project team along with capturing and documenting lessons learned throughout the project.

1.4.4 Monitor and Control Project Work

Monitor and control activities measure and analyze project performance at regular intervals to ensure adherence to the PMP. The monitoring and controlling process oversee the tasks and metrics needed to ensure that the project is within scope, on time, on budget, and within quality thresholds, so that the project proceeds with minimal risk. Key activities include:

- Schedule Management
- Cost Management
- Scope Management, Requirements Management, and Change Control
- Quality Management
- Performance Reporting
- Risk and Issue Management
- Contract Management
- Project Surveys
- M&O Transition

Monitor and control involves comparing actual performance with planned performance, and taking corrective action to reach the desired outcome when significant deficiencies exist. Baselines generated in the Planning Process Phase give the Project Manager a way to understand project progress by analyzing baseline versus actual. Monitoring activities include collecting, measuring, and

reporting actual project performance-related data and comparing it with the baseline (schedule, cost, scope, quality). Controlling activities include taking preventative and corrective action, re-planning activities, and following up on action plans to determine if issues have been resolved. This may also result in changes to established project processes; changes should be applied in accordance with the Process Improvement Plan.

Monitoring and controlling activities can result in the creation of Change Requests, or updates to the PMP. Some changes may exceed thresholds established by control agencies that will require external approvals, such as a Special Project Report (SPR) for significant changes to cost, scope, or schedule. Project Managers need to be aware of the different reporting requirements to maintain compliance with state policies.

Tools

A template is available:
Process Improvement Plan

When to Use?

Use the template for projects of the following complexities:

L M **H**

Monitor and Control the Project Schedule

Schedule Management is a collective responsibility of the entire project team. Project team members must report work that is in progress or completed timely to provide an accurate view of project work activities. This will allow for the Project Manager to make informed decisions when issues arise, and also make an assessment of the overall progress and resource utilization.

Changes that are outside of approved parameters outlined within the Schedule Management Plan must go through the Change Control Process, such as to re-baseline a milestone completion date. Schedule deviations may also require escalation or perhaps the development of an SPR if changes exceed 10% over the initial approved baseline.

Web Link

See the Statewide Information Management Manual (SIMM) - Section 30 for more information on the SPR.

Monitor and Control the Project Costs

The Cost Management Plan outlines the methods and processes for monitoring and controlling the project budget. This includes monitoring the status of costs incurred by the project and comparing those costs to the baseline. As actual costs are incurred and compared to the cost baseline, the Project Manager can identify deviations and take corrective or preventative actions to minimize risk.

Changes outside of approved parameters outlined within the Cost Management Plan must go through the Change Control Process. In addition, budget deviations of 10% or more may require an SPR.

When contract costs are involved, the Project Manager must observe the rate of utilization, or the burn rate, to ensure that there is sufficient budget to cover the scope of activities included within the contract. When it is anticipated or known that the remaining availability of contract dollars are not sufficient, corrective

or preventative actions must be taken. This may include decreasing the scope of activities the state is requesting the contractor to perform, having the state take over some of the responsibilities, or amending the contract for additional dollars. These corrective and preventative actions must be considered in the context of the contract type, whether it is based on deliverables (fixed-price) or time and materials.

Monitor and Control the Project Scope, Including Requirements

The Scope Management Plan outlines the methods and processes for monitoring and controlling the project scope. Disciplined requirements management and requirements traceability are vital for avoiding uncontrolled expansion of the product scope without adjustments to time, cost, and resources. Requested scope changes must go through a formal Change Control process.

Monitor and Control the Project Risks and Issues

The Risk and Issue Management Plans outline the methods and processes used to monitor and control project risks and issues. This includes identifying and resolving issues, identifying new risks, tracking risks, and implementing risk mitigation plans. The Project Manager and project team should continuously monitor for new, changing, or outdated risks, and confirm whether previous assumptions still apply.

Monitor and Control Sponsorship Commitment Surveys

Surveys are important project management tools used to collect and research a wide variety of project-related data. The Sponsorship Commitment Survey is used by project teams to assess the Project Sponsor's ongoing involvement and support regarding the project. The Sponsor is evaluated on his or her ability to resolve escalated issues, help with resource issues, approve deliverables, and handle other key responsibilities.

Monitor and Control Team Effectiveness Surveys

The Team Effectiveness Survey assesses the effectiveness of the project team in its cooperative work to accomplish project goals. Project managers can use the survey to help understand and respond to team dynamics in a way that improves the team's effectiveness and thereby increases the likelihood of project success.

Monitor and Control the Project Communications

The Communication Management Plan outlines the methods and processes for monitoring and controlling project communications throughout the entire PMLC. This includes monitoring communication activities to ensure the best and most appropriate flow of information to Stakeholders. If communication needs are not being addressed adequately, updates to the process found in the Communication Management plan may be necessary.

It is important to ensure that communications are timely, contain the appropriate information, and are in a format suitable for the target audience. The Project Manager must balance between sharing too much or too little information, sending communications too frequently or not enough, and finding the appropriate medium that it is delivered.

Monitor and Control the Stakeholder Engagement

The Stakeholder Management Plan outlines the methods and processes for monitoring and controlling project Stakeholder relationships throughout the project. This includes monitoring engagement activities to ensure Stakeholder needs are met in the most efficient and effective manner possible.

Monitor and Control Procurements

The Procurement Management Plan outlines the methods and processes for monitoring and controlling project procurements. This includes managing vendor relationships, determining costs, and determining the procurement approach. Changes that are outside of the Procurement Management Plan's approved parameters must go through the Change Control Process.

Web Link

See the State Contracting Manual (SCM) for more information on procurements.

Monitor and Control Quality

The Quality Management Plan outlines the processes and methods for monitoring project deliverables and project management processes to ensure that a defined level of quality is obtained. The plan will describe what is being measured, how it will be measured, and what actions must take place if the quality standards are not being met. Quality must always be planned into a project in order to prevent unnecessary re-work and to prevent a waste of cost and time.

Monitor and Control Contractor Performance

Monitor and control activities for contractor performance will be dependent on the contract type, based on deliverables or time and materials.

For time and materials contracts, the state must consistently monitor the hours expended by the contractor to ensure that quality work is being performed within a reasonable amount of time. This can be accomplished by using time sheets or another reporting mechanism that provides transparency. If performance issues arise, follow the procedures allowed in the contract; this may entail a request to replace contractor staff or, in the extreme case, result in the cancellation of the contract.

For deliverables based contracts, performance is measured by the quality of the work product and the ability of the contractor to deliver on time. Deliverables are usually fixed priced based on a fixed scope. Deliverable management will be important to facilitating this type of contract.

To mitigate performance issues, the state may have the option to negotiate the deliverables cost if they are late or of low quality, and there is a quantifiable impact to the state. Or, the contract may be canceled in extreme instances. The contracts terms and conditions must always be reviewed before action is taken, and/or consult your organization's legal counsel if necessary. Refer to the Contract Management Plan for additional information.

Monitor and Control Contracts

Deliverable Management

Deliverable management is an important aspect of managing the work products that come out of the PMLC. For projects that contract out any portion of the project work, this is especially important as deliverable review and acceptance is the mechanism which the state can hold contractors accountable for quality work products, or lack thereof. Deliverable management processes much be scaled to the size and complexity of a project, and must take into consideration the unique variations of the project environment. For example, a small, less complex project may designate a single reviewer for a deliverable to validate the scope of work is complete. On a more complex project, a deliverable review may include multiple participants that span several organizations in order to represent all of the Stakeholder interests. In either case, a well-thought-out process utilizing a repeatable, standardized method will benefit the team. When developing deliverable management processes, consider the following:

- If contracting services, ensure that the process considers relevant terms and conditions from the contract.
- Establish consistent review time frames and manage to the deadlines. Designate a single point of contact to make sure processes are being followed and time frames are being met.

- Use the project schedule to track development tasks and tasks to review and accept deliverables.
- Make sure the project team understands their role in deliverable development, review and acceptance. Offer process training if necessary.
- The process should involve Stakeholders as necessary, but do not over complicate the process or over-allocate resources.
- An iterative review process may be required to allow for the back and forth between the deliverable owner and reviewer.
- Communications regarding the review and acceptance of deliverables should be conducted formally and in writing to eliminate miscommunication.
- Deliverable Expectation Documents (DEDs) and deliverables should follow the same process for review and acceptance.
- Determine whether the review and acceptance of DEDs and Deliverables will operate in a consensus model, a majority rule model, or an alternative review method.

Deliverable Expectation Documents

The Deliverable Expectation Document (DED) is a contract document that provides a basis for the development and submission of deliverables. They are created and agreed upon by the state and contractor prior to starting any activity associated with the scope of the deliverable. DEDs are tools used to avoid miscommunication, to ensure that the state and contractor (or participating parties) possess a mutual understanding about expectations. They are usually short in nature and will include the following information:

- A description of the scope of the deliverable.
- A list or description of the contents of the deliverable.
- All entrance criteria that need to be satisfied before the development activities for the deliverable can begin.
- All acceptance criteria that need to be satisfied before the state will accept the deliverable.
- A development schedule that lists the associated tasks and when the deliverable will be complete.

Tools

A template is available:
Deliverable Expectation Document (DED)

When to Use?

Use the template for projects of the following complexities:

L M H

Deliverables

Once a DED has been agreed upon, work to develop the deliverable will begin. Like DEDs, the development of the deliverable must be done in partnership between the state and contractor, to the extent where guidance can be provided to the contractor to meet the state's expectations. Even with documented requirements, the details of the content are derived from collaborative discussions and iterative review and feedback cycles.

Completed deliverables will be submitted to the state for review and approval and will follow the prescribed deliverable management process. The designated team or individual responsible for reviewing the deliverable will evaluate it based on the scope and acceptance criteria established in the associated DED. When the deliverable scope and acceptance criteria have been satisfied, the state may formally accept the deliverable from the contractor.

Work Authorization

For contracts that contain the appropriate provisions, a work authorization may be used to authorize the contractor to complete work that is not specifically outlined in the contract, but is aligned with the overall scope of the contract. This work is unanticipated and discovered during the course of the contract, and funds must be available in the contract to pay for it. The Contract Manager's duties should include reviewing and negotiating work authorizations.

The procedures for work authorizations typically are described in the contract and supporting documentation. Procedures should include clear lines of approval for proposed work authorizations submitted by a contractor. This typically involves the Contract Manager reviewing and negotiating work authorizations prior to approval by the Project Manager.

Tools

A template is available:
Work Authorization Template

When to Use?

Use the template for projects of the following complexities:

L M H

Monitor and Control Product Transition

The Operational Readiness Assessment (ORA) is a document that is part of the transition of the project's software release or other end product to Maintenance and Operations and the production environment. Conducting the assessment provides and documents a comprehensive analysis of all facets of readiness, including organizational readiness and contingency planning, prior to the implementation.

Doing this facilitates a comprehensive analysis of all facets of readiness, covering everything from System Test Scripts to issue assessments to training materials for the end users.

Use of the ORR is designed in part to ensure that all readiness details are analyzed, documented, and captured in a format that can be used to support "go/no-go" deployment decisions by appropriate state managers, authorities and other Stakeholders.

Tools

A template is available:
Operational Readiness Assessment (ORA)

When to Use?

Use the template for projects of the following complexities:

L M H

Monitor and Control Project Change

Once the project has established baselines, it is essential that the Project Manager and project team adhere to a Change Control process. This process should be documented in the Change Control Management Plan. Requests to change a project baseline often can have an impact across multiple project areas, including scope, schedule, cost, quality, and risk. Therefore, the project team must follow a formal process for evaluating, approving, and managing changes to ensure that they align with project objectives.

The Change Control Process description in the Change Control Management Plan should include the person or governing body (board) responsible for reviewing, evaluating, approving, delaying, or rejecting changes and communicating the decision.

1.4.5 Develop Project Status Reports

Project status reports are an essential part of managing projects, to ensure the timely and appropriate collection, generation, and distribution of project information. The main objective is to disseminate information to keep Stakeholders and project team members informed, and to assist in the decision-making process to authorize changes. Though project status reports are utilized in prior process phases, they become more necessary during the Executing Process Phase as project activities pick up. As the product is designed, developed and implemented, Stakeholders and project team members become more interested and vested in the outcome.

The following should be taken into consideration when developing project status reports:

- Ensure that the project status reports contains timely and accurate information. Misrepresenting information can lead to loss of trust among Stakeholders and bad decision making. If the news is bad, be open and upfront about it.
- Project status reports should be developed based on a reusable template. Not only will it be easier to produce, but it will also be easier for the audience to understand the information if it is presented in a consistent manner every time.
- Clearly quantify the work that is being accomplished in comparison to the baseline. This comparison helps the reader quickly determine whether the project is on track or if immediate corrective action is required.

Tools

A template is available:
SIMM 45 - Project Status Report (Oversight)

When to Use?

Use the template for projects of the following complexities:

L M H

- Tailor the project status reports to the Stakeholders' needs and interests. This can be achieved by considering who will receive the status report, what is their respective role on the project, and how they will use the information.

Web Link

See the Statewide Information Management Manual (SIMM) - Section 17 for more information on project status reports.

1.4.6 Executing Process Phase Review

Once all of the Executing Process Phase activities are complete, the Project Manager prepares the completion materials and submits them to the Project Sponsor for approval. After the Project Sponsor's acceptance, the project team proceeds to the project's Closing Process Phase.

1.5 Tools and Outputs

The following are generally developed during the Executing Process Phase.

Tools

For a complete list of all project Tools see the Templates chapter.

Tool / Output	Definition
Project Status Reports (Oversight) [1]	Includes status reports that communicate the current overall status of a project. It should be distributed to appropriate team members, Stakeholders, and sponsors on a regular basis.
Deliverable Expectation Document (DED)	DEDs provide a basis for the development and submission of deliverables. It is a tool to avoid miscommunication, to ensure that the state and contractor possess a mutual understanding about deliverable content and scope.
Work Authorization	Used to authorize the contractor to complete work that is not specifically outlined in the contract, but is aligned with the overall scope of the contract. This work is unanticipated and discovered during the course of the contract, and funds must be available in the contract.
Process Improvement Plan	Identifies quality management-specific standards and practices, assessment, monitoring, and correction of the core Project Management processes followed by the project.

Tool / Output	Definition
Operational Readiness Assessment (ORA)	Is part of the transition of the project's software release or other end product to Maintenance & Operations and the production environment. The assessment provides and documents a comprehensive analysis of all facets of readiness, including organizational readiness and contingency planning, prior to the implementation.
Formal Product Acceptance	Used by project teams to document formal acceptance of a major deliverable, phase, or completion of the project.
Sponsorship Commitment Survey	Used by project teams to assess the involvement and support provided by the Project Sponsor.
Team Effectiveness Survey	Used by project teams to assess the effectiveness of how the project team works together.
Executing Process Phase Checklist	Identifies the key activities that are to be completed during the Executing Process Phase.

Tools

A template is available:
Formal Product Acceptance

When to Use?

Use the template for projects of the following complexities:

L M H

[1] Oversight templates and other information related to oversight reporting requirements can be found under the *Statewide Information Management Manual (SIMM) 45* at: https://cdt.ca.gov/policy/simm/

Deliverable Expectation Documents

2.1 Introduction

The Deliverable Expectation Document (DED) is a contract document that provides a basis for the development and submission of a the deliverable. It is to be created and agreed upon by the state and contractor prior to the start of any related activity associated with the scope of the deliverable. DEDs are tools used to avoid miscommunication, to ensure that the state and contractor (or participating parties) possess a mutual understanding about deliverable content and scope. They are usually short in nature and will identify the scope, content, entrance criteria, acceptance criteria and development schedule for the deliverable. The DED should contain enough information for the state to have a full understanding of the product that the contractor will deliver. The content of the DED should focus on the end product, which is the deliverable, and not the process to get there.

DEDs are work products put forth by the contractor, but they should be developed collaboratively with the state to minimize rework. DEDs are subject to the review and acceptance of the state and are important contract documents that will dictate what the resulting deliverable contains, and what constitutes completed work. Time and effort should be committed to making DEDs clear, concise, and comprehensive in terms of scope and quality criteria.

Content for DEDs may come directly from the Statement of Work, the contractor's proposal, the original procurement documentation, business and technical requirements, best practices, and accepted standards. Requirements in the contract state the minimum that the contractor must provide; however, include additional requirements that make logical sense or that are necessary for the scope of the deliverable. Disagreements should be escalated to the Project Manager for resolution.

Tools

A template is available:
Deliverable Expectation Document (DED)

When to Use?

Use the template for projects of the following complexities:

L M H

2.2 Recommended Practices

Recommended Practices

Review Recommended Practices as you develop the Formal Product Acceptance.

The Deliverable Expectation Document (DED) is an important contract document that should be written in a clear, concise, and comprehensive manner. The following recommended practices should be taken into consideration when preparing DEDs.

Validate Scope and Acceptance Criteria

The project team has worked diligently to ensure that the scope is complete and the acceptance criteria are well defined and measurable. Once a DED is accepted, it is very difficult to reopen discussions about additional scope and acceptance criteria.

Collaborate with the Contractor

Though it is usually the responsibility of the contractor to draft the DEDs, ensure that the project team is involved. This allows the contractor to gain a better understanding of the state's expectations and will minimize re-work.

Validate the Participants

Ensure that the right project team members with the right subject matter expertise are participating in the development and review process.

Encourage and Enforce Participation

The Project Manager must encourage and also enforce the project team's participation in the development and review of DEDs. Though it can seem less important, DEDs are actually productive contract tools to ensure that the state is getting the quality product that it is expecting. Failure to include content or an acceptance criteria in a DED may jeopardize the scope objectives of the project.

2.3 Roles in Preparation

Roles

For a complete list of all project roles, see the Project Role Definitions in the Glossary.

The Project Manager, with the support of designated project team member(s), will collaborate with the contractor to develop the DED and participate in the review and acceptance of the final product. The following project roles will typically participate:

- Project Manager
- Project team members

2.4 Practice Overview

The DED should address the high-level description of the deliverables, a mid-level description of the content included in each deliverable, the entrance criteria for each deliverable activity, and the schedule for the deliverables. Each of these elements are described in more detail below.

Deliverable Overview

The deliverable overview identifies at a high-level what information/activities the deliverable will contain. The narrative should provide context for how the deliverable and associated activities fit into the System Development Lifecycle, or how it fits into the greater picture in relation to other deliverables. The deliverable overview should reconcile with what is included in the contract.

Content

The content section provides a description of the information that will be delivered in the deliverable. This may be in the form of an outline of the deliverable and/or a listing of key activities that must be completed. This section focuses on what the project team can expect to receive once the deliverable is submitted by the contractor.

Entrance Criteria

The entrance criteria documents the criteria that must be achieved before the contractor may begin work on activities associated with the development of the deliverable. Having a comprehensive set of entrance criteria ensures that activities are not started until predecessor tasks are completed and sets the expectation for when the contractor should engage the state. The project team should consider any dependencies of, or inputs to, the deliverable, and consider the logical sequencing of project activities. Entrance criteria should set realistic checkpoints so that work does not begin before it is supposed to and the state has not agreed to criteria such as the scope and approach.

Acceptance Criteria

The acceptance criteria documents the criteria that must be achieved to accept the deliverable. They are specific, key evaluators of the content of the deliverable to ensure that the state has received satisfactory products and services. The project team must ensure all acceptance criteria items are documented, to ensure the deliverable meets the quality requirements. The project team should apply or refer to established metrics that can be used to measure the quality and completeness of a deliverable.

When reviewing or developing acceptance criteria, it is important that the criteria be objective and not subjective. The acceptance criteria may be in the form of a statement where the project team is able to confirm that the statement is true, or in the form of a yes/no question where the project team can answer yes. Acceptance criteria should be based on the following criteria:

- Ensure that enough detail has been provided to remove ambiguity as to what is being required. Words or phrases such as “sufficient,” “adequate,” “should,” “may,” or “could” must not be used.
- Each of the acceptance criteria must be stated objectively and include metrics. Ask yourself, “How will the project know if the acceptance criteria are met?”
- Validate that the acceptance criteria are aligned with the intent and scope of the deliverable. Acceptance criteria should not establish new requirements that are beyond the contractual obligations.
- Validate that the acceptance criteria are specifically relevant to the deliverable. Acceptance criteria should not be dependent on other deliverables if they are not pertinent to the development and delivery of the deliverable in question.

Deliverable Schedule

The deliverable schedule contains the key tasks and dates associated with the delivery of the deliverable. The project team must validate that the schedule includes sufficient time to complete the tasks identified and takes into account all dependencies.

Surveys

3.1 Introduction

Surveys are legitimate and essential project management tools for research and data gathering. They are typically used to help with decision making by gaining the consensus of a large group of participants. Key reasons to use the survey technique when gathering project based information include:

- **Uncovering the answers** - The project will gain an understanding of what is important to survey respondents as they are more likely to provide open and honest feedback using this non-intimidating method.
- **Invoking discussion** - Survey respondents are provided an opportunity to explore/share important topics.
- **Basing decisions on objective information** - Conducting a survey is an unbiased approach to collecting information and developing decisions based on analyzed results.
- **Comparing results** - Survey results provide a glimpse into the attitudes, thoughts, and opinions of Stakeholders, Sponsors, and project team members. This valuable feedback is your baseline to measure and establish a benchmark from which to compare results over time.

The CA-PMF has developed two surveys for project teams to use. The Sponsorship Commitment Survey can be used to assess the involvement and support provided by the Project Sponsor from the perspective of project team members, and the Team Effectiveness survey that can be used to determine the effectiveness of how the project team works together.

Tools

A template is available:
Sponsorship Commitment Survey

When to Use?

Use the template for projects of the following complexities:

L M **H**

Tools

A template is available:
Team Effectiveness Survey

When to Use?

Use the template for projects of the following complexities:

L M **H**

3.2 Recommended Practices

Surveys are considered valuable tools for collecting project information. The following eight steps are the recommended practices that should be taken into consideration when conducting surveys.

- Determine your target population for receiving the survey.

- Determine if all selected respondents completed the survey.
- Ensure your data are reliable and accurate before sending your survey.
- Analyze the survey results to develop insights.
- Avoid analysis traps like generalizing or misrepresenting the data.
- Consider alternate explanations for why respondents answered the way they did.
- Determine an effective way to present the survey results.
- Determine the appropriate audience to receive the analyzed survey results.

Recommended Practices

Review Recommended Practices as you prepare to complete project surveys.

3.3 Roles in Preparation

The Project Manager, with the support of designated project team member(s), organizes the survey process. The following project roles participate in surveys.

- Project Sponsor(s)
- IT Sponsor
- Project Manager
- Business Owner
- Project Team Leads and/or team members
- Key Stakeholders

Roles

For a complete list of all project roles, see the Project Role Definitions in the Glossary.

The Project Manager is responsible for:

- Determining the method for delivering the survey
- Determining how much time respondents will be given to return the survey
- Determining the method by which surveys will be returned
- Analyzing the survey results to determine next steps
- Implementing course corrections based on the survey results
- Communicating results as deemed appropriate
- Archiving the data in the project library

3.4 Practice Overview

Sponsorship Commitment Survey

The Sponsorship Commitment Survey is used by project teams to assess the involvement and support provided by the Project Sponsor. The Project Sponsor will be assessed based on ability to:

- Resolve escalated issues
- Approve scope changes
- Accept major deliverables
- Provide guidance for acquiring needed resources
- Help navigate project politics
- Provide high-level guidance

The Sponsorship Commitment Survey can help the Project Manager determine if he or she needs to schedule a meeting with the Sponsor to get additional support and guidance.

Tools

A template is available:
Sponsorship Commitment Survey

When to Use?

Use the template for projects of the following complexities:

L M **H**

Team Effectiveness Survey

The Team Effectiveness Survey is used by project teams to assess the effectiveness of how the project team works together. The disposition of the project team may be a reflection of the leadership skills of the Project Manager and/or the involvement of the Project Sponsor. A team that is overworked, feels unappreciated, or has little support from the Project Sponsor or Project Manager may not perform to the best of their ability and the project will suffer. Being responsive to project team dynamics will help to boost overall effectiveness and lead to project success.

Tools

A template is available:
Team Effectiveness Survey

When to Use?

Use the template for projects of the following complexities:

L M **H**

Process Phase Checklist

4.1 Complete the Checklist

The Executing Process Phase Checklist identifies milestones that must be completed during the Executing Process Phase, in order to consider the process phase complete. These milestones include requirements, design documents, development, testing, product acceptance, implementation, training, and transition to maintenance and operations (M&O).

The CA-PMF provides an Executing Process Phase Checklist template that can be utilized for this task. This ensures that the Executing Process Phase activities and milestones are completed, including:

- Completed System Development Lifecycle (SDLC) Documents
- Completed Status Reports (Oversight)
- Completed Deliverable Expectation Document (DED)
- Completed Work Authorizations
- Completed Process Improvement Plan
- Completed Operational Readiness Assessment (ORA)
- Completed Formal Product Acceptance
- Completed Sponsorship Commitment Survey
- Completed Team Effectiveness Survey
- Completed Executing Process Phase Checklist

Tools

A template is available:
Executing Process Phase Checklist

When to Use?

Use the template for projects of the following complexities:

L M H

Outputs

Complete the Executing Process Phase Checklist to validate that all activities are complete.

Closing

The Closing Process Phase chapter describes the process for accepting the project's end product and transferring it to the support organization. This chapter also outlines how to assess the project, derive lessons learned, and develop recommended practices that may be applied to future projects.

In this chapter...

1

Approach

Page 3

- 1.1 Introduction
- 1.2 Recommended Practices
- 1.3 Roles and Responsibilities
- 1.4 Processes and Activities
- 1.5 Tools and Outputs

2

Lessons Learned

Page 14

- 2.1 Introduction
- 2.2 Recommended Practices
- 2.3 Roles in Preparation
- 2.4 Practice Overview

3

Process Phase Checklist

Page 19

- 3.1 Complete the Checklist

Approach

Figure 1-1

The Closing Process Phase is the last phase of the Project Management Lifecycle (PMLC). It begins once the project's product is accepted and transferred to the support organization, or a decision is made to suspend or cancel the project, as shown in Figure 1-1. The completion of all project closing activities signifies the formal ending of all project work.

The purpose of the closing activities is to confirm custody of the project's products, deliverables, and documentation, and to document lessons learned for future reference. In multi-phase projects, this process phase may be applied at various project stages, such as upon a deliverable or phase completion.

1.1 Introduction

During the Closing Process Phase, the Project Manager releases the resources committed to the project (such as staff and contractors), addresses remaining open items (such as open issues and lessons learned), and winds down the project in a way that minimizes risk in this final process phase of the project. It should be noted that this process phase is not just for projects that have made it to completion. Any project that completes the Initiating Process Phase, and is subsequently halted for any reason, should also go through Closing Process Phase activities. This process presents growth opportunities for the project team and the sponsoring organization, and the lessons learned can significantly benefit future efforts.

Halting a project before the product is completed does not imply failure. Just as there are compelling business reasons to begin projects, there can also be legitimate business reasons to halt projects. When closing out an incomplete project, it is important for the Project Manager and the Project Sponsor to communicate this message to the project team. Figure 1-2 shows the flow of project activity during the Closing Process Phase.

Closing

Concept | Initiating | Planning | Executing | **Closing**

Recommended Practices

- Recognition is a Must
- Lessons Learned Is Not Optional
- Don't Forget the PIER

Roles

- Executive Sponsor(s)
- Project Sponsor
- IT Sponsor
- IT Product Owner(s)
- Project Manager
- Transition Support Lead
- Project Support Staff

Processes

- Prepare for Project Closure
- Closeout Project Artifacts
- Conduct Lessons Learned
- Celebrate Success
- Administrative Closeout
- Closing Process Phase Review

Activities

- Verify Acceptance of All Project Deliverables
- Resolve or Transfer Ownership of Open Issues
- Complete Final Project Status Report
- Archive Final Project Records
- Conduct Lessons Learned
- Celebrate Success
- Conduct Contract Closeout
- Complete Project Financials
- Release Staff
- Release Facilities and Resources
- Complete Post Implementation Evaluation Report (PIER)
- Complete the Closing Process Phase Checklist

Tools

- Issue Log Template
- Project Status Reports (Oversight)
- Lessons Learned Template
- Post Implementation Evaluation Report (PIER) (Oversight)
- Risk Register template
- Change Request (CR) template
- Closing Process Phase Checklist Template

Outputs

- Completed Issue Log
- Completed Risk Register
- Completed Change Request Log
- Completed Lessons Learned documentation
- Completed Final Status Report(s) (Oversight)
- Completed Post Implementation Evaluation Report (PIER) (Oversight)
- Completed Closing Process Phase Checklist

Monitoring & Controlling

Figure 1-2

1.2 Recommended Practices

The following recommended practices are intended to assist the project team as the project is wrapped up and formally ended in the Closing Process Phase.

Recognition is a Must

It is advisable to acknowledge the project team and others who contributed time and talent to the project. Even if the project was suspended or canceled, take time to thank people for their effort and acknowledge those that went "above and beyond." Recognize project team members for high-quality work and celebrate the project team's accomplishments.

Lessons Learned is Not Optional

There can be a tendency for project team members to feel that they are just going through the motions during lessons learned sessions in order to "check the boxes," and participation can be a challenge.

Instead, promote lessons learned sessions as an important opportunity to capture what went well and what could be done better next time. Position sessions as learning and growth opportunities for the organization, the project team, and other staff.

To continuously improve throughout the project lifecycle, lessons learned can be completed at any time during a project and not just at the end. They can be collected at each phase, deployment of a module, any time the project has achieved a significant milestone, or has overcome a significant challenge. And while capturing lessons learned is a beneficial retrospective activity, remember that resulting improvements must be effectively implemented to bring the most value to the project and organization.

Don't Forget the PIER

The PIER is the last post-project review and provides a record of the project history. This activity is important as taking the time to complete helps to improve future projects.

Recommended Practices

These Recommended Practices can assist the project team during the Closing Process Phase.

Web Link

For more information on the PIER see the Statewide Information Management Manual (SIMM) - Section 50.

1.3 Roles and Responsibilities

The roles of the primary project participants during the Closing Process Phase are detailed in the following table. The project may have unique requirements that require incorporating additional roles into the process, or the department may have existing governance policies to follow. The following table identifies the most common roles and key responsibilities during closing activities.

Roles

For a complete list of all project roles, see the Project Role Definitions in the Glossary.

Role	Responsibilities
Executive Sponsor(s)	• Provides support, encouragement, and recognition to the project team.
Project Sponsor	• Provides sign-off on the final product(s). • Approves transfer of any open issues. • Supports project closing activities. • Ensures appropriate resources are available to conduct closing activities. • Participates in lessons learned sessions. • Participates in project celebration activities. • Assigns ownership of the PIER. • Approves the project for closing.
IT Sponsor	• Confirms satisfactory completion of all transition activities. • Approves transfer of open issues accepted by the IT Department. • Supports project closing activities. • Ensures appropriate IT resources are available to conduct closing activities. • Participates in lessons earned sessions. • Participates in project celebration activities.
IT Product Owner(s)	• Confirms that all deliverables necessary to operate and support the product are complete and suitable for their intended use.
Project Manager	• Leads the project closing effort and ensures all process phase tasks and milestones are completed.
Transition Support Lead	• Assists the IT System Owner with transitioning products or completed deliverables to the M&O organization.
Project Support Staff	• Supports the Project Manager with project closing activities.

1.4 Processes and Activities

When closing the project, the Project Manager ensures that all project work is complete and the project has met its goals and objectives. Even if a project is canceled before completion, the Project Manager should document lessons learned for future projects.

Activities

Complete these Closing Process Phase related activities to complete your project.

1.4.1 Prepare for Project Closure

The first closing activity is to review relevant project documentation. Reviewed documentation typically includes:

- Project Management Plan (PMP)
- Issue Log
- Open contracts
- State Contracting Manual
- Post Implementation Evaluation Report (PIER) instructions

1.4.2 Closeout Project Artifacts

Verify Acceptance of All Project Deliverables

The Project Manager will verify the acceptance of all project deliverables and the completion of all activities involving transitions to the support organization. This critical activity signifies the customer has validated that the project scope and deliverables are complete and delivered as agreed to by all parties. Acceptance is based on the success criteria defined in the Initiating, Planning, and Executing Process Phases of the project. This acceptance is formal and will require signatures from the Project Sponsor(s).

Resolve or Transfer Ownership of Open Issues

The Project Manager confirms that all open issues are resolved or that ownership of the issues is transferred outside of the project. Any transfer of open issues is formally documented and accepted by the Project Sponsor and the party accepting responsibility for resolving the issue(s).

Complete Final Project Status Report

The Project Manager prepares a final Project Status Report for the Project Sponsor. This report documents completion of the project closing activities and provides the final project performance measures (such as schedule, budget, quality, and issues).

Archive Final Project Records

Historic project data are a crucial source of information for improving future project efforts. All records, both electronic and hard copy, should be stored according to applicable record retention rules and guidelines. Technical records are turned over to personnel responsible for maintenance and operation of the product, service, or other project results after deployment.

The project archive should contain a document that includes a description of all files being stored, the storage location, and a point of contact for further information. Typically, at a minimum, archived project data include:

- Project Charter
- Project plans
- Deliverables
- Project reports
- Contract-related documents and files
- Design and Technical documents
- Checklists
- Issue, Risk and Change Logs
- Lessons learned
- PIER

1.4.3 Conduct Lessons Learned

The objective of documenting lessons learned is to identify both the positive and negative lessons learned from the project, as well as to recommend corrective actions for the negatively based observations that should be considered for future projects. Consider the cost, resources, schedule, communication, and work activities of the project.

When to Use?

Use the template for projects of the following complexities:

L M H

Tools

Template is available: Lessons Learned.

Lessons learned can be documented at any stage within the project to be included in the final lessons learned document. On some larger projects, or those that span a longer time frame this may be helpful as the project transitions from phase to phase or for making sure that such lessons are implemented into future work of the project.

The lessons learned template will assist the project team with identifying and recording lessons learned from the completed project or project phase.

1.4.4 Celebrate Success

Celebrating a successfully completed project can be very motivating and rewarding for project teams. When a project is completed successfully, recognition and positive feedback should be provided to individual project members as well as the project team. Even if a project has been suspended or canceled prior to completion, celebrate the work and milestones the project team was able to achieve.

1.4.5 Administrative Closeout

Conduct Contract Closeout

Web Link

For more information on contract closeout activities see the State Contracting Manual.

The Project Manager will reference the State Contracting Manual (SCM) for required contract closeout activities. The contract closeout process includes activities and interactions required to resolve any contract agreements established for the project, as well as activities related to supporting the formal administrative completion of the project.

Contract closeout involves verification that all work is completed correctly and satisfactorily, and that contract records are updated and archived. The Project Manager may require input from the Contract Manager, and/or procurement specialists from the agency or the California Department of Technology (CDT). Contract closure includes:

- Confirming the project has addressed the terms and conditions of the contract(s)
- Confirming completion and acceptance of all contract deliverables
- Finalizing all payments
- Completing and archiving the contract file(s)
- Completing Contractor Evaluations (Form STD. 4) for professional services

Complete Project Financials

The Project Manager will reference the Cost Management Plan for required financial closing activities. The process includes activities associated with capturing and recording all project costs, and disencumbering unused budget allocations. The Project Manager works with the sponsoring organization's accounting office or Budget Analysts to ensure that all activities are completed as required.

Release Staff

A majority of staff and contractors are typically released at the end of the Executing Process Phase or during the beginning of the Closing Process Phase. Follow the processes that were documented in the Resource Management Plan. Make sure to review the scope of work in the contract for the appropriate time to release contractors. Once the Project Sponsor has approved the project for closure, the remaining staff members can be released from the project.

Release Facilities and Resources

The Project Manager confirms that all facility-related closing activities are completed. Activities can include:

- Notifying Business Services and Facilities of space availability
- Closing out lease agreements
- Returning unused computers, printers, and other technology assets to the IT Department
- Removing computer access as staff or contractors are released from the project
- Securing all building access cards and badges as staff or contractors are released from the project

Complete Post Implementation Evaluation Report (PIER)

The California Department of Technology (CDT) requires projects to complete and submit a Post Implementation Evaluation Report (PIER) following project completion. Section 50 of the Statewide Information Management Manual (SIMM) contains "Instructions for Completing the Post Implementation Evaluation Report (PIER)." These instructions describe when a PIER is required, its contents, and procedures for submission and approval.

The Project Manager may or may not still be assigned to the project when the PIER is completed and submitted to the CDT. However, the Project Sponsor may ask the Project Manager to complete portions of the PIER prior to his or her release from the project.

1.4.6 Closing Process Phase Review

Once all of the Closing Process Phase activities are accomplished, complete the Closing Process Phase Checklist and submit supporting documentation to the Project Sponsor. The Project Sponsor will review the supporting documentation before approving the project for closure.

1.5 Tools and Outputs

The following are generally developed during the Closing Process Phase.

Tool / Output	Definition
Lessons Learned	The lessons learned documentation represents knowledge and experience gained during the project. It documents how project events were addressed, and how they should be addressed in the future, with the purpose of improving future performance.
Project Status Reports (Oversight) [1]	The final Project Status Report communicates an appraisal of project closing activities to the Project Sponsor(s) and key Stakeholders identified in the Communication Management Plan. This also concludes the reporting of project status and tasks and makes note of issues or items that will be handled once the project has been closed.
Project Closeout Report	The project closeout report documents the final and remaining activities of the project.

Tools

For a complete list of all project Tools see the Templates chapter.

Tool / Output	Definition
Post Implementation Evaluation Report (PIER) (Oversight) [1]	The PIER should be submitted to the Department of Technology (CDT) within the Department's required time frame. The PIER contains six sections: 1. Background and Summary of Results 2. Attainment of Objectives 3. Lessons Learned 4. Corrective Actions 5. Project Management Schedule 6. Economic Summary
Closing Process Phase Checklist	Identifies the key activities that are to be completed during the Closing Process Phase.

Web Link

For more information on the PIER see the Statewide Information Management Manual (SIMM) - Section 50.

[1] Oversight templates and other information related to oversight reporting requirements can be found under the *Statewide Information Management Manual (SIMM) 45* at: https://cdt.ca.gov/policy/simm/

Lessons Learned

2.1 Introduction

Projects are unique in nature. Even though the context, Stakeholders, products, or clients might be similar for various projects, the uncertainty and varying objectives that define the project environment give each individual project unique characteristics. We can learn from previous experiences and pass on to future projects the lessons collected. Lessons learned should be recorded, analyzed, and reported to help future projects plan more efficiently. This can include such aspects as the use of a particular technique, tool, or skill among team members.

The lessons learned process includes identifying what went well, what didn't go well, why, and what could have been done differently. Documenting lessons learned (sometimes called "retrospectives") is beneficial to future projects and to the sponsoring organization. It is a form of continuous improvement in which we learn from mistakes and project successes. In order for an organization to improve future project performance, it is necessary to formally identify, acknowledge, analyze, and respond to the current project's lessons learned.

The incentive to learn is strongest when a lesson learned is experienced. However, without a formal means of organizing the knowledge transfer, the improvements that could result are lost. Documenting lessons learned allows the lessons to be organized and made available to future projects, so that the negatives learned can be avoided and the positive lessons repeated. Documentation of lessons learned should be stored in a known location and made readily accessible to managers and staff of future projects.

A survey can be used to elicit feedback from project team members regarding their impressions and assessments of the project. Depending on the environment of the project, a facilitated lessons learned session may be a more productive way to gather the information.

The main purpose of documenting lessons learned is to collect, use, and share knowledge derived from experience to:

- Promote the recurrence of desirable outcomes
- Preclude the recurrence of undesirable outcomes

Tools

Template is available: Lessons Learned.

When to Use?

Use the template for projects of the following complexities:

L M H

2.2 Recommended Practices

Recommended Practices

Review Recommended Practices to help develop effective lessons learned from your project.

The following recommended practices can help the project team effectively and efficiently develop and document lessons learned:

- Each lesson learned should be captured and documented independently.
- Lessons learned can be collected at any time during the project.
- The Project Manager should conduct a survey, facilitate a brainstorming session, or conduct one-on-one interviews, depending on the audience.
- Facilitated sessions should only contain managers or staff, not both, to ensure open and honest information sharing.
- If possible, use a neutral party to facilitate the lessons learned.
- Describe the lesson learned item so that even a novice or someone who was not part of the project would understand.
- Include what worked well and what needs improvement.
- Suggest improvements for each documented lessons learned that did not work well to prevent and/ or avoid this issue in the future.
- Be specific and avoid jargon.
- Document the meaning of any acronyms.
- Bring any items, plans, practices, and materials that will add benefit to the process.

2.3 Roles in Preparation

Roles

For a complete list of all project roles, see the Project Role Definitions in the Glossary.

The Project Manager is responsible for ensuring the completion of lessons learned. It is recommended that the Project Manager attempt to include as many members of the project team as reasonably possible when assembling this information. Participants in lessons learned may include:

- Project Sponsor(s)
- Project Manager
- Business Representatives
- Key Stakeholders

- Project team members
- Project Oversight
- Executive management
- Maintenance and operations staff

2.4 Practice Overview

The objective of documenting lessons learned is to identify both the positive and negative lessons learned from the project, as well as recommended corrective actions for the negatively based observations that should be considered for future projects. Consider the cost, resources, schedule, communication and work activities of the project. The following provides guidelines for conducting lessons learned. Note that lessons learned can also be gathered at any juncture within the project lifecycle. Projects of multiple phases or those that span a long time frame may benefit from having lessons learned conducted at the end of each phase. This helps to ensure that such lessons be leveraged as the project progresses.

2.4.1 Approach

The lessons learned activity involves determining the causes of variance in performance, the reason behind corrective actions taken, and the project activities that worked well and those that did not.

To document lessons learned, solicit information from the participants using the lessons learned template included in the CA-PMF. The template helps the project team document each lesson learned, identify the CA-PMF stage in which the event occurred, the initiator of the lesson learned and his or her role, and the recommendation to avoid the problem or take advantage of the opportunity. The team also documents a description of the lesson learned and any recommendation for future projects and project teams.

A lessons learned session is a mechanism for group review and serves as a valuable activity for project closure. The session provides a forum for the project team to acknowledge what worked well, and it offers an opportunity to discuss ways to improve processes and procedures.

As part of the lessons learned process, some typical questions for participants include:

- What worked well—or didn't work well—either for this project or for the project team?
- What needs to be done over or differently?
- What surprises did the team have to deal with?
- What project circumstances were not anticipated?
- Were the project goals attained? If not, what changes need to be made to meet goals in the future?
- Was the project properly organized and staffed?
- Were project procedures clearly defined and followed consistently by all team members?
- Did Stakeholders understand their roles, responsibilities, and authority?
- Did project staff receive adequate training?
- Did the project schedule encompass all of the needed tasks for this phase?
- Were project tasks clearly defined so that team members understood which tasks they were responsible for and when they were due?
- Did the delivered product meet the specified requirements and goals of the project?
- Was the customer satisfied with the end product?
- Did the project stay within scope?
- Were cost budgets met?
- Was the schedule met?
- Were risks identified and mitigated?
- Were problems or issues resolved in a timely and adequate manner?
- Did all of the components of the project management methodology that was used work?

2.4.2 Lessons Learned Activities

Conduct a brainstorming session with the project team to capture lessons learned. The convened team must analyze each major negative and positive event in order to determine the steps that should be taken to avoid the negative lessons learned (failure) or repeat the positive lesson learned (success). These positive and negative lessons learned can be captured in the Lessons Learned Template.

Alternative methods for conducting lessons learned include:

- Conduct one-on-one interviews with key team members. This approach can be more time consuming than the brainstorming approach. Interviews, however can provide a different prospective than the group brainstorming session.
- Conduct a survey to elicit feedback from project team members regarding their impressions and assessments of the project. Use a set of questions similar to those outlined in the practice overview section.

Recommendations that come out of a lessons learned session will not necessarily result in changes to the project, because they apply to completed work. However, conducting lessons learned encourages process improvement and will benefit the organization when it conducts future projects.

Process Phase Checklist

3.1 Complete the Checklist

The Closing Process Phase Checklist identifies the key activities and dates that are completed during the Closing Process Phase of a project.

Once all of the activities within the Closing Process Phase are complete, the process phase checklist should be completed. Why a checklist? The checklist can help the project team quickly and confidently identify areas of concern prior to moving to the next phase of the Project Management Lifecycle. In this case, completion of the checklist provides a clear milestone that the necessary steps to officially close the project are complete.

Using the Closing Process Phase Checklist ensures completion of Close Process Phase Activities are completed, including:

- Completed Issue Log
- Completed Risk Register
- Completed Change Request Log
- Completed Lessons Learned documentation
- Completed Final Status Report(s) (Oversight)
- Completed Post Implementation Evaluation Report (PIER) (Oversight)
- Completed Closing Process Phase Checklist

Tools

A template is available:
Closing Process Phase Checklist

When to Use?

Use the template for projects of the following complexities:

L M H

Outputs

Complete the Closing Process Phase Checklist to validate that all activities are complete.

Additional Resources

This chapter explores how the Framework relates to other Department of Technology processes and other system development lifecycles. Also included are a Glossary of Project Role Definitions and Project Management Terms.

Additional Resources

In this chapter...

1

Approach

Page 3

1.1 Introduction

1.2 CA-PMF Quick Reference

1.3 Monitoring & Controlling

2

Framework Resources

Page 24

2.1 Introduction

2.2 CA-PMF Relationships

2.3 Comparing the CA-PMF with the PAL

2.4 Comparing the CA-PMF with PAO

2.5 Comparing the CA-PMF with the SDLC

3

Framework References

Page 122

3.1 Project Management Institute (PMI)

3.2 Other California Frameworks

3.3 Other State, Federal, and University Frameworks

4

Glossary

Page 125

4.1 Project Role Definitions

4.2 Project Management Terms

Approach

Through the efforts of the Project Management Institute (PMI) and other leading project management organizations, the project management discipline promotes a well-defined and broadly adopted set of concepts, terminology, methods, and activities. This standard approach is used in a multitude of published frameworks, which are widely available as resources for public sector project managers. Likewise, the State of California has developed standardized oversight programs specifically intended to support California projects and their teams.

The objective of this chapter is to assist project managers in understanding how the California Project Management Framework (CA-PMF) intersects with other major frameworks and state oversight processes. The goal is for project managers and teams to benefit from as many project management resources as possible, and for them to be more efficient by leveraging project work among these resources.

1.1 Introduction

The CA-PMF is intended as a practical guide to help project managers and teams successfully manage information technology (IT) projects. This section introduces useful resources and tools that help tie the CA-PMF to the "larger universe" of project management knowledge, frameworks, and approvals and oversight.

Also included in this chapter are tables that cross-reference the CA-PMF with other key lifecycles including:

- The Project Approval Lifecycle (PAL)
- California Department of Technology (CDT) Project Approvals and Oversight (PAO)
- A Guide to the Project Management Body of Knowledge (PMBOK) and the System Development Lifecycle (SDLC)

This chapter also includes references to other widely used project management frameworks, a glossary of roles as described in the CA-PMF, a glossary of common project management terms and acronyms, and a document index.

This section describes how the process phases and tools of the CA-PMF interrelate to State of California project oversight programs and other project frameworks. This includes the Project Approval Lifecycle (PAL), California Department of Technology (CDT) Project Approvals and Oversight (PAO), and the System Development Lifecycle (SDLC). Tables are provided to help promote understanding and provide quick points of reference.

Briefly discussed are the Special Project Report (SPR), the Independent Project Oversight Report (IPOR), the Project Status Reports (PSR), and the Post Implementation Evaluation Report (PIER).

Also included is a mapping of the CA-PMF to the Project Management Institute (PMI) A Guide to the Project Management Body of Knowledge (PMBOK Guide) and to the System Development Lifecycle (SDLC).

1.2 CA-PMF Quick Reference

This CA-PMF Quick Reference section features graphics related to the key navigation elements from each process phase of the CA-PMF. The information is presented from two perspectives, including the perspective of a particular key element across all process phases of the Project Management Lifecycle, as well as, the perspective of a single process phase.

In this section, the elements by process phase are displayed in a consolidated view of each of the following concepts. This includes those from each of the process phase chapters. These key elements are:

- Recommended Practices
- Roles
- Processes
- Activities
- Tools
- Outputs

1.2.1 Key Elements By Process Phase

Each process phase of the CA-PMF contains a navigation graphic referencing six categories of information to help the project manager navigate that process phase. These include recommended practices to consider, a list of key roles active during that process phase, processes for the project team to follow, activities the project team should undertake, tools available to assist project teams during the process phase, and outputs for the project team to generate during that process phase.

This section of the CA-PMF features a graphic representation of these key navigation elements across each process phase of the project management lifecycle. Those recommended practices within the sections of each chapter are also included.

Additional Resources

Recommended Practices by Process Phase

The CA-PMF includes narratives describing the recommended practices that are advised for each process phase, based on lessons learned and best practice. Figure 1-1 shows each process phase's key recommended practices including those that are in each of the sections within the chapters.

Project Management Recommended Practices

Concept

Process Phase Approach
- Validate Your Concept for a Strong Foundation
- Have a Strong Business Case
- Is Your Organization Ready for Change?
- Don't Underestimate or Oversimplify User Research and Engagement

Initiating

Process Phase Approach
- It is Never Too Early to Engage Users
- Effective Sponsorship is the Key to Success
- The Business Need Drives the Project
- Check in with Your Organization's Enterprise Architect or Opportunities May be Missed
- Engage Stakeholders Strategically
- Tackle the Project in Bite-Size Pieces and Deliver Incrementally to Reduce Risk
- Change is Hard, So Start Planning for Your Change Early

Project Charter
- Involve a Project Manager Early
- Appropriately Size the Project Charter
- Collaborate with Key Stakeholders
- Utilize the Expertise Available
- Compile All Relevant Information
- Confirm Stakeholder Requirements
- Identify Dependencies and Constraints
- Document What is Out of Scope
- Read the Project Charter

Stakeholder Register
- Identify Stakeholders Early
- Not All Stakeholders Get to Decide

RACI
- Use the Stakeholder Register
- Every Task Should Designate a Responsible Party
- Only One Final Approver Per Task
- "R" and "A" Roles May Be the Same Resource
- Keep an Eye on the Number of Roles Consulted
- Validate Your RACI Matrix then Seek Approval
- Seek Re-Approval if Changes are Made to the RACI

Planning

Process Phase Approach
- It Takes a Village... to Make a Project Successful
- Connect the Dots… Clarify the Scope
- Make a Deliberate Choice When Determining the Delivery Method
- No Matter the Size or Scope, the Schedule is a Key Component
- Who Wants to talk about Security?
- Effective Change Management Requires Close Attention to an Organization's Culture
- Plan to Continually Discover and Validate User Needs
- Early Governance Helps Set Stakeholder Expectations
- Clear Performance Metrics Benefit Both Contractors and Project Managers

Complexity Assessment
- Update Assessments Regularly
- Higher Complexity Projects Merit More Experienced Project Teams

Project Management Plan (PMP)
- The PMP Reflects Baseline Agreements
- Delegate
- Understand the Complexity of the Project
- Make Sure the PMP is Read
- Remember to Optimize Plans on an Ongoing Basis

Additional Resources

Planning

Change Control Management
- Don't Fear Change Requests - But Be Well Prepared to Manage Them
- No Surprises - Communicate Early and Often About Change Activities
- Carefully Monitor and Validate Change Implementation
- Major Changes May Also Require External Approval
- Keep the Change Control Process Uniform

Communication Management
- Identify and Categorize Stakeholders
- Centralize all Project Information
- Track and Report Progress
- Use Templates for Status Reports
- Hold Meaningful and Productive Meetings
- Communicate Often

Contract Management
- Set Clear Contract Management Roles and Responsibilities
- Set the Right Tone from the Start
- Don't Make Assumptions – Use Clear and Consistent Standards to Measure Contractor Performance
- Be Prepared for Issues, Changes, and Corrective Actions
- Keep a Sharp Eye on the Payments
- Remain Vigilant Throughout Contract Closure

Cost Management
- Estimate Costs Realistically
- Capture All Costs
- Keep Track of Costs
- Cost Analysis and Forecasting

Governance Management
- Make Timely Decisions
- Delegate
- Keep It Simple

Implementation Management
- Plan for Implementation Early
- Going Modular or Incremental May Change Your Plans and Procurement Strategy
- Consider the Entire Scope
- Dedicate Staff to the Implementation
- Communicate Relentlessly

Issue Management
- Assign a Manager for the Issue Management Process
- No Issue is Too Small
- Review Progress Regularly
- Abide by the 80/20 Rule
- Don't Be Afraid to Escalate

Maintenance & Operations Transition Management
- Begin with the End in Mind
- Establish Ownership
- Don't Let Your Guard Down
- Use Your Resources
- Account for the Work Required

Procurement Management
- Know the Scope
- Document Constraints
- Apply Lessons Learned

Quality Management
- Prevention is Key
- Meet User Needs
- Continually Improve

Requirements Management
- Early and Ongoing is Best
- Involve Users in Requirements Gathering
- Group and Provide Context to Requirements with User Stories
- Communicate Requirement Updates Often
- Review Often

Resource Management
- Be Realistic and Gain Commitment
- Skills and Experience Matter
- Don't Ignore the Soft Skills
- Invest in Training
- Plan Appropriately for all Resources
- Be Intentional About Shaping Team Culture
- Take Care of the Team
- Schedule Enough Time for Hiring
- Plan for Turnover

Risk Management
- Utilize Formal and Informal Risk Identification Methods
- Make Sure Your Risk Statements are Complete
- Use All Available Risk Response Strategies
- Concentrate Efforts on High Risks First

Additional Resources

Planning

Schedule Management
- Estimate Activity Durations and Resources Realistically
- Keep Track
- Communicate Schedule Updates Often
- Schedule Risk Analysis and Modeling
- Develop the Schedule Incrementally for a Project Delivered Incrementally
- Look for Warning Signs
- Verify Schedule Traceability
- Watch the Critical Path

Scope Management
- Define and Prioritize the Scope Based on User Needs
- Validate the Scope Based on User Feedback and Outcomes, Not Just Deliverables
- Define, Agree Upon, and Communicate the Scope
- Formalize Change
- Document the Work to Be Done

Stakeholder Management
- Feel Their Pain
- User Input is Vital throughout the Project Lifecycle

Executing

Process Phase Approach
- Communicate, Communicate, Communicate
- Don't Ignore the Users
- Capturing Action Items From Team Meetings
- Early and Effective Testing Can Prevent Major Project Cost Issues Down the Road
- Problems Don't Go Away – They Only Get Bigger Over Time
- Engage the Maintenance and Operations (M&O) Team Sooner
- Leadership Is the Project Manager's Job
- Have Clearly Defined Go/No Go Checkpoints
- Be Honest About Project Progress to Continually Improve
- Think Globally and Act Strategically
- Testing and Training Activities are NOT Schedule and Cost Buffers
- Warning Signs: Be on the Lookout
- Don't Skimp on Quality
- Don't be Afraid to Pull the Plug
- Speak Up to Achieve a Project Win

Deliverable Expectation Documents
- Validate Scope and Acceptance Criteria
- Collaborate with the Contractor
- Validate the Participants
- Encourage and Enforce Participation

Surveys
- Identity the Target Population
- Ensure Surveys are Completed
- Use Only Reliable and Accurate Data
- Analyze the Survey Results to Develop Insights
- Avoid Generalizing or Misrepresenting the Data
- Consider Alternate Explanations
- Present the Survey Results Effectively
- Determine the Appropriate Audience for the Results

Closing

Process Phase Approach
- Recognition is a Must
- Lessons Learned is Not Optional
- Don't Forget the PIER

Lessons Learned
- Capture and Document Independently
- Collect Them Throughout the Project
- Use Surveys, Brainstorming, or Interviews
- Ensure Open and Honest Information Sharing
- Use a Neutral Party
- Make Descriptions Intuitive
- Include What Worked Well and What Needs Improvement
- Suggest Improvements for Each Issue
- Be Specific and Avoid Jargon
- Document the Meaning of Acronyms
- Bring Items That Will Add Benefit to the Process

Figure 1-1

Roles by Process Phase

The Framework includes narratives describing the responsibilities for project Stakeholders involved in the project, including a list of key roles. Figure 1-2 shows each key roles within each process phase.

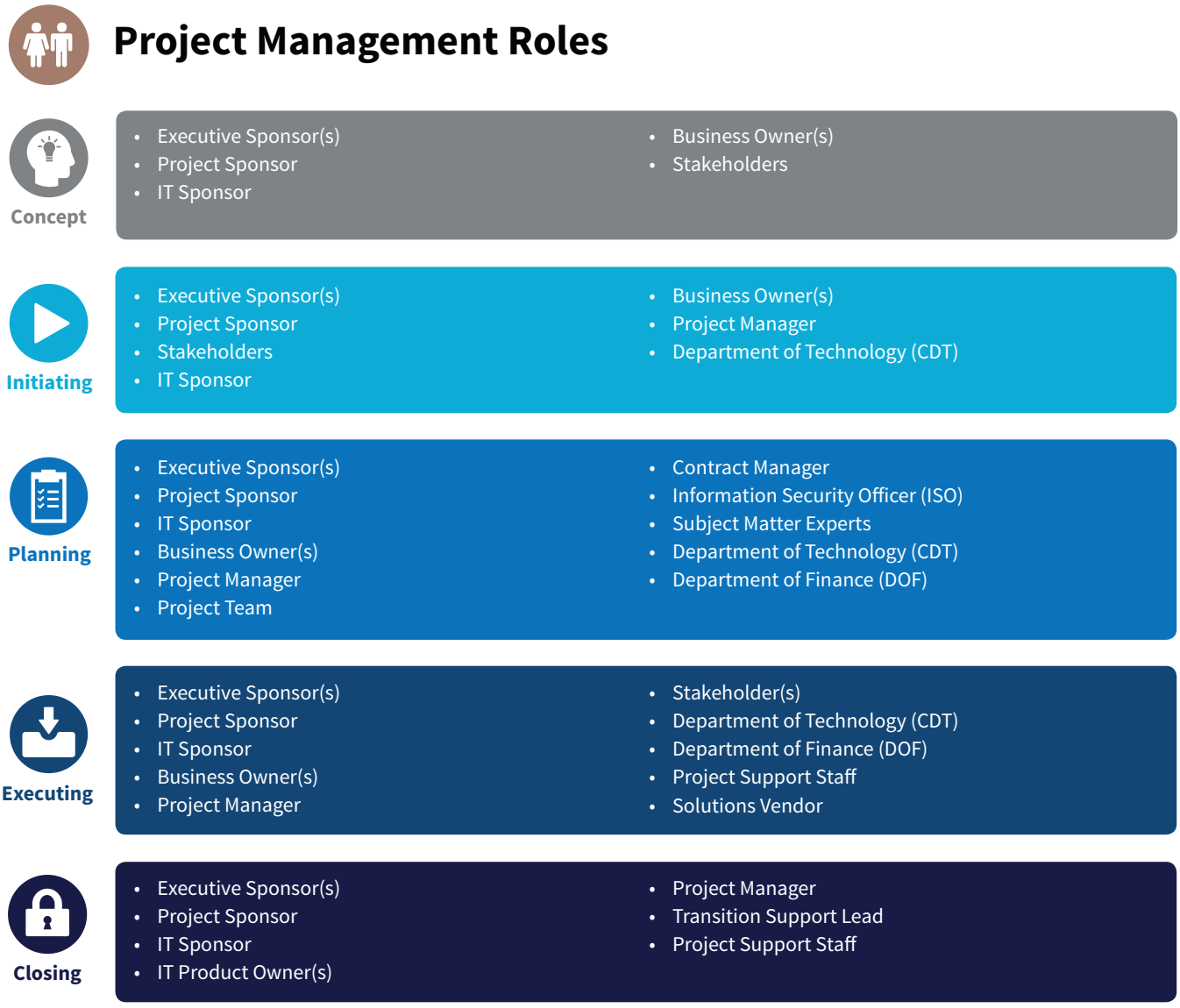


Figure 1-2

Processes by Process Phase

The Framework includes narratives describing the steps or procedures that the project team should follow. Figure 1-3 lists each these key processes.

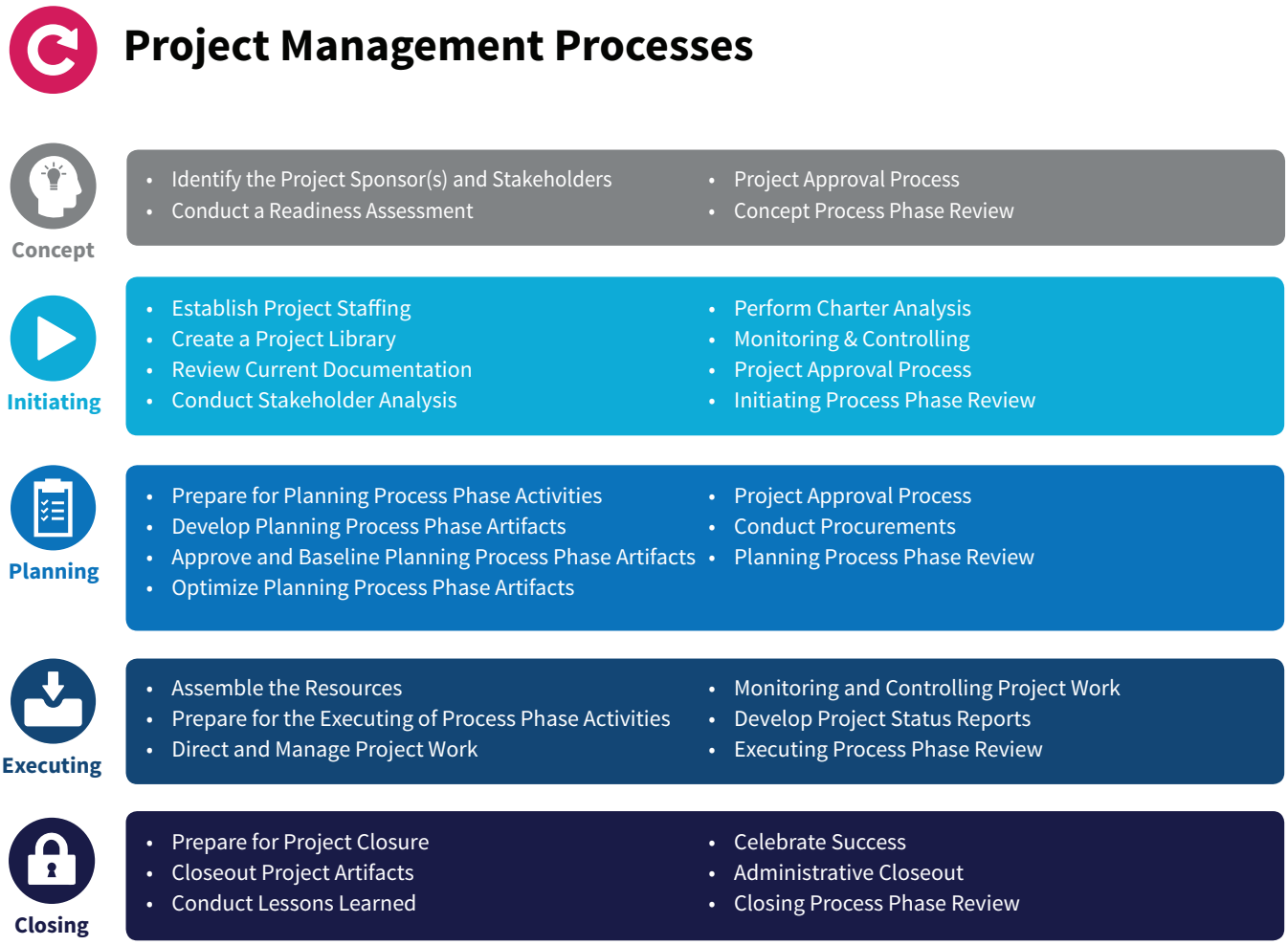


Figure 1-3

Activities by Process Phase

The Framework includes narratives describing what should be done during each project process phase, including the specific activities to undertake and when to undertake them. Figure 1-4 lists these key activities.

Note that it is normal for project process phases to overlap as project management is iterative in nature. Typically, a formal exit from a project process phase is managed through a control mechanism, such as a phase gate or checklist that takes into consideration whether the appropriate milestones, completion of deliverables, and objectives for that process phase have been met. A Process Phase Completion Checklist is provided for each of the phases for this purpose.

The CA-PMF is intended to be flexible and helps to guide the initial development of many of the project management plans as the major activity during the Planning Process Phase. However, it's also possible and reasonable for some of these activities to begin or occur during the Initiating Process Phase. For example, defining project governance structures in a complicated governance environment may be a significant element of the Project Charter, which is created during the Initiating Process Phase. As another example, a project may need a more thorough requirements analysis in order to complete Planning Process Phase activities. Additionally, portions of the templates not relevant for a particular project can be removed to create a customizable plan appropriate for the endeavor at hand.

Generally, the Project Manager considers these types of decisions while using the Framework narrative, resources, and tools. The Project Manager should begin planning activities at the appropriate time given the project's technical complexity, the business environment, the organizational risks, the relative experience of the project team, and the project's size. These project management planning activities set the groundwork for managing product development and Organizational Change Management (OCM) activities undertaken in the Executing Process Phase.

Additional Resources

Project Management Activities

Concept

- Identify the Specific Business Problem or Opportunity
- Establish a Clear Business Case
- Assess the Organizational Impact
- Complete the Concept Development and Readiness Assessment
- Conduct a High-Level Risk Assessment
- Begin Drafting the S1BA (PAL)
- Complete the Concept Process Phase Checklist

Initiating

- Identify Project Sponsorship
- Identify a Project Manager
- Form the Project Planning Team
- Create Project Document Repository and Review Current Documentation
- Identify Stakeholder Project Priorities
- Create a RACI Matrix
- Develop the Scope Statement
- Develop the Budget Estimate
- Develop the Schedule Estimate
- Document Assumptions, Constraints, and Risks
- Develop the Project Charter
- Monitor & Control the Project
- Complete the S1BA (PAL)
- Complete the Initiating Process Phase Checklist

Planning

- Complete the Complexity Assessment
- Update the RACI Matrix
- Hold Planning Process Phase Kickoff Meeting
- Set Project Practices
- Develop the Project Management Plan (PMP)
- Develop Subordinate Project Plans
- Develop the Work Plan
- Baseline Project Plans
- Optimize Project Artifacts
- Complete the Planning Process Phase Checklist

Executing

- Acquire the Project Team and Commit Resources
- Conduct Contractor On-Boarding
- Hold Executing Process Phase Kick-Off
- Transition the Project Manager Responsibilities
- Execute the Project Management Plan
- Integrate Project and Contractor Plans
- Review and Update the RACI Matrix
- Confirm Scope and Requirements
- Lead and Manage the Project Team
- Manage the Contractor Team
- Manage Stakeholder Expectations
- Carry Out Project Communications
- Monitoring & Controlling Project Activities
- Complete the Executing Process Phase Checklist

Closing

- Verify Acceptance of All Project Deliverables
- Resolve or Transfer Ownership of Open Issues
- Complete Final Project Status Report
- Archive Final Project Records
- Conduct Lessons Learned
- Celebrate Success
- Conduct Contract Closeout
- Complete Project Financials
- Release Staff
- Release Facilities and Resources
- Complete Post Implementation Evaluation Report (PIER)
- Complete the Closing Process Phase Checklist

Figure 1-4

Additional Resources

Tools by Process Phase

The CA-PMF provides a number of resources and tools that project teams can use to help complete the activities included within each process phase of the project. An important part of the Framework is the inclusion of tools in a easy-to-use format. The tool set is intentionally intuitive, and most tools are configurable so that project teams can adjust them as needed to help manage the project accordingly. Figure 1-5 identifies the resources and tools available to help with each of the process phases.

Project Management Tools

Concept

- Concept Development and Readiness Assessment Template
- Stage 1 Business Analysis Template (PAL)
- Concept Process Phase Checklist Template

Initiating

- Project Priorities Assessment Template
- RACI Matrix Template
- Stakeholder Register Template
- Project Charter Template
- Status Reports (Oversight)
- Stage 1 Business Analysis Template (PAL)
- Project Document Library Repository
- Project Document Approval Template
- Initiating Process Phase Checklist Template

Planning

- Complexity Assessment Template
- Project Management Plan (PMP) Template and Subordinate Project Document Templates
- Project Status Reports (Oversight)
- Stage 2 Alternatives Analysis Template (PAL)
- Stage 3 Solution Development Template (PAL)
- Stage 4 Project Readiness and Approval Template (PAL)
- Planning Process Phase Checklist Template

Executing

- Project Status Reports (Oversight)
- Deliverable Expectation Document (DED) Template
- Work Authorization Template
- Process Improvement Plan Template
- Operational Readiness Assessment (ORA) Template
- Formal Product Acceptance Template
- Sponsorship Commitment Survey Template
- Team Effectiveness Survey Template
- Executing Process Phase Checklist Template

Closing

- Issue Log Template
- Project Status Reports (Oversight)
- Lessons Learned Template
- Post Implementation Evaluation Report (PIER) (Oversight)
- Closing Process Phase Checklist Template

Figure 1-5

Outputs by Process Phase

Creation of project artifacts is an important part of each process phase's activities. These help define the management activities through which the project's progress is tracked, controlled, and adjusted based on actual progress. These artifacts include outputs developed by the project team and form the collection of documentation, plans, and procedures that will be used to manage the project.

Each phase narrative describes the project outputs that are generally prepared within each phase. These project outputs often serve as inputs to a process in the next process phase of the project. Figure 1-6 identifies the main outputs prepared in each of the process phases.

Additional Resources

Project Management Outputs

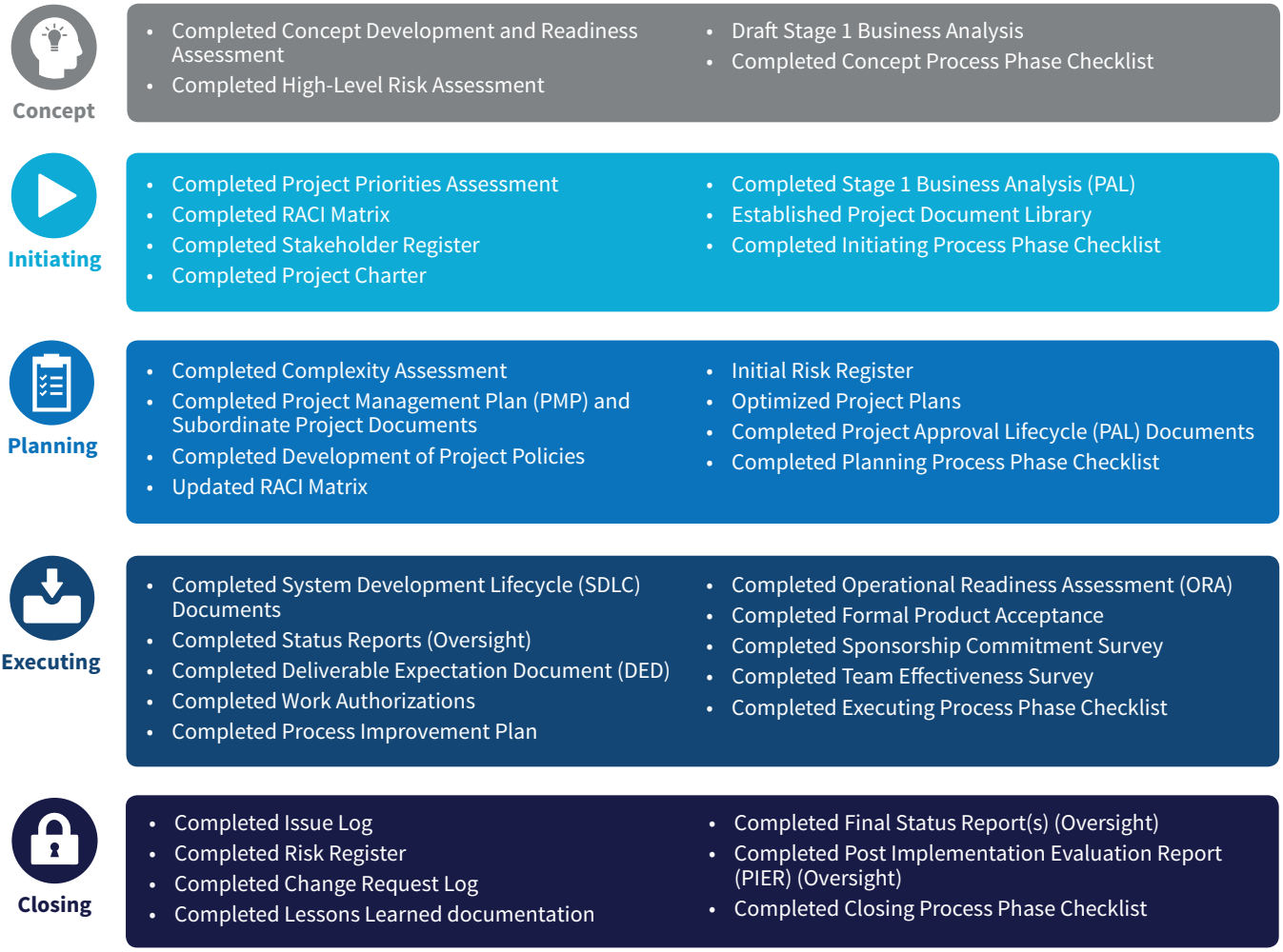


Figure 1-6

1.3 Monitoring & Controlling

1.3.1 Introduction

Monitoring and Controlling includes all of the activities, processes, and metrics needed to ensure the project is proceeding in accordance with the agreed to project plans. This includes ensuring that the project remains within the approved scope, schedule, budget, and quality thresholds so that it can proceed with the least possible risk. Actual project performance is compared to planned project performance, with corrective or preventative actions approved, planned and executed as necessary.

Monitoring and Controlling processes and activities can result in Change Requests (CRs) and/or updates to the PMP or other project plans. In some cases, major corrective or preventative actions may trigger reporting requirements to control agencies or development of a Special Project Report (SPR).

A Guide to the Project Management Body of Knowledge (PMBOK Guide) Sixth Edition describes Monitoring and Controlling as a PMBOK process group: *"The Monitoring and Controlling Process Group consists of those processes required to track, review, and regulate the progress and performance of a project; identify any areas in which changes to the plan are required; and initiate the corresponding changes."*

Monitoring and Controlling is likewise very much part of the Project Management Lifecycle (PMLC) as described in the CA-PMF. In the CA-PMF, the Monitoring and Controlling processes are continuously performed throughout the life of the project starting in the Initiating Process Phase. However, many Monitoring and Controlling activities occur during the project's Executing Process Phase.

Figure 1-7 on the following page shows the flow of Monitoring and Controlling activity during the stages of the PMLC.

Additional Resources

Figure 1-7

1.3.2 Recommended Practices

Recommended Practices

These Recommended Practices can help you throughout the project.

Monitoring and Controlling incorporates multiple, proactive processes and activities to help determine if a project is still on track. If changes are required, preventative or corrective actions are implemented through Change Requests and/or changes to project plans. Constant vigilance is required of Project Managers and the project team to maintain effective Monitoring and Controlling activities throughout the project. The following practices are recommended to assist project teams with conducting Monitoring and Controlling.

Continually Monitoring and Controlling Throughout the Project

Monitoring and Controlling does not have a finite beginning or end during the project lifecycle. In most projects Monitoring and Controlling starts in the Initiating Process Phase and concludes at the close of the project. Depending on the project, its processes and activities are conducted continuously. Monitoring and Controlling spans the breadth of project activity, including integrated Change Control, schedule, costs, scope, risks, issues, communications, contracts and procurements (including contractor performance, and quality).

See the Big Picture and Practice Integrated Change Control

Monitoring and Controlling may result in Change Requests and/or updates to project plans or other documentation. Integrated Change Control ensures that these changes are not handled in isolation, but rather are managed in coordination with all of the project's knowledge and activity areas. Monitoring and controlling spans the entire project, including changes to project plans and work.

Take Corrective and Preventative Actions Sooner Rather Than Later

Monitoring and Controlling is a continuous process, proactive by nature. A goal is to use the most up-date-date metrics and progress/status reports for comparison against project plans to identify potential issues or risks as early as possible. This allows preventative or corrective actions to be taken while a problem is still very manageable or has not yet impacted the project in a significant way.

Manage Project Team and Stakeholders in a Way that Encourages Open Communication About Project Progress

Monitoring and Controlling will be much less effective without an open and accurate flow of information how a project is progressing. Maintain an atmosphere that encourages team members (including any vendor staff) and other Stakeholders (including any contractor staff) to maintain accurate status and progress reporting and voice any concerns based on their perspective of

project work. Ensure that external Stakeholders are "kept in the loop" and know how and where to provide feedback as provided for in the project's Stakeholder Management Plan and/or Communication Management Plan.

Maintain a Clear View of Ongoing Contractor Performance

If the project is contracting out for some part of its work, ensure that the correct state procedures are being followed to ensure that the contracted work is being performed on schedule and with the expected quality. Consult the contract(s), the project's Contract Management Plan, and legal counsel as necessary if reporting and/or performance issues arise.

1.3.3 Roles During Monitoring & Controlling

Roles

For a complete list of all project roles, see the Project Role Definitions in the Glossary.

The following table identifies the primary Monitoring and Controlling participant roles and responsibilities. Use the RACI Matrix (also known as the responsibility assignment matrix) and the Resource Management Plan to assist in identifying the roles and their associated Monitoring and Controlling responsibilities.

Role	Responsibilities
Executive Sponsor(s)	• Provides agreement for executive intervention to overcome organizational roadblocks. • Key to driving the project goals and objectives to align with the organization's strategic direction.
Project Sponsor	• Key to driving the project goals and objectives to align with the organization's strategic direction. • Key to resolving escalated issues including those that may be related to the Triple Constraint: scope, schedule, cost, and quality.
IT Sponsor	• Provides technical information, resources, and support to complete Monitoring and Controlling activities.

Role	Responsibilities
Business Owner(s)	• Provides information pertaining to a preferred product or solutions. • Able to validate that requirements are met.
Project Manager	• Responsible for directing, managing, monitoring, controlling, and communicating all work associated with the project outcome.
Stakeholder(s)	• Any person or group that has an active interest in the project outcome or process, and wishes to participate, or is invited to participate, in the tasks associated with Monitoring and Controlling activities. • At this point in the project, a Stakeholder is usually receiving project status reports.
Department of Technology (CDT)	• Provides input, guidance, approval/disapproval of the project and/or project activities.

1.3.4 Processes and Activities

Monitoring and Controlling processes and activities keep track of project performance and progress at regular intervals, initiating Change Requests and/or updates to project plans when necessary for either corrective or preventative actions. At a high level, Controlling and Monitoring processes and activities include the following.

Activities

For more details on Monitoring & Controlling activities, see the Executing Process Phase.

Processes/ Activities	Description
Monitoring and managing of project Change Control, contracts and procurements, project work, quality, requirements, communication, risks, schedule, scope, and Stakeholder engagement.	Monitoring and management of these key project areas ensures the project is adhering to the Project Management Plan and is on track. Conducted starting in the Initiating Process Phase throughout the life of the project. Includes monitoring of contractor performance.
Monitoring and Resolution of Change Requests and perform Integrated Change Control; Complete Change Control Documentation	Monitoring and Controlling activities include initiating and completing Change Requests. Change Requests are used when corrective or preventative actions are proposed based on information collected from monitoring activities. Conducted starting in the Initiating Process Phase throughout the life of the project.
Monitoring Risk, Issues, and the Project Schedule. Reviewing and updating the Issue Log, Risk Log, and Project Schedule.	Monitoring includes project risks, issues, and schedule. Tools include the Issue Log, Risk Log, and Schedule which are analyzed and updated as required. Conducted throughout the life of the project.
Analyze, review, oversee, and control project work and resources.	Monitoring the performance of project work and resources is a key element in monitoring the overall status of a project. Problems that arise may generate Change Requests affecting schedule, staffing, or other parameters. Ensure that the project resources, which may include equipment, hardware, software, services, materials, staffing, facilities, infrastructure, etc., that have been planned are available and being utilized. Monitor and correct as needed for any deviations. Conducted during the Executing phase.

Processes/ Activities	Description
Monitoring and Management of Stakeholder Engagement	Stakeholders, both internal and external, are a key source of feedback on ongoing project performance. Conducted starting in the Initiating Process Phase throughout the life of the project.

1.3.5 Tools and Outputs

The following are generally developed as part of the project's Monitoring and Controlling activities.

Tool / Output	Description
Risk Log	The Risk Log is updated based on new risk information collected from monitoring activities per the project's Risk Management Plan.
Issue Log	The Issue Log is updated based on information collected from monitoring activities per the project's Issue Management Plan.
Project Status Reports (Oversight)	Project Status Reports are created/updated based on internal status reports and information collected from monitoring activities.
Project Schedule	The Project Schedule is updated as necessary based on information collected from monitoring activities and approved Change Requests.
Project Plans	The Charter, PMP, and other project plans are updated based on information collected from monitoring activities and approved Change Requests.

Tools

For a complete list of all project Tools see the Templates chapter.

Tool / Output	Description
Change Request Forms and Change Request Log.	Change Request Forms are completed to initiate Change Requests based on monitoring activities. The Change Request Log is updated to reflect the status of all Change Requests.

Framework Resources

2.1 Introduction

How does the California Project Management Framework (CA-PMF) relate to State of California project oversight programs and other project frameworks?

The Framework Resources section within this chapter describes how the CA-PMF process phases and tools interrelate with the Project Approval Lifecycle (PAL), California Department of Technology (CDT) Project Approvals and Oversight (PAO), and the System Development Lifecycle (SDLC). The illustration and tables are designed to help promote not only an understanding, but also provide quick points for reference.

Items that are discussed include:

- Special Project Report (SPR)
- Independent Project Oversight Report (IPOR)
- Project Status Report (PSR)
- Post-Implementation Evaluation Report (PIER)

Also included is a mapping from the CA-PMF to the Project Management Institute (PMI) A Guide to the Project Management Body of Knowledge (PMBOK Guide) and to the SDLC.

2.2 CA-PMF Relationships

This section details the relationship between the CA-PMF and associated State of California project-related processes.

The benefits from this mapping include:

- Clarification of how the CA-PMF process phases, processes, and tools interrelate with the PAL, PAO, and the SDLC.
- Definitions of project management roles and focus areas necessary to ensure the CA-PMF complements processes described in the PAL, PAO, and the SDLC.

- Recommendations as to where information from one set of processes may be leveraged to support other processes.

The CDT's Project Approvals and Oversight (PAO) within the Office of Statewide Project Delivery (OSPD) governs both PAL and the Oversight Framework.

- **Project Approval Lifecycle (PAL)** - The CDT adopted PAL to improve quality, value, and probability of success for state information technology (IT) projects. PAL consists of four stages separated by gates. This section will be updated periodically as the department continues to develop and refine the PAL program. See the PAL website or the *Statewide Information Management Manual (SIMM) Section 19* for additional information.

- **Oversight Framework** - Once a project is approved, the project team is responsible for reporting project progress in compliance with the *State Administrative Manual (SAM) Section 4819.36* and the *SIMM Section 45*. CDT's Project Approvals and Oversight (PAO) within the Office of Statewide Project Delivery (OSPD) provides project oversight and advice to state organizations and project teams. Oversight guidelines are detailed in the Oversight Framework. See the OSPD website for more details regarding these services.

The section covering the SDLC provides key linkages between the SDLC and the CA-PMF. For the purposes of the Project Management Lifecycle (PMLC) mappings, the SDLC is defined as the process of planning, defining, designing, creating, testing, deploying, and maintaining an information system.

Additional Resources

As referenced in the CA-PMF overview chapter, the following graphic, Figure 2-1, illustrates the relationship between those lifecycles that relate to the PMLC. Note that while OCM and BPR show their corresponding knowledge areas, there position within the graphic does not accurately portray when each knowledge area is to be conducted. Detailed guidance related to OCM and BPR is available for practitioners. The PAL and the SDLC are broken down into their respective phases/stages and overlaid on the PMLC process phases to show how they intersect.

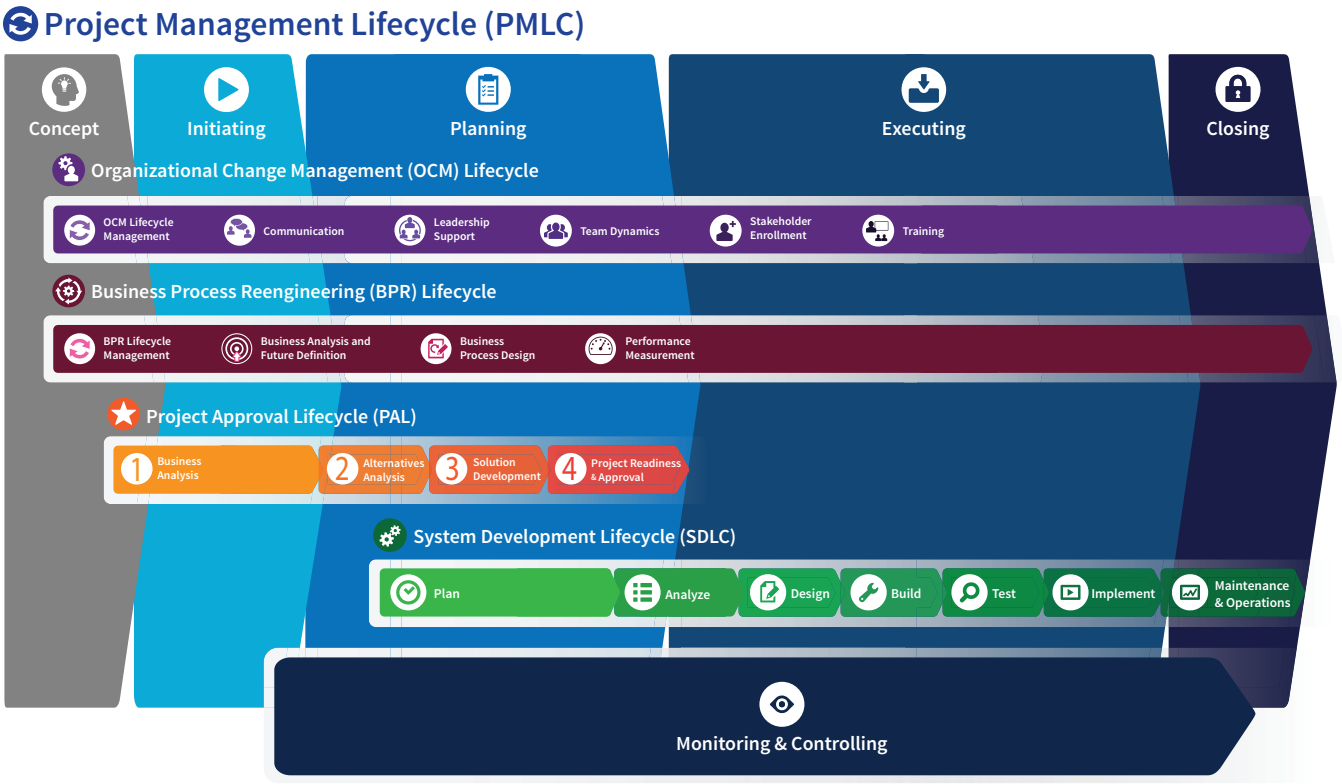


Figure 2-1

2.3 Comparing the CA-PMF with the Project Approval Lifecycle (PAL)

Web Links

Project Approval Lifecycle (PAL)

Statewide Information Management Manual (SIMM 19)

2.3.1 Introduction

The tables below display recommended CA-PMF tools and processes that are helpful as you navigate each PAL stage.

Content prepared during PAL can be used when creating project management plans, registers, and others that may be necessary to establish the project management structure and processes used throughout a project's lifecycle. The intent of this information is to tie the PAL sections to associated CA-PMF templates. Additionally, the table provides other resources to assist in the development of the PAL deliverables that are beneficial during the development of a particular project approval activity. Each respective section's table heading and first two columns (e.g., S1BA Section and Section Title) tie to the PAL template.

Sections 2.3.2 – 2.3.5, below, each represent a PAL Stage:

- Stage 1 Business Analysis (S1BA)
- Stage 2 Alternatives Analysis (S2AA)
- Stage 3 Solution Development (S3SD)
- Stage 4 Project Readiness and Approval (S4PRA)

Note: Updates to this section may occur periodically as the CDT continues its progressive elaboration of the PAL Stages 1 – 4.

Prior to completion of PAL Stages 1 – 4, Agencies/state entities should consider the IT Project Determination Scenarios (PDF), Reportable Project Decision Tree (PDF), and the Reportable Project Decision Tree Reference Guide (PDF) to determine if the effort is exempt from the PAL Stages 1 – 4. Although an effort may be exempt from PAL, the effort must be captured on the Agency State Entity Portfolio Report, *Statewide Information Management Manual (SIMM) Section 19 A.5* to be submitted to the CDT and Department of Finance based on the frequency detailed in *SIMM Section 05A Required IT Reports and Activities*.

Additionally, a PAL training library has been developed and is included as part of SIMM 19. The PAL training library can be accessed by going to the following link: *SIMM Section 19* or by clicking here.

2.3.2 Stage 1: Business Analysis

Stage 1 Business Analysis (S1BA)				
S1BA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
1.3.1	Reportability Assessment	• Concept Development and Readiness Assessment Template section 1.0 Problem/ Opportunity Statement	• California Department of Technology (CDT), Technology Letter 16-08 (PDF) • SAM Section 4819.2 (Definitions) • SAM Section 4819.37 (Project Reporting Criteria) • SAM Section 4819.34 (Project Approval Authority) • SAM Section 4819.40 (Expenditures for Ongoing Information Technology Activities) • SAM Section 4989 (Desktop and Mobile Computing Policy) • IT Project Determination Scenarios (PDF) • Reportable Project Decision Tree (PDF) • Reportable Project Decision Tree Reference Guide (PDF) • SIMM Section 15 Department Delegated Cost Thresholds	For state entities that report to an Agency Information Officer (AIO), approval of the S1BA has been delegated to the AIO. For additional information, refer to CDT Technology Letter 16-08. Concept Development and Readiness Assessment section 1 identifies drivers (e.g., Legislative mandates) that impact the project reporting criteria. Use these resources to determine if a project is anticipated to be reportable, requiring CDT approval. Delegated approvals include: • Acquisition effort does not meet the definition of an IT Project (e.g., at least 500 hours of effort) under SAM 4819.2. • Acquisition effort meets the requirements and definition of a COTS or SAAS delegation under SAM 4819.34. • Acquisition effort meets the definition of expenditures for ongoing information technology activities under SAM 4819.40. • Acquisition effort meets the definition of expenditures for desktop and mobile computing commodities under SAM 4989. Use SIMM Section 15 to determine IT Delegated Costs Thresholds.

Stage 1 Business Analysis (S1BA)				
S1BA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
	Reportability Assessment – Planned Reporting Exemption		• SIMM Section 19E – Project Approval Lifecycle Reporting Exemption Request	A state entity may request an exemption from reporting requirements if the S1BA is approved AND your Technology Recovery Plan and Agency Information Management Strategy are approved by CDT.
1.3.2	Impact Assessment	• Project Charter section 7.2 Anticipated Funding Sources (or) Project Charter Mini section 8.0 Project Budget	• SAM Section 6899 – General Fund Definition • Government Code (GC) section 13306 – Special Fund Definition • GC section 13326, 13338 – Federal Fund Definition • SAM section 6463 – Reimbursements Definition • SAM section 14400 – Bond Fund Definition	Project Charter section 7.2 (or) Project Charter Mini section 8.0 specify anticipated project funding sources. Refer to these resources for specific fund type definitions and additional information.
1.4	Business Sponsor and Key Stakeholders	• Project Charter section 5.0 Roles and Responsibilities (or) Project Charter Mini section 7.0 Project Roles and Responsibilities • Stakeholder Register section 3.0 Register		Project Charter section 5.0 (or) Project Charter Mini section 7.0 identify key roles and responsibilities. Stakeholder Register section 3.0 identifies the project sponsor, business owner, and key stakeholders (affected divisions).

Stage 1 Business Analysis (S1BA)				
S1BA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
1.5	Business Driver(s)	• Concept Development and Readiness Assessment section 1.0 Problem/ Opportunity Statement • Project Charter section 2.1 Business Problem, section 4.1 Project Objectives (or) Project Charter Mini section 2.0 Goals and Objectives and 3.0 Scope and Benefits		Concept Development and Readiness Assessment section 1.0 identifies: • Project drivers (e.g., financial improvements, state mandates, operational efficiencies). • Legislation. • How the problem was identified (logs/reports, deficiencies, backorders, etc.). • Security or privacy related issues Project Charter section 2.1 (or) Project Charter Mini section 2.0 identify drivers, goals, and objectives Project Charter section 4.1 (or) Project Charter Mini section 3.0 describe benefits expected.
1.6	Statutes or Legislation	• Concept Development and Readiness Assessment section 1.0 Problem/ Opportunity Statement • Project Charter section 2.1 Business Problem (or) Project Charter Mini section 1.0 Introduction	• California Legislative Information	Concept Development and Readiness Assessment section (1.0) and Project Charter section 2.1 or Project Charter Mini section 1.0 identify statutes and legislative mandates. Resource provides Senate and Assembly Bill information and provides access to California Law Codes.

Stage 1 Business Analysis (S1BA)				
S1BA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
1.7	Program Background and Context	• Concept Development and Readiness Assessment section 1.0 Problem/ Opportunity Statement • Project Charter section 3.1 Strategic Alignment and 4.0 Project Scope Statement (or) Project Charter Mini section 1.0 Introduction and 3.0 Scope and Benefits		S1BA section – Include business program(s) impacted, how the proposal fits within the program(s), and how internal/external business sponsors/key stakeholders participate in the business process. Concept Development and Readiness Assessment section 1.0 identifies cause/magnitude of the problem. Project Charter section 3.1 and 4.0 (or) Project Charter Mini section 1.0 and 3.0 identify the strategic alignment, scope, and objectives.
1.8	Strategic Business Alignment	• Project Charter section 3.0 Strategic Alignment (or) Project Charter Mini section 2.0 Goals and Objectives		S1BA section – Identify each goal and describe how the proposal achieves the strategic goals in the Strategic Plan. Project Charter 3.0 (or) Project Charter Mini 2.0 identify project goals and the strategic alignment.

Stage 1 Business Analysis (S1BA)				
S1BA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
1.9	Business Problem or Opportunity Summary	• Project Charter section 2.0 Business Problem and 4.1 Project Objectives or Opportunity (or) Project Charter Mini section 2.0 Goals and Objectives		S1BA section – Provide a summary of the business problem or opportunity, including how the problem was identified, what created it, magnitude, business drivers, why important, security/privacy issues, and effects/impacts of any statutes and/or mandates. Project Charter section 2.0 and 4.1 (or) Project Charter Mini section 2.0 identify business problems, opportunities, and objectives.
1.10	Business Problem or Opportunity and Objectives Table	• Project Charter section 2.0 Business Problem and 4.1 Project Objectives or Opportunity (or) Project Charter Mini section 2.0 Goals and Objectives	• SIMM Section 19B.3 Mid-level Solution Requirements Template (XLS) • SIMM Section 170 Requirements Guideline Set • SIMM Section 170B Project Requirements Development Instructions (PDF) • SIMM Section 170B Exhibit B1 – B3 Expanded Requirements Sample(s)	The Project Manager should ensure that the S1BA business objectives are brought forward during the Planning Process Phase and are traceable throughout the project. S1BA section – Identify problem or opportunity detail using SMART (specific, measurable, achievable, realistic and time bound) objectives, including the specific measurement, current and target values, and the measurement method. Project Charter section 2.0 and 4.1 (or) Project Charter Mini section 2.0 identify business problems, opportunities, and objectives. Refer to resources indicated to initiate traceability to Stage 2 Mid-level Solution Requirements and for examples of requirement development from a business objective.

Stage 1 Business Analysis (S1BA)				
S1BA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
1.11	Business and Stakeholder Capacity	• Project Charter section 8.4 Related/ Dependent Projects • Stakeholder Register section 3.0 Register	• S1BA section 1.4 Business Sponsor and Stakeholders and section 1.7 Program Background and Context	S1BA section – Describe shared resources, if any. Also, describe how the proposal will be accommodated considering existing programs and the effect of any new workload on impacted business area. Project Charter section 8.4 and Stakeholder Register section 3.0, respectively, identify related/ dependent project and stakeholders. S1BA sections 1.4 and 1.7, respectively, identify stakeholders and their participation in the business process.
1.11.2	External Stakeholder Involvement	• Project Charter section 8.3 Stakeholder Register • Stakeholder Register section 3.0 Register	• S1BA section 1.4 Business Sponsor and Stakeholders and section 1.7 Program Background and Context	S1BA section – Describe any external stakeholders involved in the proposal, including: scope of involvement, level of influence, if needed to evaluate solution alternatives, and develop requirements and evaluation criteria. Project Charter section 8.3 and Stakeholder Register section 3.0 identify stakeholders. S1BA sections 1.4 and 1.7, respectively, identify external stakeholders and their participation in the business process.

Stage 1 Business Analysis (S1BA)				
S1BA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
1.11.3	New or Changes to Business Processes			S1BA section – Describe any new or changes to existing business processes, potential impacts on current business processes, and scope of business process modeling needed for requirements development and organization change management.
1.12.1	Governance Structure	• Project Charter section 8.2 Project Governance • Project Management Plan section 4.5 Governance Management • Governance Management Plan section 2.0 Governance Approach		S1BA section – Describe scope of the governance, who provides strategic direction, how business sponsor and key stakeholders will be represented during decision making process. Project Charter section 8.2, Project Management Plan section 4.5, and Governance Manage Plan section 2.0 identify governance structure, governing body, decision-making authority, and governance process.

Stage 1 Business Analysis (S1BA)				
S1BA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
1.12.2	Leadership Participation	• Project Charter section 5.0 Roles and Responsibilities, section 8.1 Project Organization, and section 8.2 Project Governance • Project Management Plan section 3.0 Roles and Responsibilities and section 4.5 Governance Management • Governance Management Plan section 3.0 Roles and Responsibilities • Project Organization Chart section 3.0 Project Organizational Chart		S1BA section – Identify leadership and describe in detail leadership participation and how they will be involved, including availability, commitment, and experience with organizational change management. Project Charter sections 5.0, 8.1 and 8.2; Project Management Plan sections 3.0 and 4.5; Government Management Plan 3.0 identify leadership participation; and, Project Organization Chart section 3.0 identify leadership and the organizational structure.

Stage 1 Business Analysis (S1BA)				
S1BA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
1.12.3	Resource Capability/ Skills/ Know-ledge for Stage 2 Alternatives Analysis	• Project Management Plan section 4.12 Resource Management • Resource Management Plan section 7.0 Required Staffing Skills and Competencies • Project Charter section 7.4 Known Sources of Technical Information and section 8.1 Project Organization • Project Organization Chart		S1BA section – Describe Stage 2 resources to be included in a budget request, existing resources with experience performing similar projects, functions, and procurements, and planned resources being considered. The Project Management Plan section 4.12, Resource Management Plan section 6.0; Project Charter sections 7.4 and 8.1; and, the Project Organization Chart identify skills and competencies and project staff.

Stage 1 Business Analysis (S1BA)				
S1BA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
1.12.4	Training and Organizational Change Management	• Project Management Plan section 4.12 Resource Management • Resource Management Plan section 1.0 Introduction, section 3.0, Development Roles and Responsibilities		S1BA section – Identify impacted geographical locations throughout the State of California. Summarize the resources, processes, and methodologies in place to provide training or organizational change management (OCM). Include the approximate number of staff resources affected by the change(s) and business program(s) they work in. Project Management Plan section 4.12, Resource Management Plan sections 1.0 and 3.0 identify project roles and responsibilities, staff skill sets, staff acquisition, and staff development information.
1.12.5	Enterprise Architecture			S1BA section – Describe current documented enterprise architecture (or future state), overall impact on the enterprise architecture roadmap/ vision, and how this proposal will be integrated with current business and IT systems.

Stage 1 Business Analysis (S1BA)				
S1BA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
1.12.6	Project Management	• Project Management Plan section 4.13 Risk Management • Risk Management Plan 3.0 Risk Management Processes • Risk Register	• SIMM Section 45 Appendix A Project Management Risk Assessment Template (XLS) • SIMM Section 45 Appendix B Project Management Risk Assessment Preparation Instructions (PDF)	S1BA section – Enter the Project Management Risk Assessment score. SIMM section 45 Project Management Risk Assessment Appendix A and B assess project management risks. Risk Register used to document identified risks. Project Management Plan section 4.13 and Risk Management Plan section 3.0 provide methods to identify, document, analyze, and plan and implement risk responses.
1.12.7	Data Management	• Project Charter section 8.2 Project Governance • Project Management Plan section 4.5 Governance Management • Governance Management Plan section 4.0 Governance Processes		S1BA section –Agencies/state entities that do not have documented, implemented data governance OR data security policies need to explain how they plan to establish, document, and implement such policies. Project Charter section 8.2, Project Management Plan section 4.5, and Governance Management Plan section 4.0 describe governance processes.

Stage 1 Business Analysis (S1BA)				
S1BA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
N/A	Gate 1 Collaborative Review Guidelines	• Project Charter • Scope Management Plan • Risk Management Plan • Risk Register • Communication Management Plan • Resource Management Plan • Project Management Plan • Governance Management Plan	• SIMM Section 19A.4 Gate 1 Collaborative Review Guidelines (PDF) • SIMM Section 45 Appendix A Project Management Risk Assessment Template (XLS) • SIMM Section 45 Appendix B Project Management Risk Assessment Preparation Instructions (PDF) • SIMM Section 45 Appendix C Complexity Assessment Template (XLS) • SIMM Section 45 Appendix D Complexity Assessment Instructions (PDF)	For projects not delegated – Gate 1 Collaborative Review/Stage 2 Kick-off occurs once you decide to move forward to Stage 2 Alternatives Analysis. Topics include: • Establish PAL Core Team, which includes dedicated resources from: Administration and Procurement; Project Management; IT System Support; Information Security; Enterprise Architecture; Budget Office • Approval conditions (if any) identified; Consensus on path forward; Meeting to review and discuss Complexity Assessment – Business and determine next steps • Review Project Management Risk Assessment. Consider the PMO capability and capacity with respect to current project portfolio. • Review the Agency/state organization's governance and organizational change management methodologies; Discuss various plans recommended or required. If a proposal is anticipated to be non-reportable, it is recommended that the AIO consider the information contained in SIMM Section 19A, A.4 Gate 1 Collaborative Review Guidelines (PDF) as the department continues through the PAL Stage/Gate process.

2.3.3 Stage 2: Alternatives Analysis

Stage 2 Alternatives Analysis (S2AA)				
S2AA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
2.3	Stage 2 Preliminary Assessment	• Planning Process Phase Checklist • Project Management Plan section 4.16 Stakeholder Management • Project Organization Chart • Stakeholder Register • Resource Management Plan section 4.0 Project Organization Chart • RACI Matrix	• SIMM Section 19A.4 Gate 1 Collaborative Review Guidelines (PDF) • SIMM Section 45 Appendix A Project Management Risk Assessment Template (XLS) • SIMM Section 45 Appendix C Complexity Assessment Template (XLS) • SIMM Section 45 Appendix D Complexity Assessment Instructions (PDF)	Use the Planning Process Phase Checklist to help determine and document the plans needed during Stage 2. After the Gate 1 Collaborative/ Stage 2 Kick-off, the PAL Core Team determines: • Next steps • Business Complexity Assessment (finalization) • Stage 2 work schedule development and planning The Project Management Plan section 4.16; Project Organization Chart; Stakeholder Register; RACI Matrix; and, Resource Management Plan section 4.0 identify business sponsors and key stakeholders.
2.3.2	Business Complexity Assessment		• SIMM Section 45 Appendix C Complexity Assessment Template (XLS) • SIMM Section 45 Appendix D Complexity Assessment Instructions (PDF)	S2AA section – The PAL Core team review the Business Complexity. The factors in the complexity assessment help identify and drive early risk identification and analysis.

Stage 2 Alternatives Analysis (S2AA)				
S2AA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
2.4	Condition(s) from Previous Stage(s)	• Issue Log • Risk Register • Project Library		S2AA section – Provide any approval conditions with your assessment, response, and status. Recommendation: Log any approval conditions in the Issue Log or Risk Register (as applicable). For Issue Log items, assign resources along with issue due date. Store research and responses in the Project Library for future reference. The Issue Log and Risk Register identify issues or potential risks, respectively.
2.5	Baseline Processes and Systems		• Various techniques (e.g., brainstorming, data flow diagrams, interviews, process modeling, data modeling)	S2AA section – Use various techniques to determine, document, and ensure all parties involved have a clear understanding of the current "as-is" business processes (including manual processes) and supporting systems.
2.5.1	Description			S2AA section – Describe the current business processes and supporting systems impacted by the proposal.
2.5.2	Business Process Workflow		• Business Process Workflow Diagram/ Chart (e.g., workflow charts, system or process flow charts, cause and effect diagrams, event-driven flow chart, swim lane flow chart)	S2AA section – Attach the workflow diagrams and charts that visually display the real work (e.g., business processes, business rules, trigger events, outcomes and results, data dictionary).

Stage 2 Alternatives Analysis (S2AA)				
S2AA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
2.5.3	Current Architecture Information	• Project Management Plan section 4.6 Implementation Management • Implementation Management Plan section 4.0 System Overview and 4.1 System Organization	• Architecture information and diagram	S2AA section – Document the current architecture information (business process name; applications, systems or components that support the business process; etc.). The Project Management Plan section 4.7 and Implementation Management Plan section 4.0 and section 4.1 identify existing system information and system structure and components.
2.5.4	Current Architecture Diagram	• Project Management Plan section 4.6 Implementation Management • Implementation Management Plan section 4.0 System Overview and 4.1 System Organization	• Architecture diagram	S2AA section – Attach the current architecture diagram. The Project Management Plan section 4.7 and Implementation Plan section 4.0 and 4.1 identify current architecture information.
2.5.5	Security Categorization Impact Table	• Implementation Management Plan section 10 Implementation Security • Risk Register	• Risk Register Federal Information Processing Standards (FIPS) Publication 199: http://csrc.nist.gov/publications/fips/fips199/FIPS-PUB-199-final.pdf • SIMM Section 5305-A (PDF)	S2AA Section – Attach the security categorization impact table. Work with your Information Security Officer to categorize security-related information. The Implementation Management Plan section 10 identifies security-related information. Use the Risk Register to update any identified security-related risks.

Stage 2 Alternatives Analysis (S2AA)				
S2AA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
2.6	Mid-Level Solution Requirements	• Project Management Plan section 4.11 Requirements Management and section 4.16 Stakeholder Management • Requirements Management Plan section 4.0 • Stakeholder Management Plan section 2.0 Roles and Responsibilities and Stakeholder Register section 3.0 Register • Requirements Traceability Matrix (RTM)	• SIMM Section 19B.3 Mid-level Solution Requirements Template (XLS)	S2AA section – Attach the mid-level solution requirements. The Project Management Plan section 4.16 and Stakeholder Management Plan section 2.0 and Stakeholder Register section 3.0 identify staff to include in the requirements elicitation process. The Project Management Plan section 4.12 and Requirements Management Plan section 4.0 identify the requirements development process used. The RTM identifies requirements traceability information.

Stage 2 Alternatives Analysis (S2AA)				
S2AA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
			• SIMM Section 170 Requirements Guideline Set • 170A – General Requirements Guidelines (PDF) • 170A, Exhibit A Strong Requirement Samples (PDF) • 170B – Project Requirements Development Instructions (PDF) • 170B, Exhibit B1 Expanded Requirements Sample (PDF) • 170B, Exhibit B2 Expanded Requirements Sample (PDF) • 170B, Exhibit B3 Expanded Requirements Sample (PDF) • 170B, Exhibit C Glossary Sample (PDF) • 170B, Exhibit D Requirements Development Workflow (PDF) • CDT (SDLC) Plans and Tools	Refer to these resources during requirements development activities.

Stage 2 Alternatives Analysis (S2AA)				
S2AA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
2.7	Assumptions and Constraints	• Project Charter section 6.2 Assumptions and section 6.3 Constraints		S2AA section – Enter any assumptions (things accepted as true or certain to occur) and/or constraints (limits or conditions) to the project and their potential impact. If a financial impact is identified, include how it was identified/determined. The Project Charter sections 6.2 and 6.3 identify assumptions and constraints.
2.8	Dependencies	• Project Charter section 8.4 Related/ Dependent Projects and section 8.5 Dependencies		S2AA section – Enter element with the dependency (e.g., waiting for staff from another effort) and the description of the element (e.g., data migration dependent on documenting business rules). The Project Charter section 8.4 and section 8.5 identify related/ dependent projects or dependencies.
2.9.1	Market Research Methodologies/ Timeframes		• CDT Market Research Guidelines (PDF)	S2AA section – Identify the types of market research performed, timeframe and dates started and completed. Use the Market Research Guidelines for steps, helpful hints, and best practices on how to conduct your market research. During Market Research, the project team will likely identify potential suppliers for future solicitations, as well as source selection criteria.

Stage 2 Alternatives Analysis (S2AA)				
S2AA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
2.9.2	Results of Market Research		• CDT Market Research Guidelines (PDF)	S2AA section – Describe the market research conducted (how analyzed, who was involved, effect on requirements development, effect on procurement methodology, alignment with recommended alternative).
2.10.1	Solution Type			S2AA section – Identify if the information is for the recommended or alternative solution. Only one alternative should be designated as "Recommended" and at least two alternatives typically should be provided.
2.10.2	Name			S2AA section – Enter a name for the alternative.

Stage 2 Alternatives Analysis (S2AA)				
S2AA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
2.10.3	Description			S2AA section – Describe the alternative (what it is and why it was considered) and select all approaches used to address and meet objectives. For business-based procurements – Only complete S2AA sections (until Stage 4): • 2.10.1 - 2.10.5 • 2.11.1 • 2.11.3 • 2.11.5 - 2.11.7 • 2.12 (all sub-sections) • 2.13 • 2.14
2.10.4	Benefit Analysis			S2AA section – Enter benefits (e.g., alternative meets certain functional requirements better than another alternative), disadvantages (e.g., significant technical support needed), anticipated timeframe to complete objective(s) (from S1BA section 1.10).

Stage 2 Alternatives Analysis (S2AA)				
S2AA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
2.10.5	Assumptions and Constraints	• Project Charter section 6.2 Assumptions and section 6.3 Constraints		S2AA section – Enter any assumptions (things accepted as true or certain to occur) and/or constraints (limits or conditions) related to the alternative. If a financial impact is identified, include how it was identified/ determined. If "Recommended" alternative – Update the Project Charter sections 6.2 and 6.3 assumptions and constraints.
2.10.6	Implementation Approach			S2AA section – Identify all the approaches for the alternative.
2.10.7	Architecture Information	• Project Management Plan section 4.6 Implementation Management • Implementation Management Plan section 4.0 System Overview and 4.1 System Organization	• State Administrative Manual (SAM) Section 5305.5 Information Assess Management	S2AA section – Identify all architecture information for the alternative. The Project Management Plan section 4.7 and Implementation Plan section 4.0 and section 4.1 identify architecture information. SAM Section 5305.5 provides information on data owners/ custodians.

Stage 2 Alternatives Analysis (S2AA)				
S2AA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
2.11.1	Rationale for Selection			S2AA section – Provide how the recommended alternative meets requirements, any business advantages, disadvantages and why the disadvantages do not eliminate the alternative, and other factors (e.g., alignment with business strategy, availability of resources, contracting resources, and/or funding).
2.11.2	Technical Complexity	• Risk Register	• SIMM Section 15 Departmental Delegated Cost Thresholds • SIMM Section 19B.1 Preparation Instructions Section 2.11.2 (PDF) • SIMM Section 45 Appendix C Complexity Assessment Template (XLS) • SIMM Section 45 Appendix D Complexity Assessment Instructions (PDF)	S2AA section – Enter the technical complexity score. Use the template that was used to establish the business complexity score to determine the combined complexity zone. The "Overall Complexity," along with your delegated cost threshold determines the scalability for the remaining sections. Refer to SIMM Section 19B.1 for additional information. Use the Risk Register to log identified risks.

Stage 2 Alternatives Analysis (S2AA)				
S2AA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
2.11.3	Procurement and Staffing Strategy	• Work Breakdown Structure (WBS) section 2.0 High-Level Workflows and Activities; section 5.2 WBS Organization and Descriptions; and, section 6.0 Work Breakdown Structure Tool • Project Management Plan section 4.12 Resource Management • Resource Management Plan section 3.0 Development Roles and Responsibilities; 4.0 Project Organization Chart; 5.0 Project Staffing Estimates; 6.0 Required Staffing Skills and Competencies		S2AA section – Enter planned PAL activities (with who is responsible, when needed, and how the cost estimated was determined). If a contractor is responsible for an activity, provide procurement information. The WBS sections 2.0, 5.2, and 6.0 identify planned activities. The Project Management Plan section 4.12 and Resource Management Plan and Procurement Management Plan sections 3.0, 4.0, 5.0, and 6.0 identify staffing roles, responsibilities, organization chart, staffing estimates, and required skills and competencies.

Stage 2 Alternatives Analysis (S2AA)				
S2AA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
2.11.4	Enterprise Architecture Alignment	• Project Management Plan section 4.6 Implementation Management • Implementation Management Plan section 4.0 System Overview and 4.1 System Organization	• S1BA section 1.12.5 Enterprise Architecture (PDF)	S2AA section – Explain how this proposal brings you closer to your target enterprise architecture and identify any applicable enterprise capabilities that may be leveraged. Refer to your S1BA section 1.12.5. The Project Management Plan section 4.7 and Implementation Plan section 4.0 and 4.1 identify architecture information.
2.11.5	Project Phases	• Work Breakdown Structure (WBS) section 2.0 High-Level Workflows and Activities and section 6.0 Work Breakdown Structure Tool		S2AA section – Enter planned project phases, phase descriptions, and anticipated deliverables. The WBS sections 2.0 and 6.0 provide work tasks and activities.

Stage 2 Alternatives Analysis (S2AA)				
S2AA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
2.11.6	High Level Proposed Project Schedule	• Project Management Plan section 4.14 Schedule Management and section 4.15 Scope Management • Schedule Management Plan section 2.0 High-Level Workflows and Activities • Scope Management Plan section 2.0 Approach	• Project Schedule	S2AA section – For "Project Planning Start Date" use the Stage 2 begin date and for "Project Planning End Date" use the estimated conclusion of Stage 4. For "Project Start Date" use the date when the project is both approved and funded and for "Project End Date" use the last date of project activities (estimated). At a minimum, the following questions should be answered prior to developing this S2AA section: • What process will be used to identify project tasks and activities? • How will estimates be made? The Project Management Plan section 4.14 and section 4.15; Schedule Management Plan section 2.0 and section 5.0; and, Scope Management Plan section 2.0 provide the high-level workflows, activities, and schedule and scope management processes.

Stage 2 Alternatives Analysis (S2AA)				
S2AA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
2.11.7	Cost Summary	• Project Management Plan section 4.4 Cost Management • Cost Management Plan section 3.0 Cost Management Processes	• SIMM Section 19F.1 Preparation Instructions (PDF) • SIMM Section 19F.2 Financial Analysis Worksheets (FAWs) (XLS)	S2AA section – Use the SIMM Section 19F.1 instructions and 19F.2 FAWs to document costs. Prior to documenting your FAWs consider: • How will costs be estimated and by what role? • What are the various funding sources for the project? • How will expenditures be authorized and by what role? The Project Management Plan section 4.4 and Cost Management Plan section 3.0 identify your processes for cost management, cost tracking, cost reporting, cost controlling, and cost changes.

Stage 2 Alternatives Analysis (S2AA)				
S2AA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
2.12 2.12.1 2.12.2 2.12.3 2.12.4 2.12.5 2.12.6 2.12.7 2.12.8	Staffing Plan Administrative Business Program Information Technology (IT) Testing Data Conversion/ Migration Training and Organizational Change Management Resource Capacity/ Skills/ Knowledge for Stage 3 Solution Development Project Management Organization Charts	• Project Management Plan section 4.12 Resource Management • Resource Management Plan section 3.0 Development Roles and Responsibilities; 4.0 Project Organization Chart; 5.0 Project Staffing Estimates; and, 6.0 Required Staffing Skills and Competencies • Project Organization Chart • Skills Assessment	• SIMM Section 45 Appendix A Project Management Risk Assessment Template (XLS) • SIMM Section 45 Appendix B Project Management Risk Assessment Preparation Instructions (PDF)	S2AA sections – Describe your Agency/ state entity's capacity and capability within each respective area. Use the SIMM Section 45 Appendix A to update your project management risk assessment score. Attach your completed SIMM 45 Appendix A. The Project Management Plan section 4.12; Resource Management Plan sections 3.0, 4.0, 5.0, and 6.0; and, Project Organization Chart provide information on staffing, roles and responsibilities, project organization, staffing estimates, and required skills and competencies. The Skills Assessment provides information on staff skill levels required, actual skill levels, and skill gap mitigation plans.

Stage 2 Alternatives Analysis (S2AA)				
S2AA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
2.12.8.2	Project Management Planning	• Project Charter • Scope Management Plan • Risk Management Plan • Issue and Action Item Management Plan • Communication Management Plan • Schedule Management Plan • Resource Management Plan • Stakeholder Management Plan • Governance Plan		S2AA section – Indicate the appropriate designation (Yes, No, Not Applicable) for each of project management plans listed. Select "Yes" if the plan is complete, approved and available for review. Select "No" if the plan is being developed, pending approval or not yet started and provide the status in the space provided. Select "Not Applicable" if the plan is not needed and provide an explanation in the space provided.
2.12.9	Organization Charts	• Project Organization Chart		S2AA section – Attach your proposed project organization charts, showing project team (number and classification for the program, business, technical, and procurement staff, including any vendors). The organization charts should align with the FAWs in S2AA section 2.14. The Project Organization Chart provides project staff information.

Stage 2 Alternatives Analysis (S2AA)				
S2AA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
2.13	Data Conversion/ Migration	• Project Management Plan section 4.6 Implementation Management • Implementation Management Plan section 8.0 Major Tasks		S2AA section – Select the appropriate status (Not Started, In Progress, Completed, or Not Applicable). If "Not Applicable" or "Not Started," provide a brief explanation of why the migration/ conversion activity is not needed or when the activity is planned to begin and end. Attach completed data conversion or migration documentation. The Project Management section 4.7 and Implementation Management Plan section 8.0 identify data conversion and migration activities.
2.14	Financial Analysis Worksheets	• Project Management Plan section 4.4 Cost Management • Cost Management Plan section 3.0 Cost Management Processes	• SIMM Section 19F.1 Preparation Instructions (PDF) • SIMM Section 19F.2 Financial Analysis Worksheets (FAWs) (XLS)	S2AA section – Use the SIMM Section 19F.1 instructions and 19F.2 FAWs to document costs. Attach your completed FAWs. The Project Management Plan section 4.4 and Cost Management Plan section 3.0 document cost management processes.

Stage 2 Alternatives Analysis (S2AA)				
S2AA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
N/A	Gate 2 Collaborative Review	• Project Charter • Project Management Plan • Scope Management Plan • Risk Management Plan • Issue and Action Item Management Plan • Communication Management Plan • Schedule Management Plan • Resource Management Plan • Cost Management Plan • Stakeholder Governance Plan • RACI Matrix • Planning Process Phase Checklist	• SIMM Section 45 Appendix A Project Management Risk Assessment Template (XLS) • SIMM Section 45 Appendix B Project Management Risk Assessment Preparation Instructions (PDF)	During the collaborative review, review the Planning Process Phase Checklist to ensure planning documentation and templates needed during this stage have been completed. The Project Manager should consider: • How will business changes be decided and achieved? • Preliminary staffing considerations and Stakeholder impact • Preview of how the proposed project will be governed Review and discuss the Project Management Risk Assessment completed for the S2AA section 2.12.8.2. **Note:** The expected level of detail for the above items corresponds directly with the detail necessary to assess the feasibility of the approach. The focus is on whether the selected alternative best addresses the business problem and opportunity, and if the approach to deliver the solution is reasonable.

2.3.4 Stage 3: Solution Development

Stage 3 Solution Development (S3PA)				
S3PA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
3.3.1	Solicitation Readiness, Question 1	• Project Management Plan section 4.9 Procurement Management • Procurement Management Plan section 3.2 Contract Type		S3PA section – Select "Yes" if the project team has experience procuring the type of solution recommended; "No," if they do not have experience; or, "Not Applicable (N/A),' if the project does not require a solicitation (e.g., using internal staff only). The Project Management Plan section 4.10 and Procurement Management Plan identify the type of contract the project will use and references contract documentation.
	Solicitation Readiness, Question 2	• Project Management Plan section 4.9 Procurement Management • Procurement Management Plan section 2.0 Roles and Responsibilities	• SAM Section 5200.5	S3PA section – Select "Yes" if the Procurement Official has reviewed and understands their role; "No," if they have not reviewed their role and need further assistance; or, "N/A" if the procurement is not under the authority of the CDT Office of Statewide Project Delivery (OSPD), Statewide Technology Procurement (STP). The Project Management Plan section 4.10 and Procurement Management Plan section 2.0 identify the roles and responsibilities for staff performing procurement activities.

Stage 3 Solution Development (S3PA)				
S3PA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
	Solicitation Readiness, Question 3 and 4	• Project Management Plan section 4.9 Procurement Management • Procurement Management Plan section 3.2 Contract Type	• State Contracting Manual (SCM) Volume 3 • SAM Section 5230.1	S3PA section – Question 3, select "Yes" if you plan to modify the IT General Provisions for the primary solicitation; "No," if you do not; or, "N/A" if the IT General Provisions do not apply. S3PA section – Question 4, select "Yes" if you plan to add specific provisions based on your business needs (e.g., Federal funding requirements); "No," if you do not; or, "N/A" the IT General Provisions do not apply. If "Yes," to either question, the provisions must be approval by OSPD, STP prior to exiting Stage 3. The Project Management Plan section 4.10 and Procurement Management Plan section 3.2 provide information about the type of procurement that will be used.

Stage 3 Solution Development (S3PA)				
S3PA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
	Solicitation Readiness, Question 5, 6, 7, 8, and 9	• Project Management Plan section 4.9 Procurement Management • Procurement Management Plan section 3.5 Procurement Document Preparation	• SIMM Section 180 Statement of Work Guidelines (PDF) • State Contracting Manual (SCM) Volume 3	S3PA section – Question 5, select "Yes" if you need help with the STP Solicitation Template; "No," if help is not needed; or, "N/A" if the procurement does not require the use of the STP solicitation template. S3PA section – Question 6, select "Yes" if you need help to develop the key action dates for the primary solicitation; "No," if help is not needed; or, "N/A" if the project does not require a solicitation. S3PA section – Question 7, select "Yes" if you need help with your planning approach; "No," if help is not needed; or, "N/A" if the project does not require a solicitation. S3PA section – Question 8, select "Yes" if you need help to identify Statement of Work (SOW) components for the primary solicitation; "No," if help is not needed; or, "N/A" if the procurement does not involve an SOW. S3PA section – Question 9, select "Yes" if you need help to with the STP Pre-Solicitation process; "No," if help is not needed; or, "N/A" if the procurement does not involve a pre-solicitation.

Stage 3 Solution Development (S3PA)				
S3PA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
3.3.2	Solicitation Evaluation Strategy Readiness, Question 1, 2, and 3	• Project Management Plan section 4.4 Cost Management and section 4.9 Procurement Management • Cost Management Plan section 3.0 Cost Management Processes • Procurement Management Plan section 3.5 Procurement Document Preparation	• SIMM Section 180 Statement of Work Guidelines (PDF) • State Contracting Manual (SCM) Volume 3 • FAWs (Completed)	S3PA section – Question 1, select "Yes" if you need help to develop an evaluation methodology; "No," if help is not needed; or, "N/A" if the procurement does not require an evaluation methodology. S3PA section – Question 2, select "Yes" if you need help to develop an evaluation methodology; "No," if help is not needed; or, "N/A" if the procurement does not involve cost worksheets. S3PA section – Question 3, select "Yes" if you need help to develop a payment model for the primary solicitation; "No," if help is not needed; or, "N/A" if the procurement does not require an evaluation methodology. Use the FAWs to develop costs. Use the STP Template and SOW Guidelines for procurement guidance. The Project Management Plan section 4.10 and Procurement Management Plan section 3.5 provide information related to the procurement evaluation criteria. The Project Management Plan section 4.4 and Cost Management Plan section 3.0 provide guidance on the development of costs.

Stage 3 Solution Development (S3PA)				
S3PA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
3.3.3	Requirements Readiness	• Project Management Plan section 4.11 Requirements Management • Requirements Management Plan section 4.0 Requirements Development • Requirements Traceability Matrix (RTM)	• SIMM Section 19B.3 Mid-level Solution Requirements Template (XLS) • SIMM Section 19C.5 Stage 3 Solution Requirements Template (XLS)	S3PA section – Select response (Yes or No), as applicable. The Project Management Plan section 4.12; Requirements Management Plan section 4.0; and, Requirements Traceability Matrix contain information on the requirements development process used.
3.3.4	Governance	• Project Management Plan section 4.5 Governance Management • Governance Management Plan section 2.1.1 Decision-Making Authority and 4.0 Governance Processes		Project Management Plan section 4.5 Governance Management. Governance Management Plan section 2.1.1 Decision-Making Authority and 4.0 Governance Processes.

Stage 3 Solution Development (S3PA)				
S3PA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
3.3.5	Security	• Project Management Plan section 4.12 Resource Management and section 4.16 Stakeholder Management • Stakeholder Register section 3.0 Register • Resource Management Plan Section 3.0 Development Roles and Responsibilities	• SIMM Section 19B.3 Mid-level Solution Requirements Template (XLS) • SIMM Section 19C.5 Stage 3 Solution Requirements Template (XLS)	S3PA section – Select response (Yes or No), as applicable. The Project Management Plan section 4.6 and section 4.16; Stakeholder Register section 3.0; and, Resource Management Plan section 3.0 identify stakeholders and respective roles and responsibilities.
3.3.6	Organizational Readiness	• Project Management Plan section 4.12 Resource Management • Resource Management Plan section 5.0 Project Staffing Estimates; 6.0 Required Staffing Skills and Competencies; 8.0 Staff Acquisition Strategy; and, 9.0 Staff/Team Development Plan	• S2AA section 2.11.3 Procurement and Staffing Strategy	S3PA section – Select response (Yes or No), as applicable. The Project Management Plan section 4.12; and Resource Management Plan sections 5.0, 6.0, 8.0, and 9.0 identify staffing estimates, staff skills and competencies, acquisition strategies, and staff development plans.

Stage 3 Solution Development (S3PA)				
S3PA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
3.3.7	OTech Services			S3PA section – Select response (Yes or No), as applicable.
3.5	Part A Submittal Information	• Issue Log • Risk Register		S3SD (Part A) section – Provide any approval conditions with your assessment, response, and status. Recommendation: Log any approval conditions in the Issue Log or Risk Register (as applicable). For Issue Log items, assign resources along with issue due date. Store research and responses in the Project Library for future reference. The Issue Log and Risk Register identify issues or potential risks, respectively.

Stage 3 Solution Development (S3PA)				
S3PA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
3.6	Procurement Profile	• Project Management Plan section 4.9 Procurement Management • Procurement Management Plan section 3.0 Procurement Management Processes	• SIMM section 180 Statement of Work (SOW) Guidelines (PDF) • SIMM section 195 STP Solicitation Template (Contact OSPD STP for additional information) • State Contracting Manual (SCM), Volume 3 (Information Technology) • DGS Delegated Purchasing Authority, Departments with Approved Purchasing Authority	S3SD (Part A) section – Work with your Procurement Official and, as applicable, CDT, Statewide Technology Procurement or Department of General Services, Procurement Division to develop your solicitation(s). The Project Management Plan section 4.10 and Procurement Management Plan section 3.0 contain procurement information (scope, contract type, risk and risk management, etc.) Use the DGS Delegated Purchasing Authority, Departments with Approved Purchasing Authority to determine if you have been delegated and your approval limits. Use the SOW Guidelines and STP Solicitation Template for SOW and procurement development. Use the SCM, Volume 3 to help define or determine the purchasing types (competitive solicitations, non-competively bid, small business/disabled veteran business enterprise, leveraged procurement agreements, etc.) and information related to: Departments with approved purchasing authority; leveraged procurement agreements approved exemptions; requirements and responsibilities; roles and responsibilities; contract administration; reporting requirements; etc.

Stage 3 Solution Development (S3PA)				
S3PA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
3.7	Stage 3 Solution Requirements	• Project Management Plan section 4.11 Requirements Management • Requirements Management Plan section 4.0 Requirements Development • Requirements Traceability Matrix (RTM)	• SIMM Section 19B.3 Mid-level Solution Requirements Template (XLS) • SIMM Section 19C.5 Stage 3 Solution Requirements Template (XLS)	S3SD (Part A) section – Attach your requirements. Use your requirements matrixes (mid-level and detailed requirements) to determine number of requirements and any changes/deletions. If requirements changed or were deleted, describe the scope, impact, and how the changes continue to align with business needs. The Project Management Plan section 4.12; Requirements Management Plan section 4.0; and, Requirements Traceability Matrix contain requirements development and traceability information.

Stage 3 Solution Development (S3PA)				
S3PA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
			• SIMM Section 170 Requirements Guideline Set • 170A – General Requirements Guidelines (PDF) • 170A, Exhibit A Strong Requirement Samples (PDF) • 170B – Project Requirements Development Instructions (PDF) • 170B, Exhibit B1 Expanded Requirements Sample (PDF) • 170B, Exhibit B2 Expanded Requirements Sample (PDF) • 170B, Exhibit B3 Expanded Requirements Sample (PDF) • 170B, Exhibit C Glossary Sample (PDF) • 170B, Exhibit D Requirements Development Workflow (PDF) • CDT (SDLC) Plans and Tools	Refer to these resources during requirements development activities.

Stage 3 Solution Development (S3PA)				
S3PA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
3.7.4	To-Be Business Process Workflow		• Business Process Workflow Diagram/ Chart (e.g., workflow charts, system or process flow charts, cause and effect diagrams, event-driven flow chart, swim lane flow chart)	S3SD (Part A) – Attached your to-be business process workflow diagram(s) and chart(s). Your workflow diagram(s) and chart(s) should visually display the real work (e.g., business processes, business rules, trigger events, outcomes and results, data dictionary) for all to-be business processes related to the proposal.
3.8	Statement of Work (SOW)	• Project Management Plan section 4.9 Procurement Management • Procurement Management Plan section 3.0 Procurement Management Processes	• SIMM section 180 Statement of Work (SOW) Guidelines (PDF) • SIMM section 195 STP Solicitation Template (Contact OSPD STP for additional information) • SCM Volume 3 (Information Technology)	S3SD (Part A) section – Work with your Procurement Official and, as applicable, CDT, Statewide Technology Procurement or Department of General Services, Procurement Division to develop your solicitation(s). The Project Management Plan section 4.10 and Procurement Management Plan section 3.0 contain procurement information (scope, contract type, risk and risk management, etc.) Use the DGS Delegated Purchasing Authority, Departments with Approved Purchasing Authority to determine if you have been delegated and your approval limits. Use the SOW Guidelines, STP Solicitation Template, and SCM Volume 3 for SOW and procurement development.

Stage 3 Solution Development (S3PA)				
S3PA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
3.8.2	SOW Security Attributes	• Project Management Plan section 4.6 Implementation Management • Implementation Management Plan section 10 Implementation Security	• National Institute of Standards and Technology (NIST) Special Publication (SP) 800-53 Controls • SAM Section 5315	S3SD (Part A) section – Select response (Yes or No), as applicable. Use the NIST SP 800-53 and SAM Section 5315 to assist with information security and privacy controls documentation. The Project Management Plan section 4.7 and Implementation Management Plan section 10 identify security information.
3.9	Proposed Procurement Planning and Development Dates	• Project Management Plan section 4.9 Procurement Management • Procurement Management Plan section 1.1 High-Level Work Flows and Activities	• SIMM section 180 Statement of Work (SOW) Guidelines (PDF) • SIMM section 195 STP Solicitation Template (Contact OSPD STP for additional information) • SCM Volume 3 (Information Technology) • STP Estimated Timeline Guide for Department Procurement Planning Timeframes	S3SD (Part A) section – Select proposed procurement planning/ development activities with their respective start/end dates and number of business days to complete. Work with your procurement officials to develop a high level procurement timeline and resource planning for Stages 3 and 4, including the applicable major procurement activities, dates, and business days. Use SCM Volume 3 (IT), SOW Guidelines, STP Solicitation Template, and STP Estimated Timeline Guide for Department Procurement Planning Timeframes to develop activities. The Project Management Plan section 4.10 and Procurement Management Plan section 1.1 identify high-level procurement activities.

Stage 3 Solution Development (S3PA)				
S3PA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
3.10	Procurement Risk Assessments and Dependencies	• Project Management Plan section 4.9 Procurement Management and section 4.13 Risk Management • Procurement Management Plan section 3.3 Procurement Risk and Risk Management Plan • Risk Management Plan section 3.0 Risk Management Processes • Risk Register	• SCM Volume 3, Chapter 4, Section 4.B2.13 Risk Criteria Guidelines • SCM Volume 3, Chapter 9, Section 9.A3 Progress Payments • SAM section 3400 GS $Mart • SAM section 3700 Lease/Purchase Equipment	S3SD (Part A) section – Select response (Yes, No, or N/A), as applicable. Work with your Procurement Official to respond to this section. Attach documents as applicable. Use the SCM Volume 3 Chapter 4 Section 4.B2.13 Risk Criteria Guidelines for guidance on risk protections. Use the SCM Volume 3 Chapter 9 Section 9.A3 for guidance on financial protections. Use SAM sections 3400 and 3700 and SCM Volume 3, Chapter 9 Disbursements, Financing and Payment Programs for information related to financed transactions. The Project Management Plan section 4.10 and section 4.13; Procurement Management Plan section 3.3; Risk Management Plan section 3.0; and, Risk Register identify risks.

Stage 3 Solution Development (S3PA)				
S3PA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
3.11	Procurement Administrative Compliance Checklist	• Project Management Plan section 4.9 Procurement Management • Procurement Management Plan section 3.0 Procurement Management Processes	• SCM Volume 3, Chapter 4, section 4.B5.7 Contract Award • SCM Volume 3, Chapter 4, section 4.A1.4 Confidentiality of Information • Conflict of Interest Certification and Agreement, Confidentiality and Non-Disclosure Agreement and California Fair Political Practices Commission (FPPC) Form 700 • SCM Volume 3, Chapter 3, Topic 2 – Small Business and Disabled Veteran Business Enterprise (DVBE) Contracting; Topic 3 – DVBE Participation Program Requirements; and, Topic 6 Small Business Preference and Competitive Solicitations • SAM section 4819.2 Definitions; section 4819.41 Certification of Compliance with IT Policies; section 4833 IT Accessibility Policy; section 5300 Office of Information Security	S3SD (Part A) section – Select response (Yes, No or N/A), as applicable. Work with your Procurement Official to respond to this section. Attach documents as applicable. The Procurement Official maintains all internal and external project participant confidentiality statements, signed conflict of interest statements, DVBE Waiver, Certification of Compliance with IT Policies, FPPC Form 700, approved personal services contracts justification, and other compliance documents. Use SCM Volume 3, Chapter 4 section 4.B5.7 for information on the evaluation criteria. Use SCM Volume 3, Chapter 4 section 4.A1.4 for information on confidentiality statements. Use SCM Volume 3, Chapter 3, Topic 2 – Small Business and Disabled Veteran Business Enterprise Contracting; Topic 3 DVBE Participation Program Requirements; and, Topic 6 – Small Business Preference and Competitive Solicitations for DVBE information. Use SAM sections 4819.2, 4819.41, and 4833 for related IT policy information.

Stage 3 Solution Development (S3PA)				
S3PA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
			• SIMM section 71 Certification of Compliance with IT Policies • Government Code 19130 • SCM Volume 3 Chapter 2 section 2.B6.2 Productive Use Requirements	Use SIMM section 71 Certification of Compliance with IT Polices for IT compliance information. Use Government Code 19130 for information related to personal services contracts. Use SCM Volume 3 Chapter2 section 2.B6.2 for information on productive use requirements. The Project Management Plan section 4.10 and Procurement Management Plan section 3.0 identify the procurement processes.

Stage 3 Solution Development (S3PA)				
S3PA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
3.12	Solicitation Readiness	• Project Management Plan section 4.4 Cost Management and section 4.9 Procurement Management • Cost Management Plan section 3.0 Cost Management Processes • Procurement Management Plan section 3.0 Procurement Management Processes • Bidder's Library (created by Agency/state entity)	• Public Contract Code (PCC) 12102.2(a) • SIMM section 195 STP Solicitation Template (Contact OSPD STP for additional information)	S3SD (Part A) section – Select response (Yes, No or N/A), as applicable. Work with your Procurement Official to establish the Bidder's Library (which may contain system architecture designs, current or proposed system drawings, maps/ facility layouts, as-is and to-be business process workflows, etc.) and respond to this section. Attach documents as applicable. Refer to the PCC 12102.2(a) for additional information on the selection of an evaluation methodology. Use SIMM section 195 Solicitation Template for additional information on the development of bidder and key staff qualifications and references. The Project Management Plan section 4.4 and 4.10; Cost Management Plan section 3.0; and, Procurement Management section 3.0 identify procurement processes.

Stage 3 Solution Development (S3PA)				
S3PA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
3.14	Part B Submittal Information	• Issue Log • Risk Register		S3SD (Part B) section – Provide any approval conditions with your assessment, response, and status. Recommendation: Log any approval conditions in the Issue Log or Risk Register (as applicable). For Issue Log items, assign resources along with issue due date. Store research and responses in the Project Library for future reference. The Issue Log and Risk Register identify issues or potential risks, respectively.
3.15	Solicitation Package and Evaluation Readiness	• Project Management Plan section 4.9 Procurement Management • Procurement Management Plan section 3.5 Procurement Document Preparation	• SIMM Section 180 Statement of Work Guidelines (PDF) • SIMM section 195 STP Solicitation Template (Contact OSPD STP for additional information) • State Contracting Manual (SCM) Volume 3	S3SD (Part B) section –Identify the SIMM Section 195 STP Solicitation Template sections completed for the primary solicitation. Work with your procurement officials to develop evaluation areas and their respective point values (Pass/Fail, 100 points, etc.) and respond to this section. Select response (Yes, No or N/A), as applicable, and provide an explanation as needed. Use SIMM section 195 Solicitation Template to complete the Part 1 and Part 2 and other solicitation quality assurance information. The Project Management Plan section 4.10 and Procurement Management Plan section 3.5 provide information related to the procurement development process.

Stage 3 Solution Development (S3PA)				
S3PA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
3.16	Public Contract Code (PCC) 6611 Readiness	• Project Management Plan section 4.9 Procurement Management • Procurement Management Plan section 3.0 Procurement Management Processes	• SCM Volume 3, Chapter 2 Section C Topic 5 – Negotiation Process Guidelines and Procedures Under Public Contract Code 6611 • PCC section 6611 • DGS PCC 6611 Negotiation Process Guide • DGS GSPD 13-003 Request to commence negotiations per PCC section 6611	S3SD (Part B) section – Select response (Yes, No or N/A), as applicable. If "Yes," attach your draft negotiation plan and approved form. Work with your Procurement Official to respond to this section. Resources listed provide information on how to establish a negotiation plan under PCC 6611. Use the SCM Volume 3, Chapter 2 Section C Topic 5 for negotiation process guidelines. Use the DGS DSPD 13-003 to request approval from CDT or DGS to use a negotiation process. The Project Management Plan section 4.10 and Procurement Management Plan section 3.0 provide information related to procurement management processes.

Stage 3 Solution Development (S3PA)				
S3PA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
3.17	Protest Processes	• Project Management Plan section 4.9 Procurement Management • Procurement Management Plan section 3.0 Procurement Management Processes	• SCM Volume 3, Chapter 7 Protest and Post Award Disputes	S3SD (Part B) section – Identify the protest process to be used. If "Alternative Protect Process" or "N/A," attach approval letter or provide an explanation, as applicable. Work with your Procurement Official to respond to this section. Use the SCM Volume 3, Chapter 7 Protest and Post Award Disputes for information on the protest and post award disputes. The Project Management Plan section 4.10 and Procurement Management Plan section 3.0 provide information related to procurement management processes.

Stage 3 Solution Development (S3PA)				
S3PA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
3.18	Project Management Planning	• Project Management Plan • Change Control Management Plan • Configuration Management Plan • Data Management Plan • Maintenance & Operations (M&O) Transition Management Plan • Procurement Management Plan • Quality Management Plan • Testing Master Plan • Security Management Plan • Business Continuity Management Plan (including Technology Recovery Plan • Risk Management Plan		S3SD (Part B) section – Indicate the appropriate designation (Yes, No, Not Applicable) for each of project management plans listed. Select "Yes" if the plan is complete, approved and available for review. Select "No" if the plan is being developed, pending approval or not yet started and provide the status in the space provided. Select "Not Applicable" if the plan is not needed and provide an explanation in the space provided.

Stage 3 Solution Development (S3PA)				
S3PA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
3.19	Staffing Allocation	• Project Management Plan section 4.4 Cost Management; 4.12 Resource Management; 4.6 Implementation Management; 4.15 Scope Management; and, 4.16 Stakeholder Management • Implementation Management Plan section 13.0 Personnel • Resource Management Plan section 4.0 Project Organization Chart and section 5.0 Project Staffing Estimates • Stakeholder Management Plan section 2.0 Roles and Responsibilities • Scope Management Plan section 4.2 Creation of the WBS and Dictionary • Work Breakdown Structure (WBS) section 2.10 High-Level Workflows and Activities	• FAWs (Completed) • S2AA section 2.11.3 Procurement and Staffing Strategy	S3SD (Part B) section – Identify the staffing roles, quantity, allocated participation level (e.g., 50%), civil service classification, etc. The staffing strategies are based on the WBS, available resources, funding, and timeframe for completion. The S2AA section 2.11.3 and the FAWs information should align with this section. The CA-PMF tools and sections provide staffing information and tasks needed to help develop staffing allocations.

Stage 3 Solution Development (S3PA)				
S3PA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
3.20	Final Solicitation Package Submission	• Project Management Plan section 4.3 Contract Management; section 4.4 Cost Management; and, section 4.9 Procurement Management • Contract Management Plan section 2.0 Roles and Responsibilities • Cost Management Plan • Procurement Management Plan	• SIMM Section 180 Statement of Work Guidelines (PDF) • SIMM section 195 STP Solicitation Template (Contact OSPD STP for additional information) • SCM Volume 3	S3SD (Part B) section – Attach the completed and final solicitation package. Work your Procurement Official to ensure that all final attachments, exhibits, appendices are included. Ensure that all project management plans used are updated with the final information.

Stage 3 Solution Development (S3PA)				
S3PA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
N/A	Gate 3 Collaborative Review	• Project Management Plan • Change Control Management Plan • Contract Management Plan • Cost Management Plan • Implementation Management Plan • Issue Management Plan • Issue Log • Maintenance and Operations (M&O) Transition Management Plan • Procurement Management Plan • Risk Management Plan	• SIMM Section 180 Statement of Work Guidelines (PDF) • SIMM section 195 STP Solicitation Template (Contact OSPD STP for additional information) • SCM Volume 3 • FAWs (Completed)	During the Gate 3 Collaborative Review, confirm the business objectives and stakeholder commitment and expected outcomes and measurements determined. Work with your Procurement Official and, as applicable, CDT, Statewide Technology Procurement or Department of General Services, Procurement Division to update and finalize solicitations, and update project management plans used. Validate that (but not limited to): • Approval conditions are adequately addressed • Mature and valid requirements trace to business objectives • SOW elements, attributes, and features documented • Payment models and acceptance approach documented • Evaluation and selection approach achieves best solution • Procurement planning dates and key action dates are realistic and documented • Financial Analysis Worksheets documents anticipated project costs The Preliminary Assessment for Stage 4 is complete.

2.3.5 Stage 4: Project Readiness and Approval

Stage 4 Project Readiness and Approval (S4PRA)				
S3PA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
4.3.1	Solicitation Readiness	• Project Management Plan section 4.12 Resource Management; section 4.6 Implementation Management; and, section 4.16 Stakeholder Management • Resource Management Plan section 3.0 Development Roles and Responsibilities • Project Organization Chart • Stakeholder Management Plan section 2.0 Roles and Responsibilities • Implementation Management Plan section 13.0 Personnel	• SCM Volume 3, section 4.D5.2 Evaluation Section Team Procedures • S2AA section 2.19.9 Organization Charts	S4PA section – Select response (Yes, No or N/A), as applicable. Work with your Procurement Official to respond to this section. Use SCM Volume 3 section 4.D5.2 to document the evaluation and selection team procedures. Use the S2AA section 2.19.9 Organization Charts to identify subject matters experts (SMEs) from the effected program areas. The CA-PMF tools and sections provide staffing information and identify high-level skills needed.

Stage 4 Project Readiness and Approval (S4PRA)				
S3PA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
4.3.2	Project Readiness	• Project Management Plan section 4.3 Contract Management; section 4.5 Governance Management; section 4.6 Implementation Management; section 4.9 Procurement Management; section 4.12 Resource Management; section 4.16 Stakeholder Management • Contract Management Plan section 2.0 Roles and Responsibilities • Governance Management Plan section 2.0 Governance Approach • Resource Management Plan section 3.0 Development Roles and Responsibilities • Implementation Management section 8 Major Tasks • Project Organization Chart • Procurement Management section 2.0 Roles and Responsibilities • Stakeholder Management Plan section 2.0 Roles and Responsibilities • Communication Management Plan	• S1BA section 1.5 Business Driver(s) and section 1.10 Business Problem and Opportunity and Objectives Table • S2AA section 2.12.5 Data Conversion/ Migration and section 2.12.8.2 Project Management Planning • SCM Volume 3	S4PA section – Select response (Yes, No or N/A), as applicable. Work with your PAL Core Team to respond to this section. Use the S1BA section 1.5 and section 1.10 for business drivers and problems, opportunities, and/or objectives. Use the S2AA section 2.12.5 for data conversion/migration information. Use the S2AA section 2.12.8.2 for project management plans information. The CA-PMF tools and sections provide governance, staffing, contracting, procurement, and system implementation information.

Stage 4 Project Readiness and Approval (S4PRA)				
S3PA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
4.3.3	Project Funding	• Project Management Plan section 4.4 Cost Management • Cost Management Plan section 3.0 Cost Management Processes	• FAWs (Completed)	S4PA section – Select response (Yes, No or N/A), as applicable. Work with your PAL Core Team to respond to this section. Use your completed FAWs for funding information. The CA-PMF tools and sections provide cost and funding information.
4.5	Submittal Information	• Risk Register • Issue Log • Project Library		S4PRA section – Provide any approval conditions with your assessment, response, and status. Recommendation: Log any approval conditions in the Issue Log or Risk Register (as applicable). For Issue Log items, assign resources along with issue due date. Store research and responses in the Project Library for future reference.

Stage 4 Project Readiness and Approval (S4PRA)				
S3PA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
4.6 4.7	Primary Solicitation Results Ancillary Solicitation Status	• Project Management Plan section 4.3 Contract Management; section 4.4 Cost Management; and, section 4.9 Procurement Management • Contract Management Plan section 3.0 Contract Management Activities • Procurement Management Plan section 1 Introduction and section 3 Procurement Management Processes; section 3.7 Vendor Management	• S3SD (Part A) section 3.6.6 Anticipated Solicitation Key Action Dates • SCM Volume 3 • SCM Volume 3, Chapter 3, Topic 2 – Small Business (SB) and Disabled Veteran Business Enterprise (DVBE) Contracting; Topic 3 – DVBE Participation Program Requirements; and, Topic 6 Small Business Preference and Competitive Solicitations • FAWs (Completed)	S4PRA section – Work with your Procurement Official and PAL Core Team to respond to this section. The S3SD (Part A) section 3.6.6 identifies estimated dates and activities which may differ from the actual final information. Update CA-PMF tools based on updated information. Use the SCM Volume 3 for information on solicitation changes (addenda), final bid submissions, and SB/DVBE contracting. Update your FAWs with actual costs, as determined. Contract duration: For contract start date, use the actual contract start date. For end date, use the expiration of all contract activities (last date that contract activities are completed.) The CA-PMF tools and sections provide procurement, contract, activity, and vendor information.

Stage 4 Project Readiness and Approval (S4PRA)				
S3PA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
4.8	Contract Management	• Project Management Plan section 4.3 Contract Management and 4.9 Procurement Management • Contract Management Plan section 3.0 Contract Management Activities • Procurement Management Plan section 1 Introduction and section 3 Procurement Management Processes	• SCM Volume 3 (Information Technology)	S4PRA section – Select response (Yes, No, or N/A), as applicable. Work with your Procurement Official and PAL Core Team to respond to this section (in reference to the primary solicitation). Use the SCM Volume 3 for information on contract activities, processes, and obligations of both the state and contractor. The CA-PMF tools and sections provide procurement, contract, activity, and vendor information.

Stage 4 Project Readiness and Approval (S4PRA)				
S3PA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
4.9	Organizational Readiness	• Project Management Plan section 4.6 Implementation Management • Implementation Management section 8.0 Major Tasks and section 9.0 Implementation Schedule • Operational Readiness Assessment (ORA) section 3.0 Detailed Analysis Findings	• S1BA section 1.12.4 Training and Organizational Change Management • S2AA section 2.12.2 Business Program • S3SD (Part B) section 3.19 Staffing Allocation • FAWs (Completed)	S4PRA section – Select response (Yes, No, or N/A), as applicable. Attach your project organization charts, showing the project team (number and classification for the program, business, technical, and procurement staff, including any vendors) Work with your PAL Core Team to respond to this section. Conduct a comprehensive analysis of all facets of readiness, including organizational readiness and contingency planning, prior to the implementation. Use S1BA section 1.12.4 for information OCM activities. Use S2AA section 2.12.2 for information on business program improvements needed. The project organization chart staffing should align with the information in S3SD (Part B) section 3.19 and the FAWs. Use the ORA to conduct an assessment of your organization's readiness. The CA-PMF tools and sections provide information on implementation planning and the organization's readiness.

Stage 4 Project Readiness and Approval (S4PRA)				
S3PA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
4.10	Project Readiness	• Project Management Plan section 4.6 Implementation Management • Implementation Management section 8.0 Major Tasks and section 9.0 Implementation Schedule		• S4PRA section – Identify your system development methodology. Select response (Yes, No, or N/A), as applicable. Work with your PAL Core Team to respond to this section. • The CA-PMF tools and sections provide information on implementation planning and the organization's readiness.

Stage 4 Project Readiness and Approval (S4PRA)				
S3PA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
4.11	Requirements Baseline	• Project Management Plan • Requirements Management Plan • Schedule Management Plan • Cost Management Plan • Scope Management Plan • Project Schedule	• FAWs (Completed) • Detailed Requirements (Completed) • Project Schedule	S4PRA section – Select response (Yes, No, or N/A), as applicable. Attach your high level integrated master schedule. Work with your PAL Core Team to respond to this section and baseline the project's requirements, schedule, cost, and scope based on actual results. Project Planning Start Date: Date you began Stage 2. Project Planning End Date: Date your Stage 4 activities are estimated to be complete. Project Start Date: Date your project is both approved and funded. Project End Date: Date when project activities end; last date project activities are estimated to be completed. Total Planning Cost: Cost of planning activities conducted in Stage 2 through Stage 4. Average Proposed Operations Cost: The FAWs Summary Tab Average Future Cost. Total Project Cost: The FAWs Summary Tab "Total" cost, which is planning, one-time, and M&O. Update your project management plans with known, up-to-date information.
4.12	Schedule			
4.12.3	High Level Master Schedule and Key Milestones			
4.13	Cost Baseline			
4.13.4	Financial Analysis Worksheets (Baseline)			

Stage 4 Project Readiness and Approval (S4PRA)				
S3PA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
4.13.3	Budget Change Proposal (BCP) Summary	• Project Management Plan • Cost Management Plan	• FAWs (Completed)	S4PRA section – Work with your PAL Core Team to respond to this section. BCP Status (if any) – Pending: BCP request submitted, no decision received yet. Supported: BCP request supported by California Department of Finance. Not Supported: BCP request not supported by California Department of Finance. Future: Anticipated BCP request has not been submitted.
4.14	Project Management Planning	• Risk Register • Contract Management Plan • Implementation Management Plan • Deliverable Expectation Document (DED)		S4PRA section – Indicate the appropriate designation (Yes, No, Not Applicable) for each of project management plans listed. Select "Yes" if the plan is complete, approved and available for review. Select "No" if the plan is being developed, pending approval or not yet started and provide the status in the space provided. Select "Not Applicable" if the plan is not needed and provide an explanation in the space provided.

Stage 4 Project Readiness and Approval (S4PRA)				
S3PA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
4.15	• Risk Register			S4PRA section – Attached your completed Risk Register. Validate that the risk register has been updated with the probability, impact, triggers, mitigations plans, and contingency plans. Any unresolved, open project approval conditions that will not be completed by the end of Stage 4 should be added to the Risk Register.

Stage 4 Project Readiness and Approval (S4PRA)				
S3PA Section	**Section Title**	**CA-PMF Tools/ Section**	**Other Resources/ Section**	**Comments**
N/A	Gate 4 Collaborative Review	• All Plans	• FAWs (Completed)	Review and validate that the project management plans used in the planning phase continue to reflect accurate information and update as necessary. During the Gate 4 Collaborative Review, the participants may (but not limited to): • Identify and report on solicitation activities, contractors/vendors • Validate solicitation results • Validate the solicitation achieve the objectives • Compare estimated results with actual results • Review and discuss the contract management process, roles, and responsibilities • Validate your maturity and readiness • Assess stakeholder, state staff, and contractor/vendor resources and commitments • Refine your FAWs • Identify and review major activities and milestones • Discuss the initiation and/ or development of project management planning documents • Document risks

2.4 Comparing the CA-PMF with Project Approvals and Oversight (PAO)

2.4.1 Introduction

This section will help to identify how each project oversight activity established in the *Statewide Information Management Manual (SIMM 05A)* relates to the CA-PMF processes and tools.

Effective project management structures should provide data and information required to prepare reports required by the Office of Statewide Project Delivery (OSPD).

The table below will guide the project team in navigating project oversight activities in conjunction with the CA-PMF processes. The following four areas are covered:

- Special Project Report (SPR), including the Budget Change Proposal (BCP)
- Independent Project Oversight Report (IPOR)
- Project Status Report (PSR)
- Post Implementation Evaluation Report (PIER)

Web Link

See the Statewide Information Management Manual (SIMM) - For more information.

2.4.2 Special Project Report (SPR)

A Special Project Report (SPR) must be prepared whenever a project's cost, schedule, or scope changes significantly, as defined in *State Administrative Manual (SAM) Section 4819.36.*

Project management plans related to cost, schedule, and scope, as well as the Change Control Management Plan, the Governance Plan and the Project Management Plan (PMP), should each identify processes for monitoring the status of these elements.

Processes should exist that can identify the need for SPR preparation and initiating when required. Project health checks or evaluations are essential for determining if corrective actions are necessary to either bring a project back on track or recommend project postponement or cancellation. The SPR is a vehicle to document corrective actions for an ailing project and detail reasons why the project scope, cost, or schedule has significantly changed from the accepted baseline.

Web Link

See the State Administrative Manual (SAM) - For more information.

The following are conditions that usually require submission of an SPR:

- The total IT project costs deviate, or are anticipated to deviate, by 10 percent (higher or lower) or more, or by more than a specifically designated amount as determined by the Department of Technology, from the last approved estimated IT project budget (to be measured against the combined total of each fiscal year's one-time project costs plus continuing project costs);
- The last approved overall project development schedule falls behind, or is anticipated to fall behind, by 10 percent or more;
- The total program benefits deviate, or are anticipated to deviate, by 10 percent (higher or lower) or more from the last approved estimated total program benefits (to be measured against the combined total of each fiscal year's cost savings and cost avoidances);
- A major change occurs in project requirements or methodology;
- Any conditions occur that require reporting to the CDT as previously imposed by the CDT; or
- A significant change in state policy draws into question the assumptions underlying the project.

When there are significant changes to project budgets or resources, a Budget Change Proposal (BCP) may have to accompany the SPR. For more details on the BCP requirement, refer to *SAM section 4819.42*. Many of the elements required by the BCP will be in the project's Cost Management Plan and/or the Resource Management Plans.

Special Project Report (SPR)			
S2AA Section	**Description**	**CA-PMF Tools/ Processes**	**Comments**
3.1	Project Background/ Summary	• Project Charter	Information from the Project Charter should provide a project summary statement and its purpose.
3.2	Project Status	• Communication Management Plan	The latest status report should include content needed to describe current project status.

Special Project Report (SPR)			
S2AA Section	**Description**	**CA-PMF Tools/ Processes**	**Comments**
3.3	Reasons for Proposed Change	• PMP • Change Control Management • Change Requests • Change Analysis Reports • Change Request Log	The source of the change that triggers a need for a Special Project Report (SPR) should be documented in the processes performed in managing Schedule, Scope, and Cost. Tools containing data and information include Change Requests, Change Analysis Reports, and the Change Log.
3.4	Proposed Project Change	• Change Control Management Plan • Change Requests • Change Analysis Reports • Change Request Log	Project changes are documented through Change Requests that have been reviewed and approved per the Change Control Management Plan. Tools containing data and information include Change Requests, Change Analysis Reports, and the Change Log.
4.0	Updated Project Management Plan (PMP)	• Updated PMP	Any changes in the PMP or related subordinate plans related should be noted.
4.1	Project Manager Qualifications	• Resource Management Plan	A Project Manger's skill and experience should be a good fit or match for a project's size and complexity.
4.2	Project Management Methodology	• PMP	Each project specifies the project management methodology used for the project. In general, the CA-PMF should be used for consistency unless a specific need is cited for use of another approach.

Special Project Report (SPR)			
S2AA Section	**Description**	**CA-PMF Tools/ Processes**	**Comments**
4.3	Project Organization	• Governance Management Plan • PMP	This section includes the current project organization chart. Any changes should be noted.
4.4	Project Priorities	• Project Charter • PMP	Reconsider constraints identified in Section 3.6.2 of the Project Charter to determine if relative priorities of cost, schedule, and scope have changed based on the change being reported in the SPR.
4.5	Project Plan	• PMP and related Subordinate Plans	Note any significant changes in project plans related to Scope, Phasing, Schedule, and roles and responsibilities.
4.6	Project Monitoring and Oversight	• PMP and related Subordinate Plans	Activities required for monitoring and controlling project progress should be set out in the PMP. Change in these plans and processes that result from the SPR should be noted.
4.7	Project Quality	• Quality Management Plan • Change Request Log	Note any changes in the Quality Management Plan.
4.8	Change Management	• Change Control Management Plan • Change Request Log	Note any changes in the Quality Management Plan.

Special Project Report (SPR)			
S2AA Section	**Description**	**CA-PMF Tools/ Processes**	**Comments**
4.9	Authorization Required	• PMP and/ or Governance Management Plan and Change Control Management Plan • Change Request Log	The Governance Management Plan (if applicable) or Change Control Management Plan should identify the approval steps related to any significant project change, including approval by organizations outside the state.
5.0	Updated Risk Management Plan	• Risk Management Plan	Note any changes in the Risk Management Plan.
5.1	Risk Register	• Risk Register	Note any changes in the Risk Register.
6.0	Updated Economic Analysis Worksheets (EAWs)	• Cost Management Plan	The Cost Management Plan should address how to handle updates to Economic Analysis Worksheets (EAWs).

2.4.3 Independent Project Oversight Report (IPOR)

The Independent Project Oversight Report (IPOR) is prepared monthly by the independent oversight provider. Content comes from information and data maintained by the project team during the project's monitoring and controlling processes. The following table identifies sources for a number of components found within the Independent Project Oversight Report.

Web Link

See the Statewide Information Management Manual (SIMM) - For more information.

Independent Project Oversight Report (IPOR)		
IPOR Section Description	**CA-PMF Tools/ Processes**	**Comments**
Current Status		
Schedule	• Schedule Management Plan • Project Schedule	Regular internal status reports should show variance from planned schedule.
Resources (Level of Effort)	• Scope Management Plan • Work Breakdown Structure (WBS)	Regular internal status reports should show variance from planned resource use.
Resources (Budget/Cost)	• Cost Management Plan	Regular internal status reports should show variance from planned cost.
Quality (Client Functionality)	• Quality Management Plan	The plan should document actions to assess quality and results.
Quality (Architecture/ System Performance)	• Quality Management Plan	The plan should document actions to assess quality and results.
New Project Risks	• Risk Management Plan • Risk Register	New risks should be identified, recorded in the Risk Register, and have initial ratings for impact and probability.

Independent Project Oversight Report (IPOR)		
IPOR Section Description	**CA-PMF Tools/ Processes**	**Comments**
Progress Toward Addressing Prior Risks	• Risk Management Plan • Risk Register	The Risk Register should document preparation of the risk analysis and mitigation plans related to identified risks with sufficiently high impact and/or probability of occurrence.
Project Oversight Review Checklist	• Project Charter • PMP and Subordinate Plans • Project Schedule • Risk Register	Content for answering the Project Oversight Review Checklist can be found online.

2.4.4 Project Status Reports (PSR)

Submission of a Project Status Report (PSR) *(see Statewide Information Management Manual (SIMM) Section 17A and 17D.2)* is required monthly for projects classified by the Department of Technology (CDT) as high criticality, quarterly for medium criticality, and semiannually for low criticality projects, unless the CDT has specified a more frequent reporting period. These reports can be generated using selected project management performance measures. The following table provides an overview of how these requirements map to various project management performance measures.

Web Link

See the Statewide Information Management Manual (SIMM) - For more information.

IPOR Section Description	CA-PMF Tools/ Processes	Comments
Percent Complete	• Scope Management Plan • Work Breakdown Structure (WBS) • Schedule Management Plan	Completeness can be expressed as a percent of time or of resource expended.
Current Status and Accomplishments	• Updated Project Management Plan (PMP) • Schedule Management Plan • Project Schedule	Internal status reporting should provide content for this summary.
Current Status Report	• Schedule Management Plan • Risk Management Plan • Issue Management Plan	Internal status reporting should indicate milestones reached, expected, and delayed. The Risk and Issue identification process should be the source for identifying issues that need to be noted.
Variance	• Schedule Management Plan • Cost Management Plan • Scope Management Plan	Variance is calculated as the deviation or departure from an approved baseline (schedule, cost, and scope).

IPOR Section Description	CA-PMF Tools/ Processes	Comments
Monitoring Vital Signs Scorecard	• Updated PMP • Communications Management Plan • Risk Register • Issue Log • Change Request Log	The Project Manager collects information for assessing these vital signs through routine project processes.
Vendor Viability Rating Rationale	• Updated PMP • Risk Register • Issue Log • Change Request Log	Assessment of vendor performance and viability is a continuous assessment process. The process uses information gathered through a variety of plan processes for monitoring a project's progress. Depending on the development approach, there may additionally be processes and tools related to System Development Lifecycle (SDLC) processes that will also inform this appraisal.
Look Ahead View	• Updated PMP • Risk Register • Issue Log • Change Request Log	These ratings require a summary assessment of projected status. They rely on input from the project team gathered through monitoring processes described in several project plans.
Cost Tracking	• Cost Management Plan	Cost tracking is necessary throughout the project and occurs as part of monitoring and controlling activities.
Milestone Tracking	• Updated PMP • Schedule Management Plan • Project Schedule	The project schedule includes project milestones, which are tracked as an activity in monitoring and controlling processes.

IPOR Section Description	CA-PMF Tools/ Processes	Comments
Project Schedule	• Schedule Management Plan • Project Schedule	The project schedule is required to be provided in Microsoft Project. This may require conversion from the chosen tool or an understanding that it will be provided in an alternative format.

2.4.5 Post Implementation Evaluation Report (PIER)

Completion of the Post Implementation Evaluation Report (PIER) is a Closing Process Phase activity. The PIER is typically completed 6 to 18 months after the full implementation of an information technology (IT) project, per *Statewide Information Management Manual (SIMM) 50.* Refer to *SIMM 50* for more information. The following table identifies the six PIER components and where information can be found in various CA-PMF processes and tools to help complete the PIER.

Web Link

See the Statewide Information Management Manual (SIMM) - For more information.

Post Implementation Evaluation Report (PIER)		
PIER Description	**CA-PMF Tools/ Processes**	**Comments**
Background and Summary of Results	• Project Charter • Schedule Management Plan • Scope Management Plan • Completed Process Phase Checklists	Background and summary of results information is collected from the CA-PMF tools.
Attainment of Objectives	• Project Charter • Schedule Management Plan • Scope Management Plan • Completed Process Phase Checklists	Final updated Project Management Plan (PMP) tools are provided to prove project objectives are achieved.
Lessons Learned	• Updated PMP and Subordinate Plans • Risk Register • Issue Log • Change Request Log • Lessons Learned	Project documentation collected during the operation of the project is used to capture lessons learned in this section. For longer projects, it may be helpful to conduct exercises to compile lessons learned, such as project examination surveys.

Post Implementation Evaluation Report (PIER)		
PIER Description	**CA-PMF Tools/ Processes**	**Comments**
Corrective Actions	• Updated PMP and Subordinate Plans • Risk Register • Issue Log • Change Request Log	Project documentation should be retained to ensure corrective actions can be determined for future projects.
Project Management Schedule	• Schedule Management Plan • Project Schedule	A final updated project schedule is produced showing all activities and milestones as complete.
Economic Summary	• Cost Management Plan	Final updated Financial Analysis Worksheets (FAWs) and the Cost Management Plan are provided for the PIER.

2.5 Comparing the CA-PMF with the System Development Lifecycle (SDLC)

2.5.1 Introduction

Project management disciplines and the System Development Lifecycle (SDLC) are intended to complement each other. This section maps the California Project Management Framework (CA-PMF) to the SDLC phases. The goal is to illustrate the following:

- How various project management process phases coincide with SDLC phases
- How project management tools link with SDLC tools
- How project objectives map or trace through SDLC phases

The Project Management Institute's (PMI) A Guide to the Project Management Body of Knowledge (PMBOK Guide) is the accepted "standard" for project management. PMI developed the *PMBOK Guide*, now in its 6th Edition, as the standard guide for project management practices.

A table mapping the PMBOK process groups and processes can be used as a reference for Project Managers and project teams, allowing comparison between the PMBOK, CA-PMF, and SDLC Phases.

2.5.2 SDLC Overview

The SDLC is a framework used in IT projects to conceive, define, design, develop, test, implement, and maintain IT systems. The model defines each phases from planning to maintenance. The SDLC consists of the following phases:

- **Phase 1:** Plan the approach
- **Phase 2:** Analyze and refine including development of requirements
- **Phase 3:** Design the architecture
- **Phase 4:** Build or develop the product
- **Phase 5:** Test the product including validation/ certification

- **Phase 6:** Implement or deploy the product
- **Phase 7:** Maintenance & Operations where the product is maintained and updated

NOTE: SDLC planning activities generally cover high-level solution (or architecture) design as well as high-level sizing and complexity analysis activities. This gives the development team broad estimates to work from in subsequent phases. Keep in mind that this does not document or cover all possible SDLC variations and processes, but rather one model.

2.5.3 SDLC Models

A variety of SDLC models exist today. Each model follows a series of processes or steps, unique to that model, to successfully create a product or solution. Some models are *plan-driven (predictive)*, and some are agile or *value-driven (adaptive)*. Some popular SDLC models used in the software development industry today include:

- Waterfall
- Iterative
- Spiral
- V-Model
- Big Bang
- Agile

Many other SDLC methodologies exist as well. It is not the intent of CA-PMF to prescribe or recommend a specific SDLC methodology. The development methodology and implementation method are left to each organization, in order to suit its organizational and developmental needs.

The following table cross-references the PMBOK Process Groups and Processes to the CA-PMF Process Phases and Processes to the stages of the SDLC Phases.

PMBOK Process Group	PMBOK Processes	CA-PMF Process Phase	CA-PMF Processes	SDLC Phases (Stages)	Comments
N/A	N/A	• Concept	• Conduct Readiness Assessment	• System Concepts	The focus is to confirm the business drivers, problems, and opportunities for the project, and align the project's objectives with the sponsoring organization's strategic direction. Establish a clear business case and assess the organizational impact.
Initiating	Develop Project Charter	• Initiating	• Develop Project Charter	• System Concepts	The Project Charter serves as a high-level overview of the project including the definition of project success. Ensure that a sufficient number of appropriately skilled resources including technical Subject Matter Experts (SMEs) are available to form the project planning team.
Initiating	Identify Stakeholders	• Initiating	• Identify Stakeholders	• System Concepts	Conduct Stakeholder analysis and collect Stakeholder input as necessary. Lead technical team members are identified. Ensure that a sufficient number of appropriately skilled technical SMEs are included on the planning team.

PMBOK Process Group	PMBOK Processes	CA-PMF Process Phase	CA-PMF Processes	SDLC Phases (Stages)	Comments
Planning	Develop Project Management Plan (PMP)	• Planning	• Develop Project Management Plan (PMP)	• Planning	The Project Manager and project team conduct planning activities to stage upcoming SDLC work as well as project planning activities. *The SDLC planning should precede the PMP development.*
Planning	Plan Scope Management: Collect Requirements (Project and Product)	• Planning	• Develop Scope Management Plan (Project and Product)	• Requirements Analysis (Primarily product focused)	The project team collects and analyzes project and product requirements. The Project Manager, or technical team lead should facilitate the project and product requirements collection and analysis. The Project Manager should ensure requirements are accurate and complete. This may be achieved through reviews and sign-off by appropriate Stakeholders (business as well as technical). Ensure that the hierarchy and naming conventions of requirements are consistent to support requirements traceability throughout the entire project and the SDLC.

PMBOK Process Group	PMBOK Processes	CA-PMF Process Phase	CA-PMF Processes	SDLC Phases (Stages)	Comments
Planning	Define Scope (Project and Product)	• Planning	• Develop Scope Management Plan (Project and Product)	• Planning • Requirements Analysis	The project team uses the requirements to organize the estimated work streams. *Include all work and only the work needed to meet project and product requirements.* Guard against extra bells and whistles. Scope should be driven by the project and product requirements.
Planning	Create Work Breakdown Structure (WBS) and WBS Dictionary	• Planning	• Scope Management Plan	• Requirements Analysis	The project team uses requirements to organize the estimated scope of work in a logical sequence. The technical part of the WBS should be driven by the requirements specification.
Planning	Plan Schedule Management: Define Activities	• Planning	• Project Schedule • Schedule Management Plan	• Requirement Analysis	WBS elements are further decomposed (broken down) into activities by the project team. The Project Manager facilitates and records results.
Planning	Sequence Activities	• Planning	• Project Schedule • Schedule Management Plan	• Planning • Requirements Analysis	Scope and requirements are further decomposed into activities conducted over time. The Project Manager facilitates and records the results. Identify parallel and dependent SDLC and project activities.

PMBOK Process Group	PMBOK Processes	CA-PMF Process Phase	CA-PMF Processes	SDLC Phases (Stages)	Comments
Planning	Estimate Activity Durations	• Planning	• Project Schedule • Schedule Management Plan	• Planning • Requirements Analysis	The project team estimates activity duration. Resources are assigned to work activities. The Project Manager facilitates and records assignment agreements. Consider the technical staff skill levels.
Planning	Develop Schedule	• Planning	• Project Schedule • Schedule Management Plan	• Requirements Analysis	The Project Manager generates the project schedule and reviews it with the project team. Ensure that the schedule reflects the number of resources and the skills of the technical team. Plan sufficient contingency estimates.
Planning	Plan Cost Management: Estimate Costs	• Planning	• Project Schedule • Cost Management Plan	• Requirements Analysis	The Project Manager estimates costs from the new schedule and reviews it with financial management resources and the Project Sponsor. Plan contingency estimates for technical skills and technical risks.

PMBOK Process Group	PMBOK Processes	CA-PMF Process Phase	CA-PMF Processes	SDLC Phases (Stages)	Comments
Planning	Determine Budget	• Planning	• Cost Management Plan	• Requirements Analysis	The Project Manager, Project Sponsor, financial managers, and steering committees agree on budget. The Project Manager will set the project budget baseline based on these agreements. Ensure cost estimates meet the original project financial and budget constraints.
Planning	Plan Quality Management	• Planning	• Quality Management Plan	• Planning	The project team works to define and develop how quality will be incorporated into the project and product. Items covered should include quality reviews or checks, development testing cycles and acceptance testing. Ensure that the SDLC processes are sufficiently addressed and supported in the Quality Management Plan.

PMBOK Process Group	PMBOK Processes	CA-PMF Process Phase	CA-PMF Processes	SDLC Phases (Stages)	Comments
Planning	Plan Resource Management: Estimate Activity Resources	• Planning	• Resource Management Plan	• Planning	The Project Manager and Project Sponsor determine the resources that will be needed. This includes all project resources and documents how the project will be staffed, and how the staff will be managed and developed throughout the project. Ensure that the project team skill sets are sufficient to meet specified technical goals and/or objectives.
Planning	Plan Communications Management	• Planning	• Communication Management Plan	• Planning	The Project Manager creates a Communication Management Plan based on input from the Project Sponsor and Stakeholders. The plan should include communication of the SDLC activity status (development progress) and issues.
Planning	Plan Risk Management	• Planning	• Risk Management Plan • Issue Management Plan	• Planning	The Project Manager, and associated risk and issue management staff, define how project risks and issues are to be managed. Technical risk management should be a major part of this effort.

PMBOK Process Group	PMBOK Processes	CA-PMF Process Phase	CA-PMF Processes	SDLC Phases (Stages)	Comments
Planning	Identify Risks	• Planning	• Risk Management Plan • Issue Management Plan	• Planning	The Project Manager facilitates sessions as needed with the project team to identify project risks. Ensure that development, testing, deployment, cut over, transition, training, and other technical risks are identified and documented.
Planning	Perform Qualitative Risk Analysis	• Planning	• Risk Management Plan • Issue Management Plan	• Planning	The Project Manager, and associated risk and issue management staff identify, analyze, plan, control, monitor, and communicate project risks.
Planning	Perform Quantitative Risk Analysis	• Planning	• Risk Management Plan • Issue Management Plan	• Planning	The Project Manager, and associated risk and issue management staff identify, analyze, plan, control, monitor, and communicate project risks.
Planning	Plan Risk Responses	• Planning	• Risk Management Plan • Issue Management Plan	• Planning	The Project Manager, working with the risk and issue management staff as needed, determine risk responses and other mitigation strategies. Plan sufficient contingencies and responses for technical risks.

PMBOK Process Group	PMBOK Processes	CA-PMF Process Phase	CA-PMF Processes	SDLC Phases (Stages)	Comments
Planning	Plan Procurement Management	• Planning	• Procurement Management Plan	• Planning • Requirements Analysis	The Project Manager and procurement staff plan and develop procurements necessary to support project goals and objectives. Identify technical risks associated with procurements, such as: dependencies, interface, and interoperability risks associated with third - party components.
Planning	Plan Stakeholder Engagement	• Planning	• Stakeholder Management Plan	• Planning	The Project Manager further defines the Stakeholder management activities and updates the Stakeholder Register.

PMBOK Process Group	PMBOK Processes	CA-PMF Process Phase	CA-PMF Processes	SDLC Phases (Stages)	Comments
Executing	Direct and Manage Project Work	• Planning • Executing • Closing	• Execute PMP • Direct and Manage Project Work	• Design • Development	As the project team develops the product, services, or other intended project results, the Project Manager directs and manages the work as prepared and documented in the PMP and subordinate plans. The Project Manager assists the project team by removing obstacles and providing needed resources to perform optimally. The Project Manager monitors and assesses design and development progress against defined performance metrics and monitors progress of each Work Breakdown Structure (WBS) item closely. Definitions of "percent complete" and other parameters should be defined to ensure accurate SDLC activity reporting.
Executing	Manage Project Knowledge	• Initiating • Planning • Executing • Closing	• Execute PMP and Subordinate Plans • Direct and Manage Project Work • Conduct Lessons Learned • Administrative Closeout	• All	The Project Manager and project team document project knowledge learned, findings, and outcomes as lessons learned and/ or in the PIER to support organizational operations and to leverage on future projects.

PMBOK Process Group	PMBOK Processes	CA-PMF Process Phase	CA-PMF Processes	SDLC Phases (Stages)	Comments
Executing	Manage Quality	• Planning • Executing • Closing	• Execute PMP • Quality Management Plan • Direct and Manage Project Work	• System Integration • Testing	The project team performs product quality checks. The Project Manager ensures monitoring and controlling of the quality assurance processes, according to the plans created in the Planning Process Phase. The Project Manager ensures monitoring and controlling of both process quality as well as product quality.
Executing	Acquire Resources	• Planning • Executing • Closing	• Execute PMP • Resource Management Plan	• Planning • Requirements Analysis	The Project Manager and Project Sponsor secure the project resources and team members, according to strategies and plans developed in the Initiating and Planning Process Phases. This includes ensuring there are a sufficient number of skilled technical staff available to address the technical challenges.

PMBOK Process Group	PMBOK Processes	CA-PMF Process Phase	CA-PMF Processes	SDLC Phases (Stages)	Comments
Executing	Develop Team	• Planning • Executing • Closing	• Execute PMP • Resource Management Plan • Direct and Manage Project Work	• Requirements Analysis • Design • Development • System Integration • Testing • Implementation (Go Live)	Throughout the project, the Project Manager helps to continuously improve project team member competencies, team interaction, and the overall project environment. Training of project team members to improve skill deficits is a critical part of project team development.
Executing	Manage Team	• Planning • Executing • Closing	• Execute PMP • Direct and Manage Project Work	• Requirements Analysis • Design • Development • System Integration • Testing • Implementation (Go Live)	Throughout the project, the Project Manager tracks project team performance, provides input and feedback, resolves issues, and manages changes to optimize performance.
Executing	Manage Communications	• Planning • Executing • Closing	• Execute PMP • Stakeholder Management Plan • Direct and Manage Project Work	• Requirements Analysis • Design • Development • System Integration • Testing • Implementation (Go Live)	The Project Manager, Project Sponsor, and assigned communication staff manage project communication, according to plans defined in the Planning Process Phase. The status of the various development activities should be communicated.

PMBOK Process Group	PMBOK Processes	CA-PMF Process Phase	CA-PMF Processes	SDLC Phases (Stages)	Comments
Executing	Implement Risk Responses	• Executing	• Risk Management Plan	• Development • System Integration	The Project Manager ensures that the risk responses developed are maintained even as the risk is addressed.
Executing	Conduct Procurements	• Planning • Executing	• Execute PMP • Procurement Management Plan • Direct and Manage Project Work	• Design • Development	The Project Manager and assigned procurement staff complete procurement activities to acquire the requested project resources.
Executing	Manage Stakeholder Engagement	• Planning • Executing • Closing	• Execute PMP • Stakeholder Management Plan • Direct and Manage Project Work	• Requirements Analysis • Design • Development • System Integration • Testing • Implementation (Go Live)	The Project Manager and Project Sponsor manage Stakeholder expectations according to plans developed in the Planning Process Phase. Using requirements management, the Requirements Traceability Matrix (RTM), Joint Application Development (JAD) sessions, user acceptance testing, and various reviews, the Project Manager ensures development artifacts are reviewed and approved by appropriate Stakeholders.

PMBOK Process Group	PMBOK Processes	CA-PMF Process Phase	CA-PMF Processes	SDLC Phases (Stages)	Comments
Monitoring and Controlling	Monitor and Control Project Work	• Executing • Closing	• Monitoring and Controlling Project Work	• Development • System Integration • Testing • Implementation (Go Live)	Throughout the project, the Project Manager manages work and project team performance using monitoring and controlling processes.
Monitoring and Controlling	Perform Integrated Change Control	• Executing • Closing	• Perform Integrated Change Control	• Development • System Integration • Testing • Implementation (Go Live)	The project team uses Change Control processes to improve system integration, testing, and implementation performance as needed. The Project Manager ensures necessary processes are used to maintain and improve project team performance. A critical aspect of Change Control is software/system configuration control. Ensure there are effective configuration control processes in place.
Monitoring and Controlling	Validate Scope	• Planning • Executing	• Execute PMP • Direct and Manage Project Work • Confirm Scope and Requirements	• System Integration • Testing	The project team verifies the scope during system integration and testing through the development and use of traceability matrices and test plans. Requirements traceability matrices are a good tool to help verify scope. Ensure that the requirements are traced through design, coding, testing, and acceptance.

PMBOK Process Group	PMBOK Processes	CA-PMF Process Phase	CA-PMF Processes	SDLC Phases (Stages)	Comments
Monitoring and Controlling	Control Scope	• Executing • Closing	• Monitoring and Controlling Project Work	• Design • Development • System Integration • Testing • Implementation (Go Live)	The project team and Project Manager control the scope during the SDLC stages by monitoring and controlling project work and leveraging Requirements Management, Risk and Issue Management, and Change Control Management processes where needed. *Guard against scope creep. Ensure that only specified features and functions are being developed and implemented.*
Monitoring and Controlling	Control Schedule	• Executing • Closing	• Monitoring and Controlling Project Work	• Design • Development • System Integration • Testing • Implementation (Go Live)	The project team and Project Manager control the schedule during the SDLC stages by monitoring and controlling project work and leveraging Schedule Management, Risk and Issue Management, and Change Control Management processes where needed.
Monitoring and Controlling	Control Costs	• Executing • Closing	• Monitoring and Controlling Project Work	• Development • System Integration • Testing • Implementation (Go Live)	The project team and Project Manager control the costs during the SDLC stages by monitoring and controlling project work and leveraging Cost Management, Risk and Issue Management, and Change Control Management processes where needed.

PMBOK Process Group	PMBOK Processes	CA-PMF Process Phase	CA-PMF Processes	SDLC Phases (Stages)	Comments
Monitoring and Controlling	Control Quality	• Executing • Closing	• Monitoring and Controlling Project Work	• System Integration • Testing • Implementation (Go Live)	The project team and Project Manager ensure that the end product meets the requirements for functionality, usability, reliability, and performance. Ensure that the testing and validation strategies address these requirements.
Monitoring and Controlling	Control Resources	• Initiating • Planning • Executing • Closing	• Resource Management Plan	• All	The Project Manager ensures that the necessary and appropriate resources are available, monitors the planned compared to actual, and performs any corrective actions as needed.
Monitoring and Controlling	Monitor Communications	• Planning • Executing • Closing	• Monitoring and Controlling Project Work	• System Integration • Testing • Implementation (Go Live)	The project team reports on development performance and progress on a regular basis. The Project Manager makes sure to identify and address any deviations.
Monitoring and Controlling	Monitor Risks	• Planning • Executing • Closing	• Monitoring and Controlling Project Work	• Requirements Analysis • Design • Development • System Integration • Testing • Implementation (Go Live)	The Project Manager and assigned risk and issue management staff members engage in continuously monitoring and controlling project risks using processes defined in the Risk Management Plan.

PMBOK Process Group	PMBOK Processes	CA-PMF Process Phase	CA-PMF Processes	SDLC Phases (Stages)	Comments
Monitoring and Controlling	Control Procurements	• Planning • Executing • Closing	• Monitoring and Controlling Project Work	• System Integration • Testing • Implementation (Go Live)	The Project Manager and assigned procurement management staff administer procurements using the processes defined in the Procurement Management Plan.
Monitoring and Controlling	Monitor Stakeholder Engagement	• Planning • Executing • Closing	• Stakeholder Management Plan	• All	The project team should maintain open communication to ensure accurate status and progress reporting.
Closing	Close Project or Phase	• Executing • Closing	• Verify Acceptance of Deliverables • Resolve Open Issues • Resolve Open Procurement Activities • Administrative Closeout	• Implementation (Go Live) • Maintenance	Once product development and testing has been completed, the project team performs the product implementation. Once implementation is done, the Project Manager and Project Sponsor verify acceptance of the product, and resolve any open issues including those relating to procurement activities. If you haven't already completed lessons learned and a PIER, now is the time to do so. Remaining project team members should be released and final project reporting and archiving activities should be completed along with any other administrative processes that are needed for closing the phase or project.

Framework References

Through the efforts of the Project Management Institute (PMI) and others, project management incorporates a well-defined and broadly adopted set of concepts, terminology, and activities. This standard approach can be seen in published frameworks, developed locally or in other states, which are widely available as resources for public sector project managers in California. The following sources provide additional reference material and illustrate various approaches that may also be helpful in developing a project structure.

3.1 Project Management Institute (PMI)

The Project Management Institute (PMI) is the leading not-for-profit professional membership association for the project management profession. The PMI spans nationally and internationally providing ethical and professional standards for practitioners of project management.

3.1.1 PMI Resources and Publications

The PMI produces many publications and resources, in addition to the *PMBOK Guide,* that can be of great value to California project managers and teams of all levels of experience.

The following publications were used as references for the CA-PMF and are available through the PMI at:

http://www.pmi.org/PMBOK-Guide-and-Standards.aspx

- *A Guide to the Project Management Body of Knowledge (PMBOK® Guide) — Fifth and Sixth Editions*
- *The Standard for Program Management — Third Edition*
- *Practice ard for Project Risk Management*
- *Practice Standard for Earned Value Management — Second Edition*

- *Practice Standard for Work Breakdown Structures — Second Edition (Reaffirmed)*
- *Practice Standard for Scheduling — Second Edition*
- *Practice Standard for Project Estimating*
- *Project Manager Competency Development Framework — Second Edition*
- *Practice Standard for Project Configuration Management*
- *Quality Management for Projects and Programs*

3.2 Other California Frameworks

The CA-PMF development effort also leveraged other California frameworks, including the Office of Systems Integration's (OSI) project lifecycle.

California Office of Systems Integration

The California Office of Systems Integration (OSI) has long been a leader in this field. Their publications and tools were used as a reference for the Framework and are available through their website at:

http://www.bestpractices.ca.gov/sysacq/projectlifecycle.shtml

3.3 Other State, Federal, and University Frameworks

The CA-PMF also reviewed frameworks developed by other states, the federal government, as well as public and private universities.

- U.S. Department of Health and Human Services
- Maryland
- Michigan
- New York
- Texas
- Washington State
- University of Wisconsin
- Northwestern University

Glossary

This glossary offers brief, general descriptions of major project management-related roles, terms and acronyms, many of which are used or referenced in the California Project Management Framework (CA-PMF). This glossary is not intended as a comprehensive or definitive compilation of terminology used in the professions of project management, system development, and public sector procurement and oversight.

The descriptions are drawn from information within the Framework itself, as well as from highly regarded sources such as the Project Management Institute (PMI), the Association for Project Management (APM), the state Office of System Integration (OSI), the Statewide Information Management Manual (SIMM), the Department of Technology (CDT), the Department of Finance (DOF), the Department of General Services (DGS), and the Institute of Electrical and Electronics Engineers (IEEE). Each of these organizations offers comprehensive publications and/or website information on specific project management-related subjects or state oversight and procurement requirements.

Understanding project roles and terms is vital to the success of a project. The following sections provide brief descriptions of many project-related and IT-related role definitions and terms. Depending on the size of the organization and the project, a single person may hold more than one role. While these lists do not cover every role and term that may be applicable, the focus is to identify the most important and widely used.

4.1 Project Role Definitions

There are many different roles, people, groups, and organizations involved in various elements of a project. The following is a high-level list of the different types of roles that may be involved in a project and their respective definitions or responsibilities. Note that multiple roles may be held by a single Project Team member.

Budget/Financial Analyst - The Budget/Financial Analyst may assist the Financial Manager and/or the Project Manager in project budget preparation, analysis and estimating, and, among other duties, preparation and updating of the project's Cost Management Plan.

Business Analyst - The Business Analyst reports to the Project Manager or Business Lead. The Analyst acts as a liaison between project team members and Stakeholders, helping them to understand the structure, policies, and business operations of the organization, and to recommend solutions that enable the organization to achieve its business goals through the project.

Business Lead - The Business Lead reports to the Project Manager, works in partnership with the Technical Lead, and provides leadership on the project team to ensure fulfillment of the project's business requirements. This includes overseeing the process that documents and tracks requirements, as described in the Requirements Management Plan. The Business Lead develops a clear understanding of the business needs to be addressed by the project and ensures that the project team actually meets the Project Sponsor's expectations. The Business Lead is the key point of contact for the Business Owner as the project progresses.

Business Owner - The Business Owner or Business Sponsor is a representative of the sponsoring organization and has direct responsibility for ensuring that the organization's business needs are met by the project. The Business Owner maintains a leading and very active role from the perspective of the government program area that the project enables, supports, or enhances. He or she is a knowledgeable manager or executive who is not only an authority on the details of the business operation, but is also able to provide strategic design and implementation advice to best take advantage of the project's potential. The Business Owner is responsible for monitoring the scope, requirements, and ultimately the quality of the delivered product. He or she assigns Subject Matter Experts (SMEs) to provide information regarding business processes to the project team. In smaller projects, the same person may pay the roles of both Business Owner and Project Sponsor. In any project, the Business Owner should have a clear line of communication with the Project Sponsor. A project can have more than one Business Owner when discrete program areas are affected by the project.

Business Sponsor - See Business Owner

Change Control Board- The Change Control Board (CCB) (also referred to as a Change Advisory Board) is responsible for reviewing, evaluating, approving, deferring, or rejecting CRs. The authority of the CCB should be clearly defined and may vary from project to project. The CCB typically consists of members from representative project groups, including: product manager, development manager, Project Manager, test lead or manager, Subject Matter Experts, IT manager, and senior management. If the project has a large impact outside of the sponsoring organization, the customer may be included on the CCB to represent the users' needs and perspective.

Change Request Coordinator/Analyst - The Change Request Coordinator is responsible for managing the formal decision processes used to change the project baseline scope, schedule, and cost. The Coordinator, with the assistance of his or her team, receives and records all change requests and oversees their analysis in preparation for consideration by the Change Control Board (CCB) or other designated project change control authority. The Change Request Coordinator facilitates CCB meetings that make recommendations on project changes. They also ensure the participation of the Business Owner and SMEs in the review, analysis, and prioritization of change requests. The Coordinator makes sure that changes with significant business or cost impacts are approved at the appropriate levels.

Change Request (CR) Originator - The Change Request Originator is the individual who identifies the change, or is assigned to manage the change, and who completes the CR form to document and describe its scope and impact. The completed CR form is first reviewed by the CR Originator's manager to confirm the need for and completeness of the CR. If deemed complete and appropriate, the manager will submit the CR to the CR Coordinator/Analyst.

Chief Information Officer (CIO) - The Chief Information Officer (CIO) is responsible for technology strategic planning and operations for an organization. The CIO may act as Executive Sponsor on more complex technology projects. There may be more than one CIO participating in the project if multiple sponsoring entities are involved.

Contract Manager - The Contract Manager is responsible for managing and tracking vendors. The Contract Manager may also provide oversight and tracking for the system integrator contract and other project-related contracts. The Contract Manager is responsible for monitoring contract compliance, participates in negotiations, facilitates amendments, and reviews work authorizations and invoices.

Department of Finance (DOF) - Department of Finance staff members participate in project review from the earliest stages of project development. They participate in reviews of the project business analysis and alternatives analysis, and review any budget request triggered by approval of a project. As the project proceeds, the Department of Finance must be informed of any significant changes in schedule, cost, or scope. If project changes result in modifications to funding requirements, project staff members prepare documentation required to make formal changes in the budget. This is reviewed by the Department of Finance prior to its submission to the Legislature.

Department of General Services (DGS) - The Department of General Services (DGS) may have a role in supporting procurements related to any vendors required to support project work. This can include Business Analysts to

augment Subject Matter Experts (SMEs) from the sponsoring organization, a formal Quality Assurance vendor to conduct independent assessments of the quality of project work, and an Independent Verification and Validation (IV&V) vendor to verify processes and product quality. It also can include any vendors that provide useful advice in areas of expertise difficult to find within state government (such as database specialists, system architects, or experts on cost reasonableness). DGS reviews terms and conditions of all contracts and oversees Leveraged Procurement Approaches.

Department of Technology (CDT) - The California Department of Technology (CDT) has multiple roles and responsibilities throughout the project lifecycle, including offering project management guidance, project management services, providing project approval, project oversight, and procurement, as well as hosting services for the product delivered through completion of the project.

- **Project Management Guidance** - The California Project Management Office (CA-PMO) within the Department of Technology provides standardized frameworks, tools, education, and training based on proven best practices and lessons learned. For example, the CA-PMF is a product developed by the CA-PMO.
- **Project Management Services** - The CA-PMO has a cadre of experienced and knowledgeable project management professionals who provide expert guidance in project management. The scope of services provided depends on customer needs and may include point-in-time project consulting to full on-site project management. The team works with customers in order to determine project needs.
- **Project Approval** - The Department of Technology must approve projects at four points through the project lifecycle. This process is also known as the Project Approval Lifecycle (PAL). The four stages of PAL are:

    1. The Business Analysis, which reviews the business justification for the investment in the project
    2. The Alternatives Analysis, which evaluates multiple alternative solutions for meeting the business needs
    3. The Solution Development, which provides confirmation of the solution requirements needed to achieve the business objectives and the development of the Request for Proposal (RFP), if needed
    4. The Project Readiness Approval, when bids are solicited from vendors and the final form of the project is approved.

Oversight of project operations - A project provides the Department of Technology with periodic status reports, which help the department evaluate the project's progress and take steps to increase chances of success. This oversight function includes reviewing the quality of ongoing project management and directing improvements where needed. In addition, the oversight unit reviews Special Project Reports (SPR), which notify the Department of Technology, as well as the Department of Finance and the Legislature, about the nature and extent of changes to the original project plan regarding schedule, scope, or cost. Department of Technology staff members also review and approve the Post Implementation Evaluation Report (PIER), which compares project results with the project plan.

Procurements - The Department of Technology undertakes many IT procurements on behalf of departments, and reviews and approves proposed contracts for IT procurements.

Potential hosting of the product - The Department of Technology's Office of Technology Services offers hosting of IT platforms, which may be appropriate for hosting the new functions developed by a project.

Department of Technology Data Center - The Department of Technology Data Center provides hosting of IT applications operated by many state departments. The data center also supports statewide IT data and voice communication networks, which are often employed in an IT design. The center may also have a role in establishing connections with interface partners that will be part of the system under development.

End User - The End User is the person or organization that will use the project's end product. End Users can be state or local employees, or members of the public. There may be several categories of End Users, such as the public via a website, customer service call center employees, and financial staff. Each category may have specific project-related needs and expectations.

Executive Sponsor - In some projects, the Executive Sponsor may also be a Project Sponsor, or he/she may share project responsibilities with other Project Sponsor(s). The Executive Sponsor typically has the final organizational authority to decide whether or not a project should be undertaken, as well as the final organizational authority to provide funding, resources, and support for the project. The Executive Sponsor can suspend or cancel the project if necessary. He or she ensures that the business needs for the project are clearly and timely communicated internally and externally.

Upon review and approval of project documents and progress reports, the Executive Sponsor ensures the design of the system or other project solution meets business goals. The role also ensures the timely availability of adequate financial and business process resources to address business needs. The

Executive Sponsor is responsible for monitoring the status of project teams, takes action to address risks, and resolves project issues that are escalated throughout the project lifecycle. He or she often acts as the most senior spokesperson for the project, communicating strategic vision for the project both internally to the project team and externally to other Stakeholders. The Executive Sponsor communicates project status to the organization's executives and as well as Stakeholders outside the sponsoring organization.

Executive Steering Committee - An Executive Steering Committee (ESC) can be formed either as an advisor to the Project Sponsor or as the final authority for major project decisions. Project size and complexity are factors used to determine whether a project forms an ESC. These factors include the number of separate business entities with a stake in the project, and how the needs of those separate entities are to be represented and integrated in shaping the overall project approach.

Implementation Manager - The Implementation Manager leads the project implementation effort. This includes monitoring the installation of hardware required for the project, data conversion, and organizational change management for users and others in the sponsoring organization who require orientation for new capabilities or business processes. The Implementation Manager leads the effort to plan implementation of the project's new functionality, and he or she coordinates with the Business Lead and Technical Lead to ensure a smooth implementation. The Implementation Manager owns implementation risks and issues. The role also has responsibility for creating readiness metrics that allow the Project Manager and Project Sponsor to have a clear picture of readiness to implement the new system.

Independent Verification and Validation (IV&V) - Independent Verification and Validation (IV&V) representatives are often under a separate contract, working under the direction of the Project Sponsor to provide oversight and review of project activities. The IV&V team determines whether project staff members are following planned processes, and whether contractor work meets project requirements. The IV&V team provides independent technical review and verification of project deliverables, as well as independent testing and auditing of project deliverables against requirements. This may include a special emphasis on deliverable quality assurance and reviews of information security control.

Information Security Officer (ISO) - The Information Security Officer (ISO) is responsible for security throughout the sponsoring organization. There may be more than one ISO participating in the project if multiple sponsoring entities are involved. The ISO works closely with the project team to ensure project operation and product development have appropriate protection of confidential data, are secure against unauthorized access, and that any breaches are reported according to state and federal requirements.

IT Product Owner - The IT Product Owner is the individual in the organization who takes responsibility for hosting the product or other solution created by a project. The IT Product Owner ensures that the technology platform chosen by the project is compatible with the intended hosting environment. The IT Project Owner has a major role in planning and executing project implementation.

IT Sponsor - The IT Project Sponsor ensures that the project advances the sponsoring organization's strategic IT goals. He or she also ensures the project is designed and built in a way that conforms to the organization's information technology policies and standards, as well as statewide standards and requirements established by the Department of Technology. The IT Sponsor also ensures that the project's architecture and security structure fits within the sponsoring organizations existing environment. Often, the IT Project Sponsor's role is assigned to the sponsoring organization's existing Chief Information Officer (CIO).

Legal Counsel - Legal counsel provides legal advice upon request for such project-related matters as preparation of Requests for Proposal or Requests for Offer, the conduct of procurements, and management of contracts once awarded. Legal advice may also be provided concerning contract amendments, work authorizations, conflicts of interest, and other contract matters.

Operations Manager - The Operations Manager is responsible for implementing and managing the new IT processes that the project introduces within the organization. This role may be an existing staff member who is responsible for day-to-day operation of the sponsoring organization's IT processes. He or she manages all project-related computer operations, networks, and telephone capabilities, using internal resources, external vendors, or both. In addition, the Operations Manager does monitoring of prime contractor operations management activities and resolution of operations support problems.

Organizational Change Management Manager - The Organizational Change Management (OCM) Manager leads the planning and executing of project activities related to preparing the sponsoring organization and other Stakeholders for changes brought about by the new product or system. This may include training on the new system, training and implementation activities involving new business processes, Stakeholder outreach, and other activities required to successfully implement the project's solution.

Procurement Manager - The Procurement Manager is responsible for managing procurements required to support project work. These procurements may include early support contracts for development of a project alternatives analysis. The procurements also may involve contracts for system development, project management, integration, quality assurance, independent verification and validation (IV&V), development of reasonableness assessments, or other special service that may be needed during the course of the project.

Project Director - Larger or more complex projects may have the Project Manager share the role's duties with a Project Director. In this case, the Project Director typically takes lead responsibility for the project. The Project Director oversees the work of the Project Manager and assumes primary responsibility for managing strategic communications with the Project Sponsor and external Stakeholders. A project director is sometimes defined as being responsible for *strategic* project decision making.

Project Librarian - The Project Librarian is responsible for constructing and maintaining document repositories used to house project documentation. The Librarian ensures project documents can be readily accessed and searched by the project team. This includes maintaining "version control" of documents as necessary. The Project Librarian typically constructs a file structure allowing documents created in support of the various management activities to be maintained by the team members conducting those activities. For example, the Librarian may designate a portion of the document repository for housing Risk Management documentation. The maintenance of that portion of the repository is the responsibility of the Risk Manager, based on documentation standards set out in the Risk Management Plan.

Project Manager - The Project Manager is responsible and accountable for successfully executing a project. He or she receives authority from the sponsoring organization to execute the project. This authority is documented in the signed Project Charter. The Project Manager is responsible for organizing and leading the project team that delivers the project goals and accomplishes all of the project deliverables. The Project Manager leads the project team through the Concept, Initiating, Planning, Executing, and Closing Process Phases, all while instituting monitoring and controlling activities to ensure timely project progress. The Project Manager guides project teams to successful completion of each project phase's milestones and deliverables, thereby meeting the goals of the organization. The Project Manager must effectively balance and influence the competing project constraints of scope, quality, schedule, budget, resources, and risks. The Manager provides the communication link between the Project Sponsor and project team. He or she also establishes effective communication between the project team and business representatives participating in the project.

Larger or more complex projects may require the Project Manager to share the role's duties with a Project Director. In this case, the Project Director typically takes lead responsibility for the project. The Project Director oversees the work of one or more Project Managers and assumes primary responsibility for managing strategic communications with the Project Sponsor and external Stakeholders. The Project Manager takes responsibility for planning, guiding, and overseeing the day-to-day internal activities of the project, and assists in project schedule development and all other project work plans.

Project Scheduler - The Project Scheduler leads the effort to manage the project schedule in accordance with the Schedule Management Plan. The Scheduler develops and maintains the project schedule and advises management of scheduling issues. This includes tracking progress against project schedule, merging and identifying dependencies and risks within the project schedule, and tracking progress against multiple component schedules. The Project Scheduler also may be required to coordinate the project schedule with the schedules created by project integration and development contractors. Managing the schedule requires close coordination with Stakeholders, such as hosting partners or interface partners, to ensure that both the project and external Stakeholders can provide the required services as planned.

Project Security Officer - The Project Security Officer has two project-related duties. The first is protecting the security of the project operations. Projects require creation of a variety of new system environments to support the development undertaken by the project. Often these systems require complicated networking between the state infrastructure and the network of a contractor or other participant, and often bridge across multiple sites. In some cases, the project may work with sensitive and confidential data that must be protected. The Project Security Officer is responsible for protecting these assets from unauthorized release. In the second duty, the Project Security Officer must ensure the system built by the project has adequate security safeguards in its structure and business processes to protect confidential and sensitive data. For both duties, the Project Security Officer must be familiar with state and federal security standards and procedures. This ensures that applicable standards are met, any security breaches are properly reported, and appropriate steps are taken to mitigate the impact of the breach.

Project Sponsor - In some projects, the Project Sponsor may also be an Executive Sponsor, or he or she may share project responsibilities with an Executive Sponsor or additional Project Sponsor(s). The Project Sponsor typically has the organizational authority to decide whether or not a project should be undertaken, as well as the organizational authority to provide funding, resources, and support for the project. The Project Sponsor can suspend or cancel the project if necessary. He or she ensures that the business needs for the project are clearly and timely communicated. Upon review and approval of project documents and progress reports, the Project Sponsor ensures the design of the system or other project solution meets business goals. The role also ensures the timely availability of adequate financial and business process resources to address business needs. The Project Sponsor actively leads project teams to address risks and resolve project issues throughout the project lifecycle. He or she acts often acts as the senior spokesperson for the project, communicating strategic vision for the project both internally to the project team and externally to other Stakeholders. The Project Sponsor communicates project status to the organization's executives and as well as Stakeholders outside the sponsoring organization.

Quality Manager - The Quality Manager is responsible for overseeing the quality control and quality assurance activities as described in the Quality Management Plan. The Quality Manager may coordinate the efforts of several entities, including the project quality management staff, any quality assurance contractor, the quality assurance staff of any integration contractor participating in the project, and an Independent Verification and Validation Contractor. The Quality Manager provides leadership, training, and mentoring to the project quality management staff. The Quality Manager leads continuous process improvement activities on the project. He or she attends project management meetings and provides input to status reports. The role is responsible for executing the Quality Management Plan and updating it as required, as well as organizing and maintaining all of the documentation in the Project Library related to quality management generated during the course of the project.

Risk/Issue Manager(s) - In larger projects, the management of Issues and Risks may be separate functions with separate roles for a Risk Manager and an Issue Manager. The Risk/Issue Manager(s) directs project efforts to identify and address risks and issues as described in the Risk and Issue Management Plans. This includes the processes for identifying, analyzing, tracking, and evaluating responses to risks and issues identified by the project. The Risk/Issue Manager partners with the Project Manager to prepare regular risk and issue status reports, ensuring that the Project Manager and project team can confirm risks are appropriately addressed on a timely basis. The Risk/Issue Manager should work closely with project operations to ensure he or she can help identify issues and risks that need to be documented. If a project has an integration contractor, the Risk/Issue Manager typically coordinates with any contract team Risk/Issue Manager to ensure coordination of risk and issue tracking. The Risk/Issue Manager reviews the Risk and Issue management plans and incorporates any required updates. The role is also responsible for maintenance of risk-related and issue-related documentation in the Project Library.

Risk Owner - The Risk Owner is responsible for managing assigned risks, including monitoring and development of mitigation strategies and contingency plans.

Solutions Vendor - A contracted company that provides goods or services in support of the project.

Stakeholder - A Stakeholder is an individual or organization that can influence a project, or can be affected by a project, in some way. “Stakeholder” is a very broad term that includes not only the actual project team members but also any individuals affected by changes brought about by the product.

Stakeholders typically include all of the separate units within the sponsoring organization(s) that have a role to play that have a role to play in conducting or

supporting the project, such as the budget shop, the IT division, and the Human Resources unit. Stakeholders also include interface partners and potential users of the project's product, whether they are part of the sponsoring organization or outside of it (including other branches of state government and federal and local government).

Stakeholders include control agencies that review project details, and those who have a role in reviewing and approving aspects of the business processes that may be modified during the course of the project (such as the State Controller approving payment processes). The Legislature is a stakeholder that may be asked to approve project funding. Public sector project Stakeholders include taxpayers, who have a stake in the effective use of public funds and an ongoing interest in the state's ability to manage projects and tax dollars effectively. Project teams may benefit by categorizing Stakeholders in various ways, such as internal or external, a member of the project team, a person within the sponsoring organization, or members of the public. Project teams typically find it helpful to identify key Stakeholders who have significant influence over the project or are significantly affected by it.

Stakeholder Manager - Projects with a variety of external Stakeholders, who have significant influence over the project or are likely to be affected by it, may assign an individual to be responsible for managing Stakeholder contact as described in the Communications Management Plan or Stakeholder Management Plan. The duties typically include managing the process of identifying Stakeholders, analyzing appropriate levels and strategies for engagement, and structuring Stakeholder input into project activities, including requirements and design. The Stakeholder Manager may play a lead role in developing the Stakeholder Management Plan or the Stakeholder management aspects of the Communications Management Plan. As determined by the Project Sponsor, the Stakeholder Manager may serve as the point of contact for external Stakeholders, or communication may be handled by appropriate existing staff of the sponsoring organization. In either case, the Stakeholder Manager should coordinate closely with staff of the sponsoring organization responsible for contact with target Stakeholders. This staff may include the organization's legislative liaison, the budget manager, and the public affairs officer.

Subject Matter Experts (SMEs) - Subject Matter Experts (SMEs) provide the project team with knowledge of the details of the business operation, financial controls, current database history and structure, and other aspects of the business processes related to the project. These experts often are not assigned full time, but they are brought in as needed during requirements definition, design sessions, validation of design, or at various stages of testing. In more iterative project development, SMEs may be closely engaged in the development process.

Systems Analyst - The Systems Analyst reports to the Project Manager, System Architect, or Technical Lead. He or she acts as a liaison between project team members and among Stakeholders, helping them understand the structure, policies, and systems engineering operations of the organization. The Systems Analyst recommends and implements technical solutions that enable the organization to achieve its goals through the project.

System Architect - The System Architect is responsible for ensuring the proposed system architecture fits with the overall architecture strategy and meets the needs of the sponsoring entity. The System Architect typically oversees activities of the technical consultants and state or prime contractor's staff responsible for the design, development, and maintenance of the project's product or service delivery systems.

Technical Analyst - The Technical Analyst reports to the Project Manager, System Architect, or Technical Lead, and acts as a liaison between project team members and among Stakeholders. He or she helps them understand the structure, policies, and technical operations of the organization, and recommends and implements technical solutions that enable the organization to achieve its goals through the project.

Technical Lead - The Technical Lead reports to the Project Manager, works in partnership with the Business Lead, and provides leadership on the project team to ensure fulfillment of project technical requirements. This includes overseeing the process that documents and tracks technical requirements, as described in the Requirements Management Plan. The Technical Lead should develop a clear understanding of the business needs addressed by the project. He or she ensures the technical requirements and design fully support the business needs, and that the project team fully addresses the technical requirements. The Technical Lead works closely with the System Architect and serves as the key point of contact for the IT Project Sponsor as the project progresses, ensuring the technical solution is compatible with the existing environment of the sponsoring organization.

Training Lead - Working with the Project Manager and others as appropriate, the Training Lead coordinates training and development of the project team, and may also have an assigned role in team orientation activities and assist in the development of the Resource Management Plan.

Transition Support Lead - Assists the IT System Owner with transitioning products or completed deliverables to the M&O organization.

4.2 Project Management Terms

The following is a high-level list of Project Management terms that are widely used among projects of all sizes and complexities.

Acceptance - The formal process of accepting delivery of a product or deliverable.

Acceptance criteria - Performance requirements and essential conditions that must be achieved before acceptance of project deliverables.

Accountability/Accountable - Being ultimately answerable for a project-related activity or decision. Also, the responsibility of program managers and staff to provide evidence to Stakeholders and control agencies that a project result or program is effective and in conformance with its requirements for coverage, service, legal, and fiscal.

Acquisition - In this Framework, acquisition includes the full life of a system from initial concept and planning, through development and maintenance and operations (M&O), and continuing until the system is retired or shut down.

Activity - (1) A collection of business tasks, typically executed in a sequential fashion to achieve intermediate results. (2) A distinct, scheduled portion of work performed during the course of a project. *[Source: PMI]*

Activity Definition - Identification and description of specific activities that must be performed to produce the project deliverables. Also called activity description.

Agency - A cabinet-level organization within California State Government that oversees the work of multiple departments or other units. Typically headed by an Agency Secretary who reports to the Governor. *Example: The California Health and Human Services Agency is the parent organization of the California Department of Health Care Services.*

Alternatives - Different solutions and approaches that must be evaluated and potentially selected to attain the objectives of a project.

Alternatives Analysis - A process of breaking down a complex situation to generate different solutions and approaches in order to evaluate the impact of trade-offs.

Alternative Procurement - According to the State Contracting Manual (SCM), Vol. 3, Section 3.B6.0, standard acquisition approaches are appropriate for most acquisitions. Some business problems, however, offer unique challenges for which the use of different procurement techniques, within a competitive framework, may better meet the state's needs. In such cases, a request to

conduct an alternative procurement should be submitted to the Department of General Service Procurement Division (DGS/PD). S*ee State Administrative Manual (SAM) 4819.31.* Due to the complexity of Alternative Procurements, only the DGS/PD has the authority to conduct such procurements.

Analysis - (1) Study and examination of something complex by separating it into simpler components. Typically includes discovering the parts of the thing being studied, how they fit together, and why they are arranged in a particular way. (2) Study of variances for cause, impact, corrective action, and results.

Approach - Overall method by which project objectives are realized, including methodologies, lifecycles, responsibilities, processes, and other associated strategies, tactics, practices, and procedures.

Archive - A secure, long-term repository of data, documents, configuration or other information, often stored offsite for additional security. Although the process for creating an archive is similar to that of taking a baseline, the method of storage for both is different. Whereas baselines are maintained in easily accessible media for reference during the project lifecycle, archives are stored on secure, long-term media in accordance with applicable document and media retention policies and rules.

Artifact - Project management deliverable.

As-Is - Also known as "current state." A model of the current structure (such as process, data, applications, technology). The baseline used for measuring the success of future changes or improvements.

Assumption - A factor in the planning process that is considered to be true, real, or certain, without proof or demonstration. *[Source: PMI]*

Attribute - A characteristic of an entity whose value may be used to help distinguish one instance of an entity from other instances of the same entity. For example, an attribute of a "person" entity may be "Social Security Number (SSN)." An SSN is used to distinguish one "person entity" from another.

Avoidance - Risk response strategy that eliminates the threat of a specific risk event, usually by eliminating its potential cause. The project management team can never eliminate all risk, but certain risk events often can be eliminated.

Backup - A process of creating a copy of a data or other information to prevent the loss of work.

Baseline - (1) Baseline is a specification or product that has been formally reviewed and agreed upon, that thereafter serves as the basis for further development, and that can be changed only through formal change control process. (2) Baseline is a document or set of such documents formally designated and fixed at a specific time during the lifecycle of a configuration item.

Baseline Cost Estimate - Cost projection performed early in a program to serve as a reference point for all subsequent tracking comparing and audition.

Benchmark - Standard point of reference used to define progress, improvement, or change.

Benefit - Gain to be accrued from the successful completion of a project. Benefits are compared to costs to ensure the selection of the most advantageous project or the most effective approach to complete a project.

Best Value - Synonymous with "value effectiveness." Both mean factors or criteria established by a state agency to ensure that their business needs and goals are effectively met and the state obtains the best value.

Budget (or Estimated Budget) - The identification and summary of costs for everything (such as hardware, software, personnel, consultants, facilities) necessary to complete a project.

Budget Change Proposal (BCP) - A proposal to change the spending authority for project activities authorized by the Department of Finance (DOF). A BCP is also required for any current year changes in spending authority. The DOF annually issues a Budget Letter with specific instructions for preparing BCPs. The term BCP can be used in a generic sense to refer to both the fall and spring process documents, or to specifically refer to the fall process document (the spring process document is a spring finance letter).

Business Case - Structured proposal that justifies a project for decision makers. Includes an analysis of business process performance and requirements, assumptions, and issues. Also presents the risk analysis by explaining strengths, weaknesses, opportunities, and threats.

Business Driver - Business drivers are external and internal forces that create a need for business action or "drive" the organization's business, as well as the strategies that an organization defines in response to these forces.

Business Goals - The underlying basis for which a project is undertaken.

Business Lead - The Business Lead reports to the Project Manager, works in partnership with the Technical Lead, and provides leadership on the project team to ensure fulfillment of the project's business requirements. This includes overseeing the process that documents and tracks requirements, as described in the Requirements Management Plan. The Business Lead develops a clear understanding of the business needs to be addressed by the project and makes sure the project team actually meets the Project Sponsor's expectations. The Business Lead is the key point of contact for the Business Owner as the project progresses.

Business Owner - The Business Owner is a representative of the sponsoring organization and who has direct responsibility for ensuring the organization's business needs are met by the project. The Business Owner maintains a leading and very active role from the perspective of the government program area that the project enables, supports, and/or enhances. He or she is a knowledgeable manager or executive who is not only an authority on the details of the business operation, but is also able to provide strategic design and implementation advice about how to design and implement changes to the business that may take best advantage of the project's potential.

The Business Owner should engage in monitoring the scope, requirements, and ultimately the quality of the delivered product. He or she assigns subject matter experts (SMEs) to provide information about business processes to the project team. In smaller projects, the same person may pay the roles of both Business Owner and Project Sponsor. In any project, the Business Owner should have a clear line of communication with the Project Sponsor. A project can have more than one Business Owner when different discrete program areas are affected by the project.

Business Process Model - Decomposition (break down) and graphical depiction of a specific business process or functional area within an organization. The model shows how each functional area breaks down into processes, each process breaks down into sub-processes, and each sub-process breaks down into activities.

Business Process Re-engineering (BPR) - The purpose of Business Process Re-engineering (BPR) is to help prepare the users for the new or modified automated system that is being developed. The focus is on understanding and documenting current processes and business needs, and identifying where automation may help. Thereafter, the focus shifts to assisting users to modify or use new processes that incorporate the use of the automated system functionality. Training and measuring process effectiveness are important parts of the BPR effort.

The goals of BPR are to streamline existing processes, to ensure the correct processes are being automated, and to ensure automation is addressing the process need. This does not mean the elimination of all manual processes. Some new processes may be a combination of manual and automated activities. In many cases, an organizational change or re-design may be part of the effort, or it may be a simultaneous effort.

Business requirements - Statements of the business rationale for the project. These requirements grow out of the product vision, which in turn, is driven by mission (or business) goals and objectives.

Business Services - Processes, activities, and tasks executed to deliver.

Business System - A collection of processes (automated or manual) that fulfill some or all of the requirements of a business or business process.

Business Trend - A business trend is a shift or change in the fundamental business dynamics within an industry. Business trends tend to drive enterprise-wide strategic decisions and are the result of shifts in attitudes, values, technologies and the economic landscape.

California Department of Technology (CDT) - See Department of Technology

California Multiple Award Schedule (CMAS) - One of the types of leveraged procurements available from the Department of General Services (DGS) Procurement Division. CMAS is similar to the federal GSA Schedule. The schedules offer a wide variety of commodities, non-IT services, and information technology products and services at prices that have been assessed to be fair, reasonable and competitive.

California Project Management Framework (Framework, CA-PMF) - The California Project Management Framework (Framework or CA-PMF) is intended as a practical guide to help project teams manage projects of all sizes so that they achieve expected outcomes. The Framework focuses on Information Technology (IT) projects in particular, but is designed for use by project teams across multiple industries. The objective of the CA-PMF is to provide project teams with useful and practical advice about what they need to do to make their projects successful.

CA-PMF - See California Project Management Framework.

CDT - See Department of Technology.

Change Control - The tracking and management of proposed changes to an item's format, content, version and/or configuration. Change control applies to many different project office functions (such as requirements management, project management, quality management, and contract management) as well as contractor-delivered products. The Office of System Integration considers change control as an element of configuration management.

Change Control Board (CCB) - The Change Control Board (CCB) is responsible for reviewing, evaluating, approving, deferring, or rejecting changes to the project and for recording and communicating the change request decision results. The authority of the CCB should be clearly defined and may vary from project to project, but CCB decisions are often accepted as final and binding even if the final acceptance is required by a higher governing body, such as an executive steering committee (ESC) or Project Sponsor. *[Source: PMI and CA-PMF]*

Change Control Management Plan - Documents how changes will be identified, submitted, monitored and controlled. Provides direction for managing the change control process including the formal Change Control Board (CCB) structure.

Change Control Process (CCP) - Change Control is introduced into a project, through the implementation and operation of six key processes: Baselines (a process to establish project baselines), Change Request (a formal process for submission and receipt of change requests), Change Review (a formal process for acceptance, review and logging of change requests), Change Analysis (a formal process to determine the feasibility of change requests), Change Approval (a formal process to approve change requests) and Change Implementation (a formal process to assign resources, implement approved changes, verify implementation, and close change requests).

The Change Control Process is a component of the overall project processes and management plans and is performed throughout the project's life to ensure that changes to project baseline items are reviewed and approved in advance of the change, changes are coordinated across the entire project, and Stakeholders are notified of approved project changes. *[Source: PMI and CA-PMF]*

Change Request - A formal proposal to modify any document, deliverable, or baseline. *[Source: PMI]*

Charter - A formal document providing authority to a project manager to conduct a project within scope, quality, time, cost, and resource constraints as described in the document.

Chief Architect - Assigning a Chief Architect can benefit the project by developing architectural requirements, ensuring the recommended technical solution meets business needs, validating that all technical components have been included in the project plan, and identifying technical staff required for project support.

Closing - Evaluation and conclusion of project outcomes and activities.

Closing Process Phase - The fifth and final Process Phase of the CA-PMF. The process for accepting the project's end product and transferring it to the support organization. Includes how to assess the project, derive lessons learned, and develop recommend practices that may be applied to future projects.

Closing Process Phase Checklist - Identifies the key activities and milestones that are completed during the Closing Process Phase of a project.

Commercial Off the Shelf (COTS) - Commercial off-the-shelf software is a commercially available application sold to the general public by a vendor through public catalogue listings, not intended to be fully customized or enhanced. COTS may be integrated into custom-built software systems. Some COTS products are designed to be modifiable (MOTS).

Communications Management Plan (CMP) - The purpose of the Communications Management Plan (CMP) is to define the project's communication requirements and the approach for how information will be distributed. The CMP is a document that describes "the communication needs and expectations for the project; how and in what format information will be communicated; when and where each communication will be made; and who is responsible for providing each type of communication." The plan, a subset of overall project management planning, documents the method for communications and the management of that communication throughout the project lifecycle. The plan should be developed in coordination with, and be accessible to, all Stakeholders.

Communications Matrix - The Communications Matrix purpose is to document the project team's approach towards communication. This matrix is part of the Project Communications Management Plan (CMP).

Completed Activity - An activity with an actual finish date and no remaining duration.

Complexity Assessments - A self-assessment tool to be completed by the project team. The assessment serves to discover and characterize the business and technical complexities of the proposed project.

Compliance - (1) Adhering to any standards, procedures, or processes established as necessary for operational effectiveness. (2) Meeting all technical, contractual, and price/cost requirements of a Request for Proposal (RFP).

Component - A self-contained business process or service with predetermined functionality. A component may be exposed through a business or technology interface.

Concept - Thoughtful work, discussion, and brainstorming that is done before formally initiating a project.

Concept Process Phase - The first Process Phase of the CA-PMF. Outlines the activities that should take place before formally initiating a project. Includes confirming the business drivers, problems, and opportunities for the project, and aligning the project's objectives with the sponsoring organizations strategic goals.

Concept Process Phase Checklist - Identifies the key activities and milestones that are completed during the Concept Process Phase of a project.

Conflict of Interest - The Political Reform Act prohibits a public official from using his or her official position to influence a governmental decision in which he or she knows or has reason to know he or she has a financial interest. A conflict of interest may occur when project decisions affect the financial interests of an employee, their family or their company (if applicable). In addition, staff members must be aware that they must keep sensitive procurement information confidential. This is a particularly complex issue with severe legal ramification for infractions. All project staff and contractors must evaluate their potential for conflict of interest when working on a project. Designated project staff may be required to complete and file a Statement of Economic Interests *(Form 700)*.

Consensus - General accord. Each participant strongly agrees with the decision, or can live with it. Consensus is not reached if a participant strongly disagrees with the decision or cannot live with it.

Constraint - (1) A limiting factor that affects the executing of a project, program, portfolio or process. (2) Restriction that affects the scope of the project, usually involving availability; assignment; or use of project cost, schedule, or resources. (3) Any factor that affects when or how an activity can be scheduled. (4) Any factor that limits the project team's options and can lead to pressure and resulting frustrations among team members. *[Source: PMI]*

Consultant - An organization or individual(s) under contract to provide services or products to a project.

Contingency - (1) Provision for any project risk element within the project scope, particularly important when comparison of estimates and actual data suggest that certain risk events are likely to occur. An allowance for escalation included in the contingency should be a separate item, calculated to fit expected cost-level escalation conditions or other risk element for a project. (2) Possible future action that may stem from presently known causes, the cost outcome of which cannot be determined accurately.

Contract - A contract is a written, binding agreement between two or more parties that is typically enforceable by law.

Contract Administration - Management of the relationship with the contractor from contract award to closeout, focused specifically on ensuring that the contractor delivers a product or service in conformance with the contract's requirements.

Contract Manager - The Contract Manager is responsible for managing and track vendors. The Contract Manager may also provide oversight and tracking for the system integrator contract and other project-related contracts. The Contract Manager monitors contract compliance, participates in negotiations, facilitates amendments, and reviews work authorizations and invoices.

Contract Time Frames - The expected start and end dates of the contract.

Contract Title - The name or title of the contract (usually between the state and a vendor).

Core Process - May also be stated as Core Business Process. A key or vital business process. These processes are critical to a business organization's success and survival.

Corrective Action - Changes made to bring expected future performance of the project in line with the project plan.

Cost - (1) Cash value of project activity; value associated with materials and resources expended to accomplish project objectives. (2) Sum or equivalent expended, paid, or charged for something.

Cost Baseline - Documents the approved version of the project budget for all project phases. The budget can be changed only through formal change control procedures.

Cost Management Plan - A component of a project or program management plan that describes how costs will be planned, structured, and controlled. *[Source: PMI]*

Cost Overrun - Amount by which actual project costs exceed budgeted costs.

Criteria - (1) A fact or standard by which judgments, decisions, or actions are taken. (2) Objectives, guidelines, procedures, and standards to be used for project development, design, or implementation.

Critical Path - (1) A way to predict project duration by analyzing the sequence of activities (network path) that has the least amount of scheduling flexibility. Early dates are calculated with a forward pass using a specified start date. Later dates are calculated with a backward pass starting from a specified completion date. (2) A project network diagram; the series of activities that determine the earliest completion of the project. May change as activities are completed ahead of or behind schedule. Although normally calculated for the entire project, may also be determined for a milestone or sub-project. Often defined as those activities with less than or equal to specified value, often zero. (3) The series of tasks that must be completed on time for the entire project to finish

on schedule. A delay in any task on the critical path will result in a delay in the project. (4) The sequence of activities that represents the longest path through a project, which determines the shortest possible duration. *[Source: PMI]*

Customers - The end consumer or user of a business systems service. Often the consumer of the information provided by a business system.

Current State - See As-Is.

Database - A collection of interrelated data stored together in one or more computerized files.

Data Conversion Plan - A plan describing the approach for converting legacy data to a new format or database. The plan describes the tool(s) to be used, the types of automated and manual processes to be used, how data anomalies and errors are handled, and how converted data will be validated prior to its use in the new production system. This plan typically may be either a project office or contractor responsibility.

Decomposition - Subdivision of the major project deliverables into smaller, more manageable (granular) components until the deliverables are defined in sufficient detail to support future project activities (such as planning, executing, monitoring & controlling, and closing).

Defect - Non-conformance of characteristics with specified requirements, or a deficiency in something necessary for an item's intended and proper use.

Deliverable - Any unique and verifiable product, result, or capability to perform a service that is required to be produced to complete a process, phase, or project. A work product produced by a project team, team member, contractor, or consultant in accordance with the terms of their requirements or contract. *[Source: PMI]*

Deliverable Expectation Document (DED) - A DED presents pertinent information (such as deliverable description, applicable industry standards, Statement of Work (SOW) reference, acceptance criteria, and schedule) specifying the expectations of a deliverable. The DED is reviewed and approved by a state manager to ensure agreed-upon expectations are clearly defined before the deliverable is actually developed. The DED typically is not attached to any present payment.

Department of Finance (DOF) - Department of Finance staff members participate in project review from the earliest stages of project development. They participate in reviews of the project business analysis and alternatives analysis, and review any budget request triggered by approval of a project. As the project proceeds, the Department of Finance must be informed of any significant

changes in schedule, cost, or scope. If project changes result in modifications to funding requirements, project staff members prepare documentation required to make formal changes in the budget. This is reviewed by the Department of Finance prior to its submission to the Legislature.

Department of General Services (DGS) - The Department of General Services (DGS) has roles supporting procurements related to vendors required to support project work. This can include business analysts to augment Subject Matter Experts (SMEs) from the sponsoring organization, a formal Quality Assurance vendor to conduct independent assessments of the quality of project work, an Independent Verification and Validation (IV&V) vendor to verify processes and product quality, and any vendors that provide useful advice in areas of expertise difficult to find within state government (such as database specialists, system architects, or experts on cost reasonableness). DGS reviews terms and conditions of all contracts as well as oversees Leveraged Procurement Approaches.

DGS (Department of General Services) Alternative Procurement Request Form - A letter written by the project to DGS requesting permission to conduct an alternative procurement. *Refer to SAM Section 5215.*

Department of Technology (CDT) - The California Department of Technology (CDT) has multiple roles and responsibilities throughout the project lifecycle:

- **Project Approval** - The Department of Technology must approve projects at four points through the project lifecycle. See Project Approval Lifecycle (PAL) for more information.
- **Oversight of Project Operations** - The project provides the Department of Technology with periodic status reports, which will help Department staff evaluate the project's progress and take steps to increase chances of success. This oversight function includes reviewing the quality of ongoing project management and directing improvements where needed. In addition, the oversight unit reviews Special Project Reports (SPR), which notify the Department of Technology, as well as the Department of Finance and the Legislature, about the nature and extent of changes in the original project plan regarding schedule, scope, or cost. Department of Technology staff members also review and approve the Post Implementation Evaluation Report (PIER), which compares project results with the project plan.
- **Procurements** - The Department of Technology undertakes IT procurements on behalf of departments, and it reviews and approves proposed contracts for IT procurements.
- **Hosting of the Product** - The Department of Technology, Office of Technology Services, offers hosting of IT platforms, which may be appropriate for hosting the new functions developed by the project.

Department of Technology Data Center - The Department of Technology Data Center provides hosting of IT applications operated by many state and other public sector organizations. The data center also supports statewide IT data and voice communication networks, which are often employed in an IT design. The center may also have a role in establishing connections with interface partners to be part of the system under development.

Dependency - Logical relationship between and among tasks of project's Work Breakdown Structure (WBS), which can be graphically depicted on a diagram.

Dependent Tasks - Tasks that are related, such that the beginning or end of one task is contingent on the beginning or end of another.

Design Review - Formal, documented, comprehensive, and systematic examination of a design to evaluate is capability to meet specified requirements, identify problems, and propose solutions.

Direct Project Costs - Costs directly attributable to a project, including all personnel, goods, or services and their associated costs. Does not including indirect project costs, such as overhead and general office costs incurred in support of the project.

Documentation - The collection of reports, information, records, references, and other project data for distribution and archival purposes.

Effort - The number of labor units required to complete a schedule activity or work breakdown structure (WBS) component, often expressed in hours, days or weeks. *[Source: PMI]*

End User - The End User is the person or organization that will use the project's end product. End Users can be state or local employees, or it can be members of the public. There may be several categories of End Users, such as the public via a website, customer service call center employees, and financial staff. Each category may have specific project-related needs and expectations.

Enhancement - Change or group of changes to the scope of an existing project that provides additional functionality, features, or capabilities. Will likely require formal change control approval.

Enterprise - (1) Company or organization. (2) Subpart of a company or organization. (3) Business of a customer.

Enterprise Architecture - Defines an enterprise-wide, integrated set of components that incorporates strategic business thinking, information assets, and the technical infrastructure of an enterprise to promote information sharing across agency and organizational boundaries. The Enterprise Architecture is supported by Architecture Governance and the allied architectures of, Business, Information, Technology and Solution Architectures.

Enterprise Architecture - A coherent collection of standards, policies, and principles that guide the selection, acquisition, implementation, integration, and management of IT hardware and software resources. *[Source: SIMM]*

Enterprise Environmental Factors - Conditions, not under the immediate control of the team, that influence, constrain, or direct the project, program, or portfolio. *[Source: PMI]*

Entity - An abstraction for a person, place, object, event, or concept described (or characterized) by common attributes. For example, "Person" and "Organization" are Entities.

Environmental Scan - A term that can be used to describe an organizational impact assessment and organizational readiness assessment.

Executing - Products and results designed and produced to deliver expected project outcomes. *[Source: PMI]*

Executing Process Phase - The fourth Process Phase of the CA-PMF. During the Executing Process Phase, the project team will execute tasks and generate deliverables described in the plans, processes, and procedures summarized and referenced in the Project Management Plan (PMP). Includes coordinating people and resources, managing Stakeholder expectations, monitor project performance, nad making any needed corrections.

Executing Process Phase Checklist - Identifies the key activities and milestones that are completed during the Executing Process Phase of a project.

Exit Criteria - The conditions that must be satisfied before the process element is considered complete.

Executive Sponsor, Executive Project Sponsor - In some projects, the Executive Sponsor may also be a Project Sponsor, or he/she may share project responsibilities with other Project Sponsor(s). The Executive Sponsor typically has the final organizational authority to decide whether or not a project should be undertaken, as well as the final organizational authority to provide funding, resources, and support for the project. The Executive Sponsor can suspend or cancel the project if necessary. He or she ensures that the business needs for the project are clearly and timely communicated internally and externally.

Upon review and approval of project documents and progress reports, the Executive Sponsor ensures the design of the system or other project solution meets business goals. The role also ensures the timely availability of adequate financial and business process resources to address business needs. The Executive Sponsor monitors the status of project teams, takes action to address risks, and resolves project issues that are escalated throughout the

project lifecycle. He or she often acts as the most senior spokesperson for the project, communicating strategic vision for the project both internally to the project team and externally to other Stakeholders. The Executive Sponsor communicates project status to the organization's executives and as well as Stakeholders outside the sponsoring organization.

See also Project Sponsor.

Executive Steering Committee - An Executive Steering Committee (ESC) can be formed either as an advisor to the Project Sponsor or as the final authority for major project decisions. Project size and complexity are factors used to determine whether a project forms an ESC. These factors include the number of separate business entities with a stake in the project, and how the needs of those separate entities are to be represented and integrated in shaping the overall project approach.

Executive Summary - A non-technical summary statement designed to provide a quick overview of the full-length report on which it is based.

Expected Results - The desired outcome of a scenario defined in a test plan.

Expert Judgment - A group or individual with specialized education, knowledge, skill, experience, or training, often with similar project experience and using qualitative analysis, may provide expertise to guide various decisions in the project life.

External Dependency - Dependency that involves a relationship between project and non-project activities.

Feasibility Study Report (FSR) - The state approval document required for initial project approval that contains analyses of options, cost estimates, and other information. A customized Implementation Advance Planning Document (IAPD) is accepted in lieu of an FSR for those projects receiving federal funding. The format of the FSR is dictated by the Department of Finance.

Feedback - Information derived from observation of project activities, used to analyze the status of the job and take corrective action if necessary.

Final Project Status Report - Provides a final update on project closing activities to the Project Sponsor and key Stakeholders identified within the Communication Management Plan.

Fiscal Year - A 12-month period used for financial planning and reporting purposes. The State of California fiscal year is July 1 to June 30.

Flowchart - Diagram consisting of symbols depicting a process, a thought process, or an algorithm. It can show how the various elements of a system or process relate and which can be used for continuous process improvement.

Focus groups - Focus groups bring together pre-qualified Stakeholders and Subject Matter Experts (SMEs) to learn about expectations and attitudes about a proposed product, service, or result.

Formal Acceptance - Documentation signifying that the customer or sponsor has accepted the product or other deliverable on the project or phase. May be conditional if the acceptance is for a phase of the project.

Framework - The combination of the templates and structured processes that support the documentation of the architecture in a systematic and disciplined manner. *(See also California Project Management Framework (CA-PMF))*

Function - Related activities that are part of a process or a sub-process. Most organizations are divided into functional areas. For example, acquisition, accounting, budgets, facilities, and human resources.

Functional Requirements - Characteristics of the deliverable, described in ordinary, non-technical language that is understandable to the customer.

Future State - See To-Be.

Gantt Chart - A Gantt chart is a horizontal bar chart that graphically displays time relationships. In effect, it is a scale model of time because the bars are different lengths depending upon the amount of time they represent. It is named after Henry Laurence Gantt, an American engineer and social scientist who first developed it. Gantt charts have been used since the early 1900s and are frequently created to plan and manage large projects.

Gap Analysis (Process Gap Analysis) - An analysis comparing actual performance with potential or desired performance. May define steps to achieve desired performance May be applied to information technology system performance, project activity outputs, risk analysis, and other project areas.

Go/No-Go Decisions - Critical decisions that occur at key project milestones to review project and/or contractor progress. Each Go/No-Go Decision has key criteria that must be met in order for the project/contractor to progress to the next phase or stage. The Go/No-Go Decision is a formal decision typically made by the Project Sponsor or Executive Sponsor, or other authorized manager.

Governance - The use of institutions, statues of authority, and collaboration to allocate resources and coordinate or control activity within a project, program, or portfolio.

Governance Plan - Documents the process for making project decisions. Provides the Project Manager and project team with the structure, processes, decision-making models, and tools for managing a project.

Guideline - Document that recommends methods and procedures to be used to accomplish an objective.

Hardware - Any device used to capture, process, transmit and/or store data. *[Source: SIMM]*

High-Level Requirement - A requirement that broadly expresses a system-level response to a Stakeholder need. High-level requirements usually are analyzed and refined with more detail.

Historical Information - Documents and data on prior projects including project files, records, correspondence, closed contracts, and closed projects. *[Source: PMI]*

Impact Analysis - Qualitative or quantitative assessment of the magnitude of loss or gain that would be realized should a specific risk or opportunity event or series of interdependent events occur.

Implementation Manager - The Implementation Manager leads the project implementation effort. This includes monitoring the installing any hardware required for the project, data conversion, and organizational change management for users and others in the sponsoring organization who require orientation for new capabilities or business processes. The Implementation Manager leads the effort to plan implementation of the project's new functionality, and he or she coordinates with the Business Lead and Technical Lead to ensure a smooth implementation. The Implementation Manager owns implementation risks and issues. The role also has responsibility for creating readiness metrics that allow the Project Manager and Project Sponsor to have a clear picture of readiness to implement the new system.

Implementation Plan - A document defining how the system developed by the prime contractor will be implemented in the target environment. In the event of statewide implementations, the plan addresses how the system will be implemented into each site and location.

Independent Project Oversight Consultant (IPOC) - A consultant used to externally monitor the Project Office and Contractor's management efforts. "Independent" usually entails technical and/or managerial independence. The focus is generally on process and products from a management, process and quality perspective, not the in-depth technical reviews associated with Independent Verification and Validation (IV&V).

Independent Verification and Validation (IV&V) - Independent Verification and Validation (IV&V) representatives are often under a separate contract, working under the direction of the Project Sponsor to provide oversight and review of project activities. The IV&V team determines whether project staff members are following planned processes, and whether contractor work meets project requirements. The IV&V team provides independent technical review and verification of project deliverables, as well as independent testing and auditing of project deliverables against requirements. This may include a special emphasis on deliverable quality assurance and reviews of information security control. See also Independent Project Oversight Consultant (IPOC).

Index - A data structure associated with a table that is logically ordered by the values of a key. In many systems, an index improves database performance and access speed. An index may be created for information used most often, or provides a key to underlying information data, where response time is most improved. Indexes are most effective when they are used for information containing mostly unique values.

Indirect Cost (also Indirect Support Cost) - (1) Cost not directly identified with one final cost objective. May be identified with two or more final or one or more intermediate cost objectives. (2) Cost allocated to the project by the performing organization as a cost of doing business.

Information Flow - The path and process of information taken from the originating source, to a consumer(s) of the data.

Information Management Systems - Facilities, processes, procedures, used to collect, store, and distribute information between producers and consumers of information in or electronic format. *[Source: PMI]*

Infrastructure / Facilities Plan - This document addresses the specific strategy to building, furnishing and/or moving into a new location or office space for the project office. The plan must discuss the preparation and installation needs including electrical, telecommunications, security, furniture, and computing equipment. This document is produced as needed.

Initiating - Identification and establishment of expected project objectives, roles, and outcomes.

Initiating Process Phase - The second Process Phase of the CA-PMF. Identifies the project management activities needed to establish a project. The purpose of the phase is to begin defining the overall project parameters and establish the project management and quality environment needed for a successful outcome. Ensure that project staff, the organization, and external Stakeholders understand what is being undertaken and what to expect as the project takes shape.

Initiating Process Phase Checklist - Identifies the key activities and milestones that are completed during the Initiating Process Phase of a project.

Issue - A statement of concern or need that (1) is known ahead of time or is in the project work plan, but whose resolution is in question or lacking agreement among Stakeholders; (2) is highly visible or involve external Stakeholders such as requests from control agencies; (3) have critical deadlines or time frames which cannot be missed; (4) Result in an important decision or resolution whose rationale and activities must be captured for historical purposes; or (5) is item that may impede project progress. An issue is a situation that has occurred or will definitely occur, as opposed to a risk that is a potential event.

Issue Management Plan - Identifies the processes and procedures used for project issues including how the they will be identified, analyzed, tracked, and managed throughout the project lifecycle.

IT Product Owner - The IT Product Owner is the individual within the organization who takes responsibility for hosting the product or other solution created by a project. The IT Product Owner ensures that the technology platform chosen by the project is compatible with the intended hosting environment. The IT Project Owner has a major role in planning and executing project implementation.

IT Sponsor - The IT Project Sponsor ensures that the project advances the sponsoring organization's strategic IT goals. He or she also ensures the project is designed and built in a way that conforms to the organization's information technology policies and standards, as well as statewide standards and requirements established by the Department of Technology. The IT Sponsor also ensures that the project's architecture and security structure fits within the sponsoring organizations existing environment. Often, the IT Project Sponsor's role is assigned to the sponsoring organization's existing Chief Information Officer (CIO).

Iterative Process (Iteration) - A process in which repetitive steps (such as analysis) are used with the goal of approaching the desired result. Each repeat of the process may be called an "iteration."

Key Stakeholder - A person who participates in the decision to approve or disapprove requirements on the behalf of other Stakeholders. A Stakeholder who has significant influence over a project, or who may be significantly affected by a project.

Kickoff Meeting - Meeting held to acquaint project team members and other Stakeholders with the project and each other. It often includes the presence of the customer and serves as an initial review of the project scope and activities. The kickoff meeting is usually conducted after a decision to initiate a project or a contract award.

Knowledge Transfer - Flow of knowledge, skills, information, and competencies from one person to another. Can happen through any number of methods, including coaching, mentoring, training courses and on-the-job experience. Very important in many cases, including at the end of a project when a contractor or development staff hand off a new system to the state employees who will operate and maintain the system on a day-to-day basis.

Lags - See Leads And Lags.

Leads and Lags -

- **Lead** - A modification of a logical relationship that allows an successor activity. For example, when a task has a finish-to-start dependency with a 10-day lead, the successor activity can start as much as 10 days before the predecessor activity has finished.
- **Lag** - A modification of a logical relationship that directs a delay in the successor activity. For example, when a task has a finish-to-start dependency with a 10-day lag, the successor activity cannot start until 10 days after the predecessor activity has finished.

Adjustment of leads and lags is used to find ways to bring lagging project activities into alignment with the plan.

Lead Time - The time period between the order and request for a product, service, material, or resources and the delivery of what is ordered and requested.

Legal Counsel - Provides project legal advice upon request for the preparation of Requests for Proposal or Requests for Offer, or many other project-related matters such as the conduct of procurements, management of awarded, contract amendments, work authorizations, and conflicts of interest.

Lessons Learned - The knowledge gained during a project, showing how project events were addressed or should be addressed in the future for the purpose of improving future performance. Documented experiences that can be used to improve the future management of projects. *[Source: PMI and APM]*

Leveraged Procurement Agreements (LPAs) - Administered by the Department of General Services (DGS) Procurement Division, these agreements allow departments to buy directly from suppliers through existing contracts and agreements. This also includes the CMAS Program (see CMAS glossary entry).

Maintenance - The post-delivery support and modification of a system of software product to maintain stability, correct faults, improve performance or other attributes, or adapt the product to a changed environment.

Maintenance and Operations (M&O) Plan - A document summarizing a project's approach to maintenance and operations. Similar to the Master Project Plan, but with an emphasis on sustained operations instead of development and implementation. The M&O Plan places a stronger emphasis on the strategic direction of the project/system, the approach to system releases, upgrades and maintenance, and ongoing operations and customer support.

Make-or-Buy Analysis - A technique used to determine if particular work can be best accomplished by the project team or should be procured from outside sources.

Master Schedule (or, Master Project Schedule) - Schedule consisting of key events or milestones (typically critical accomplishments planned at time intervals throughout the project) and used to monitor overall project performance. May contain minimal detail at a highly summarized level.

Master Agreement (MA) - Also called Master Service Agreement (MSA.) Contracts that are competitively bid by the Department of General Services (DGS) and available to any agency that expends public funds. These agreements establish a pre-qualified list of vendors and simplify the purchasing process for the end user, by utilizing fair and reasonable pricing for the function to be provided. For example, IT Consulting Services are available by purchasing directly from one of the appropriate Master Agreement contracts. This would normally be done through a Request for Offer (RFO).

Mechanism - Technology or other utility used by a business system to help automate a business process, activity, or task.

Mediation - The process of bringing parties engaged in a dispute or disagreement together to settle their differences through a meeting with a disinterested party, the mediator. Unlike binding arbitration, the mediator has no authority to force a settlement.

Metrics - A quantifiable measure used to track and assess the status of a specific process, such as a business process, often with the goal of process optimization.

Milestone - (1) Used to measure the progress of a project signifies completion or start of a major deliverable or other significant metric such as cost incurred, hours used, payment made, and so on. (2) Identifiable point in a project or set of activities that represents a reporting requirement or completion of a large or important set of activities.

Milestone Schedule - Schedule consisting of key events or milestones, typically including critical accomplishments planned at time intervals throughout the project. Used to monitor overall project performance. May contain minimal detail at a highly summarized level.

Mission - Specific purpose that all or part of the organization is dedicated to achieving. Mission Statement: A description prepared and endorsed by members of the organization that typically answers these questions: What do we do? For whom do we do it? How do we go about it? Used as a guide for making decisions in projects.

Mitigation - (1) Carefully organized steps taken to reduce or eliminate the probability of a risk occurring or the impact of a risk on a project. (2) Actions taken to eliminate or reduce risk by reducing the probability and or impact of occurrence.

Mitigation Strategy - Carefully organized steps taken to reduce or eliminate the probability of a risk occurring or the impact of a risk on a project.

Modification - Change to a project's scope or the terms of a contract, usually written. Examples include changes orders, notices of termination, supplemental agreements, and exercises of contract options.

Model - The graphical representation or simulation of a process, relationship, or information, along with a narrative that supports the diagram(s).

Module - A self-contained software component of a business system, which has a well-defined interface to the other software components; something is modular if it includes or uses modules which can be interchanged as units without disassembly of the module.

Monte Carlo Simulation - A technique in which the Project Manager or project team computes and quantifies the total project cost and/or project schedule a number of times through the use of input values, selected at random through careful utilization of probability distributions or potential costs and/or potential durations. The purpose of utilizing the Monte Carlo analysis is for the sake of calculating a defined distribution scenario of possible total costs associated with the project as well as a range of possible completion dates of the project.

Monitoring & Controlling - Continuous tracking, assessment, and coordination to adjust project performance for maintaining alignment with project objectives.

Non-conformance - Deficiency in characteristics, documentation, and/ or procedures that makes the quality of material, service, or product unacceptable or indeterminate.

Non-Disclosure Agreement (NDA) - A legally binding contract between two or more parties providing that confidential information provided will not be disclosed, made public or used for any purpose(s) not specifically allowed in the agreement.

Objective - A high-level statement of the goal(s) of the project.

Objectives - Predetermined results towards which effort is directed. Objectives commonly may be defined in terms of outputs, outcomes, and/or benefits. *[Source: APM]*

Operating Expenses & Equipment (OE&E) - Non-staffing resources which may include, but are not limited to, any equipment, hardware, software, services, materials, facilities, infrastructure, etc.

Operational Readiness Assessment (ORA) - Is part of the transition of the project's software release or other end product to Maintenance & Operations and the production environment. The assessment provides and documents a comprehensive analysis of all facets of readiness, including organizational readiness and contingency planning, prior to the implementation.

Operations Manager - The Operations Manager is responsible for implementing and managing the new IT processes that the project introduces within the organization. This role may be an existing person who is responsible for day-to-day operation of the sponsoring organization's IT processes. He or she manages all project-related computer operations, networks, and telephone capabilities, using internal resources, external vendors, or both. In addition, the Operations Manager monitors prime contractor operations management activities and resolution of operations support problems.

Opportunity - A risk that, if it occurs, would have a positive effect on one or more project objectives. *[Source: PMI and APM]*

Organization Chart (or Organizational Chart or Org Chart) - Graphic display of a roles, titles, and/or units for a project or organization, including reporting relationships, providing a general framework.

Organizational Change Management (OCM) - A structured approach to shifting or transitioning an organization from the current state to a desired future state. OCM is the application of a set of tools, processes, skills, and principles for managing the people side of change to achieve the desired organizational change. It is a process aimed at empowering employees to accept and embrace changes in their business environment. OCM is frequently required during a project and/or upon implementation of the project's product or other end result.

Organizational Change Management Manager - The Organizational Change Management (OCM) Manager leads the planning and executing of project activities related to preparing the sponsoring entity and other Stakeholders for changes brought about by the new product or system. This may include training on the new system, training and implementation activities involving new business processes, Stakeholder outreach, and other activities required to successfully implement the project's solution.

Organizational Learning - A discipline concerned with the way individuals, groups, and organizations develop knowledge. *[Source: PMI]*

Organizational Process Assets - Plans, processes, policies, procedures, and knowledge bases that are specific to and used by the performing organization. *[Source: PMI]*

Outcome - A result, expected or unexpected, of the use of, or application of, the output of a project or organization. The changed circumstances or behavior that results from the use of an output. *[Source: APM]*

Output - The tangible or intangible product typically delivered by a project. *[Source: APM]*

Outsource (Outsourcing) - The process of awarding a contract, or otherwise entering into an agreement with a third party, to perform services that are currently being performed by an organization's internal employees. Also may occur to obtain services that cannot be performed by internal employees due to lack of a specialized skill, workload or other factors. For example, an organization may outsource an operational element that is not a core business function.

Parametric Analysis - Employs equations that describe relationships between cost, schedule, and measurable attributes of systems, hardware, and software. *[Source: SIMM]*

Parametric Estimating - An estimating technique in which an algorithm is used to calculate cost or duration based on historical data and project parameters. A technique that uses a statistical relationship between historic data and other variables to calculate an estimate. *[Source: PMI and APM]*

Peer Review - Review of a project, or phase of a project, by individuals with equivalent knowledge and background who are not currently members of the project team and have not participated in the development of the project.

Performance Gap - A difference between a current project or business situation and the intended situation. The gap or difference between what customers and Stakeholders expect and what each process and related sub-process produces. Commonly defined in terms of quality, quantity, time, and costs related to products and services performed.

Performance Measures (Performance Measurement) - A tool describing how to measure and track success in achieving an organization's goals. Performance measure targets provide the quantifiable answer to the question, "How will we know when we've been successful in achieving our goal?" Analyzing the gaps between current performance levels and performance targets helps organizations identify priority areas needing improvement and develop strategies to close the gap.

Performance Review - This measures, compares, and analyzes schedule performance, such as actual start and finish dates, percent complete, and remaining duration for the work in progress. *[Source: CA-PMF]*

Performance Review Presentations - Performance reviews are internal reviews of project office (not contractor) performance and status.

Phase - The major subdivision of a project lifecycle. *[Source: PMI]* The California Project Management Framework (CA-PMF) includes five process phases: Concept, Initiating, Planning, Executing, and Closing.

Phased Development - Dividing project work into smaller pieces. Each of these pieces adds value to the business but can be taken on one at a time.

Phase Gate - A review at the end of a project phase in which a decision is made to continue to the next phase, to continue with modification, or to end a project. *[Source: PMI]*

PIER - See Post-Implementation Evaluation Report.

Planning - Organizing, preparing, defining and refining how to achieve project objectives and outcomes. Determining what is to be delivered, how much it will cost, when it will be delivered, how it will be delivered, and who will carry it out. *[Source: APM and CA-PMF]*

Planning Process Phase - The third Process Phase of the CA-PMF. Prepares the project for execution. Purpose is to estimate and establish the project's scope of work effort, define and refine the project objectives, and develop the course of actions required needed to attain those objectives.

Planning Process Phase Checklist - Identifies the key activities and milestones that are completed during the Planning Process Phase of a project.

Platform - The hardware and systems software upon which applications software is developed or installed and operated.

PMP - See Project Management Plan.

Portfolio - Projects, programs, sub-portfolios and operations managed as a group to achieve strategic objectives. A collection of components (including projects, programs, portfolios, maintenance and related ongoing operations) that are grouped together to facilitate the effective management of that work in order to meet strategic business objectives. The projects or programs of the portfolio may or may not be interdependent or directly related. *[Source: PMI]*

Portfolio Management - Centralized management of one or more portfolios to achieve strategic objectives.

Position Descriptions (PD) - A document describing the tasks, knowledge, skills, and abilities required for a given staff position. Position Descriptions are specific to a position on a project and should be consistent with the approved position classification.

Post-Implementation Evaluation Report (PIER) - A report prepared after project completion that summarizes project components including Background and Summary of Results (including project history, objectives, and results), Product/System Use Review, Attainment of Objectives, Lessons Learned (including corrective action(s), if appropriate), Project Management Schedule and Economic Summary. *See the Department of Technology website for more details.*

Prime Contractor - A contractor who has primary responsibility for developing or integrating a given system or other solution, or the primary contractor performing work on the system or other solution.

Procedures - (1) Prescribed method to perform specified work. (2) Step-by-step instructions on ways to perform a given task or activity. The instructions may be accompanied by a statement of purpose and policy for a task, examples of the results of the task, or other helpful information.

Process - Related business activities performed to produce an end product or provide a business service. A process has a specific beginning and end point marked by the delivery or a product or other output.

Process Improvement - A systematic approach or series of actions in which an organization identifies and optimizes its underlying processes to achieve more efficient results or meet new objectives.

Procurement Management Plan - A component of the project or program management plan that describes how a team will acquire goods and services from outside the performing organization. *[Source: PMI]*

Procurement Manager - The Procurement Manager is responsible for managing procurements required to support project work. These procurements may include early support contracts for development of a project alternatives analysis. The procurements also may involve contracts for system development, project management, integration, quality assurance, independent verification and validation, development of reasonableness assessments, or other special service that may be needed during the course of the project.

Procurement Time Frames - The expected time durations for procuring services, including development of solicitation documents, response evaluations, and selection.

Product - All project-produced hardware, software, and documentation. The typical end result of a project or a project solution. A tangible or intangible component of a project's output. Synonymous with deliverable. *[Source: APM]*

Product Description - The product description documents the characteristics of the product or service that the project is to create.

Product Requirements - Detailed descriptions of all functional and nonfunctional requirements that must be fulfilled to meet business and user needs.

Program - A program is comprised of multiple related projects, sub-programs, and program activities that are initiated during the program's lifecycle and are managed in a coordinated way.

Program Management Office - A management structure that standardizes the program-related governance processes and facilitates the sharing of resources, methodologies, tools and techniques. *[Source: PMI]*

Project - A project is a temporary endeavor undertaken to create a unique product or service. It is an organized effort representing a level of commitment and ability to deliver a defined product or service to the customer within an agreed cost and/or time constraint.

Project Approval Lifecycle (PAL) - California has adopted the PAL to improve the quality, value and likelihood of success for technology projects undertaken by the State of California. The PAL is intended to ensure projects are undertaken with clear business objectives, accurate costs and realistic schedules. The PAL includes various stages separated by gates that are specifically tailored for IT projects.

- **PAL Stage 1** - Business Analysis: Provides a basis for project management, program management, executive management, and state-level control agencies to understand and agree on business problems or opportunities, and the objectives to address them.
- **PAL Stage 2** - Alternatives Analysis: Provides a basis for how the proposal's business objectives will be achieved, the evaluation of multiple alternative solutions, determines which alternative will yield the highest probability of meeting the business objectives, and to develop an acquisition strategy/ plan for procuring services.
- **PAL Stage 3** - Solution Development: Provides confirmation of the solution requirements needed to achieve the business objectives and development of the Request for Proposal (RFP) for the acquisition of services if needed.
- **PAL Stage 4** - Project Readiness Approval: A Solution Project Readiness and Approval Analysis that solicits bids from vendors as to how they propose to meet the business requirements of the chosen alternative approach, and where the final form of the project is approved to go forward.

Project Calendar - A calendar that identifies working days and shifts that are available for scheduled activities. *[Source: PMI]*

Project Charter - A document issued by senior management that gives the project manager authority to apply organizational resources to project activities, and formally recognizes the existence of a project. The Project Charter's purpose is to demonstrate organizational support for the project and the Project Manager, as well as to document the business needs of the new product, service or other project result.

Project Closeout - A process to provide for project acceptance by the project sponsor, completion of various project records, final revision and issue of documentation to reflect the "as-built" condition, a plan for completing the PIER, and retention of essential project documentation.

Project Completion - A point in time when all of the project closing activities have been performed. Those activities include: verifying acceptance of final project deliverables, resolve any open issues, perform administrative closeout (e.g., contract, financial, facilities), finalize lessons learned throughout the project, celebrate success, prepare a final status report, complete the closing process phase review, release staff resources, archive project records, assign, schedule and complete the Post-Implementation Evaluation Report (PIER).

Project Director - See Project Manager.

Project Environment - Written statements relative to the project, which help to clarify scope, objectives and other relevant factors that may not be known at a given point in time.

Project Initiating - Beginning of RFP preparation if applicable or actual start of work if no formal procurement is planned. *[Source: SIMM]*

Project Library - The project library or repository stores project documentation and information in a way that allows the project staff and those involved with access and search options for project documentation. With a central document repository, team members can collaborate on project documents, maintain historical reference, and support new team member transitions throughout the life of the project. All relevant project-related material, documents produced, issues raised, and decisions rendered should be captured for future reference and tracking.

Project Lifecycle (see also "Project Management Lifecycle") - The series of process phases that a project passes through from its initiating to its closing.

Project Management - The application of knowledge, skills, tools, and techniques to project activities to meet the project requirements. *[Source: PMI]*

Project Management Body Of Knowledge (PMBOK) - Totality of knowledge within the project management profession. As in other professions, such as law, medicine, and accounting, the body of knowledge rests with the practitioners and academics involved in its application and advancement. The PMBOK includes practices that have been widely applied and proven, as well as innovative and advanced practices with more limited use and application.

Project Management Institute (PMI), Inc. - An International non-profit professional organization dedicated to advancing the state of the art in the management of projects. The PMI is the largest organization, nationally and internationally, providing the ethical and professional standards applicable to practitioners of project management.

Project Management Lifecycle (PMLC) - A series of process phases to provide better management and control over a project. During each phase processes, activities, and tools are used to fulfill project goals or objectives. The PMLC is designed to accommodate projects that vary in size and complexity.

Project Management Office (PMO) - An organization that oversees and/or mentors groups of projects. Often the PMO is responsible for establishing policies and standards for the projects/organization, reviewing and consolidating project reports for external Stakeholders, and monitoring project performance against the organization's standards. There is usually a single PMO per state department or agency.

Project Management Plan - The document that describes how executing, monitoring and controlling of the project will be conducted. *[Source: PMI]*

Project Management Professional (PMP) - Professional certification awarded by the Project Management Institute (PMI) to individuals who have met the established minimum requirements in knowledge, education, experience, and service in the discipline of project management.

Project Manager - The Project Manager is responsible and accountable for successfully executing a project. He or she receives authority from the sponsoring organization to execute the project. This authority is documented in the signed Project Charter. The Project Manager is responsible for organizing and leading the project team that delivers the project goals and accomplishes all of the project deliverables. The Project Manager leads the project team through the Concept, Initiating, Planning, Executing, and Closing Process Phases, all while instituting monitoring and controlling activities to ensure timely project progress. The Project Manager guides project teams to successful completion of each project phase's milestones and deliverables, thereby meeting the goals of the organization. The Project Manager must effectively balance and influence the competing project constraints of scope, quality, schedule, budget, resources, and risks. The Manager provides the communication link between the Project Sponsor and project team. He or she also establishes effective communication between the project team and business representatives participating in the project.

Larger or more complex projects may require the Project Manager to share the role's duties with a Project Director. In this case, the Project Director typically takes lead responsibility for the project. The Project Director oversees the work of the Project Manager and assumes primary responsibility for managing strategic communications with the Project Sponsor and external Stakeholders. The Project Manager takes responsibility for planning, guiding, and overseeing the day-to-day internal activities that support the Project Office, and assists in project schedule development and all other project work plans.

The Project Manager is accountable for the development and maintenance of the Project Office infrastructure and adherence to the supporting methodologies.

Project Master Schedule - The high-level schedule, which summarizes all the efforts, required to implement the project. It includes (generally by reference) the milestones and key activities of the prime contractor and any consultants. It may also include milestones and key activities from the counties/local offices. The master schedule focuses on dependencies and critical path.

Project Office (PO) - The group responsible for performing a project, including administrative, fiscal, contract, technical and quality assurance staff. The project office (or just project) may oversee a contractor who is performing the primary activities (planning, development, etc.), or the project itself may be performing all project activities.

Project Objectives - (1) Identified, expected results and benefits involved in successfully completing the project. (2) Quantifiable criteria that must be met for the project to be considered successful. (3) Project scope expressed in terms of output, required resources, and schedule.

Project Outcome(s) - A result or consequence of the project activity.

Project Process Phase - A collection of logically related project activities that culminates in the completion of one or more deliverables. (The California Project Management Framework describes five process phases: Concept, Initiating, Planning, Executing, and Closing.) *[Source: PMI]*

Project Requirements - A statement or model identifying a capability, characteristic, or quality factor that bounds a need for which a solution will be pursued.

Project Schedule - An output of a schedule model that presents linked activities with planned dates, durations, milestones, and resources. *[Source: PMI]*

Project Scheduler - The Project Scheduler leads the effort to manage the project schedule in accordance with the Schedule Management Plan. The Scheduler develops and maintains the project schedule and advises management of scheduling issues. This includes tracking progress against project schedule, merging and identifying dependencies and risks within the project schedule, and tracking progress against multiple component schedules. The Project Scheduler also may be required to coordinate the project schedule with the schedules created by project integration and development contractors. Managing the schedule also requires close coordination with Stakeholders, such as hosting partners or interface partners, to ensure that both the project and external Stakeholders can provide the required services as planned.

Project Scope - (1) All the work required to deliver a project's product or service with the specified features and functions. (2) The work that must be done in order to deliver a product with the specified features and functions.

Project Scope Management Plan - Outlines the methods and processes for monitoring and controlling the project scope. Disciplined requirements management and requirements traceability are vital for avoiding uncontrolled expansion of the product scope without adjustments to time, cost, and resources.

Project Scope Statement - The description of the project scope, major deliverables, assumptions and constraints. *[Source: PMI]*

Project Security Officer - The Project Security Officer has two project-related duties. The first is protecting the security of the project operations. Projects require creation of a variety of new system environments to support the development undertaken by the project. Often these systems require complicated networking between the state infrastructure and the network of a contractor or other participant, and often bridge across multiple sites. In some cases, the project may work with sensitive and confidential case data that must be protected. The Project Security Officer is responsible for protecting these assets from unauthorized release. In the second duty, the Project Security Officer must ensure the system built by the project has adequate security safeguards in its structure and business processes, to protect confidential and sensitive data. For both duties, the Project Security Officer must be familiar with state and federal security standards and procedures. This ensures that applicable standards are met, any security breaches are properly reported, and appropriate steps are taken to mitigate the impact of the breach.

Project Sponsor - This is a critical project role with the authority to decide whether or not a project should be undertaken, as well as the authority to provide funding, resources, support for the project and to cancel the project if necessary. The Project Sponsor ensures the needs of the business area are clearly communicated in a timely manner. With review and approval of project documents and careful progress reviews, the Project Sponsor ensures the design of the system meets all business goals.

The Project Sponsor is also responsible for ensuring that adequate financial and business process resources are made available in a timely manner to address business needs. The Project Sponsor is expected to actively lead project teams to address risks and resolve project issues throughout the project lifecycle. He or she may act as senior spokesperson for the project, communicating strategic vision for the project both internally to the project team and externally to other Stakeholders. The Project Sponsor communicates project status to the organization's executives as well as Stakeholders outside the sponsoring organization. See also Executive Sponsor.

Project Stakeholder - (Also see Stakeholder.) An Individual, group, or organization that is actively involved in the project or whose interests may be affected, either positively or negatively, as a result of executing a project or successful project completion. Sometimes called a party-at-interest.

Project Team - A project team is a team whose members usually belong to different groups, functions and are assigned to activities for the same project. A team can be divided into sub-teams according to need. Usually project teams are only used for a defined period of time.

Project Work Package - The detailed list of activities required to complete specific tasks on the master schedule. The activities list focuses on specific measurable tasks, task assignments, and due dates. Work package data are rolled-up to specific tasks of the master schedule.

Prototype - Small or full-scale, and usually functioning, form of a newly developed product, which is used to evaluate the product design.

Quality - According to Per the International Organization for Standardization (ISO), "Quality is the totality of features and characteristics of a product or a service that bear on its ability to satisfy stated or implied needs."

Qualitative Risk Analysis - Qualitative Risk Analysis is a process of prioritizing individual risks by evaluating risk attributes for probability of occurrence and impact if the risk occurs.

Quality Assurance (QA) - (1) Process of regularly evaluating overall project performance to provide confidence that the project will satisfy relevant quality standards. (2) Organizational unit and/or role(s) responsible for quality assurance efforts.

Quality Management - (1) Planning, organizing, staffing, coordinating, directing, and controlling activities of management with the objective of achieving the required quality. (2) Overall management function involved in determining and implementing quality policy. (3) A discipline for ensuring the outputs, benefits and the processes by which they are delivered, meet Stakeholder requirements and are fit for purpose. *[Source: APM]*

Quality Management Plan - A component of the project or program plan that describes how an organization's quality policies will be implemented. The purpose of a project's Quality Management Plan is to define 'how' quality will be managed throughout the project lifecycle to meet the stated quality definition. Quality is not gold plating or gilding a product, but to ensure the product will meet the committed intent and requirements from a customer point of view. *[Source: PMI]*

Quality Manager - The Quality Manager is responsible for overseeing the quality control and quality assurance activities as described in the Quality Management Plan. The Quality Manager may coordinate the efforts of several entities, including the project quality management staff, any quality assurance contractor, the quality assurance staff of any integration contractor, and an Independent Verification and Validation Contractor. The Quality Manager provides leadership, training, and mentoring to the project quality management staff. The Quality Manager typically leads continuous process improvement activities on the project, attends project management meetings, and provides

input to status reports. The Quality Manager is responsible for executing the Quality Management Plan and updating it as required, as well as maintaining all related documentation in the Project Library.

Quantitative Risk Analysis - Quantitative Risk Analysis is a process where risks are analyzed using modeling or simulation, which produces quantitative risk information to support decision making.

RACI Matrix (also known as a responsibility assignment matrix) - The Project RACI Matrix identifies the phase gates, lists the deliverables for each phase gate, and responsibilities (such as approver, signatory, responsible, or informed) of various Stakeholders with respect to those deliverables. RACI is an acronym based on four key types of responsibilities that are often described in the Matrix: Responsible, Accountable, Consulted, and Informed. Refer to the Resource Management Plan for additional information on the RACI Matrix.

Records Retention - A process governing the disposition of project documents and other media in accordance with a records retention schedule. Typically follows state/agency/department retention duration requirements for different types of records and media. For example, an individual project document may need to be retained for seven years, after which it is transferred to electronic media and archived off-site, destroyed, or otherwise handled under the applicable schedule. The Project Librarian role is often responsible for managing the lifecycle of documents and describes the process in a document management plan.

Reject(ing) - (1) An item that has failed to meet approval criteria and/or failed the approval process, or (2) The act of refusing to accept something.

Request for Information (RFI) - A letter released to the bidding community seeking to identify interested bidders for a specific procurement. The RFI generally describes the background of the business problem and may describe some of the key requirements.

Request for Offer (RFO) - The RFO is used to solicit offers from the bidding community to provide goods and/or services from an existing California Multiple Award Schedules (CMAS) contract or Master Agreement (MA or MSA) contract.

Request for Proposal (RFP) - The RFP used to solicit proposals from the bidding community based on a set of defined requirements. The requirements may be general in nature allowing the bidders to propose a solution and the specific products to be used. The RFP describes the problem requirements, contractual terms, and required format for the proposal responses. The RFP also includes the specific criteria that will be used to evaluate the received proposals. The project works with the Department of General Services (DGS) to ensure the RFP meets all appropriate state guidelines and regulations.

RFP Addenda - Addenda are issued after the RFP is released to the bidders to clarify requirements or bidder instructions, or to respond to questions from the bidders. The project must work with the Department of General Services (DGS) to issue any addenda.

Requirement - A requirement is defined as "a condition or capability that must be met or possessed by a system or system component to satisfy a contract, standard, specification, or other formally imposed documents" *(IEEE 610-12-1990 [R2002])*. Therefore, requirements identify, in objective terms, the criteria used to measure project success. Requirements should be captured and approved as early as possible in the project.

Requirement - A condition or capability that is required to be present in a product, service, or result to satisfy a contract or other formally imposed specification. *[Source: PMI]*

Requirements Management - The discipline of planning, monitoring, analyzing, communicating, and managing requirements.

Requirements Management Plan - Describes the approach to managing the system requirements. The plan describes how requirements are derived and validated, how requirements changes are analyzed and managed, how requirements traceability is maintained and validated, and how the project works with the contractor or other staff to ensure traceability of requirements to the system and system documentation.

Requirements Traceability - The process of understanding, documenting, approving, and auditing the relationships between a system's components and functions and the requirements from which the system was developed. Each function and component of a system should be directly traceable to a requirement identified by a user, client, customer, and or Stakeholder.

Requirements Traceability Matrix - A grid that links product requirements from their origin to the deliverables that satisfy them. *[Source: PMI]*

Resources - All those items required to undertake work including people, finance, and materials. *[Source: APM]*

Resource Allocation - The process by which resources are attributed to activities. *[Source: APM]*

Resource Calendar - A calendar that identifies the working days and shifts during which each specific resource is available. *[Source: PMI]*

Resource Histogram - A vertical bar chart used to show resource consumption and availability by time period. Also called a resource-loading chart.

Resource Leveling - (1) A technique in which start and finish dates are adjusted based on resource constraints with the goal of balancing demand for resources with the available supply. *[Source: PMI]* (2) A scheduling calculation that delays activities so that resource usage is kept below specified limits. It is also known as resource limited scheduling. *[Source: APM]*

Resource Management - The acquisition and deployment of the internal and external resources required to deliver the project, program, or portfolio. *[Source: APM]*

Resource Management Plan - A plan that describes how project resources are acquired, allocated, developed, monitored and controlled, and overall managed throughout the life of the project. Includes all project resources such as equipment, hardware, software, services, materials, staffing, facilities, infrastructure, etc. May be developed as a standalone plan or be a component of the Project Management Plan (PMP). Should also include roles and responsibilities, reporting relationships, and how the project team, staff, and/or contractors will be structured.

Responsibility - (1) Obligation of an individual, role, or group to perform assignments effectively. (2) Status of a prospective contractor determining whether it is eligible for contract award.

Responsibility Assignment Matrix - See RACI Matrix.

Risk - An uncertain event or condition that, if it occurs, has a positive or negative effect on one or more project objectives.

Risk (External) - Those risks beyond the control or influence of the project team.

Risk (Internal) - Those risks the project team can control or influence.

Risk Acceptance - A risk response strategy whereby the project team decides to acknowledge the risk and not take any action unless the risk occurs. *[Source: PMI]*

Risk Analysis - Risk analysis processes follow the Identify Risk process and are used to determine potential impact of a risk and to prioritize risks. Performing Qualitative Risk Analysis is a process of prioritizing individual risks by evaluating risk attributes for probability of occurrence and impact if the risk occurs. In the Perform Quantitative Risk Analysis process, risks are analyzed using modeling or simulation, which produces quantitative risk information to support decision making.

Risk Contingency Planning - A contingency plan developed for those risks where it is unlikely or uncertain that the mitigation will be effective. The contingency plan should attempt to minimize the effects of the risk assuming the event does occur.

Risk Description - Documentation of the risk element to identify the boundaries of the risk.

Risk Event - An uncertain event or set of circumstances that would, if it occurred, have an effect on the achievement of one or more objectives. *[Source: APM]*

Risk Exposure - A determination of the importance of or potential loss from the risk based upon (1) potential impact of the risk on the project, and (2) the probability of occurrence. Usually categorized as high, medium or low.

Risk Factor - Risk event, risk probability, or amount at stake.

Risk Identification - The determination of which risks are likely to affect the project and the documenting of the characteristics of each risk. Risk identification is not a one-time event; it is performed on a regular basis throughout the project's lifecycle. Risk identification must address both internal and external risks.

Risk Impact - The potential consequences, either positive or negative, should the risk occur. Impacts may affect several areas in both tangible and intangible ways. Usually expressed as high, medium, or low.

Risk/Issue Manager(s) - In larger projects, the management of Issues and Risks may be separate functions with separate roles for a Risk Manager and an Issue Manager. The Risk/Issue Manager(s) directs project efforts to identify and address risks and issues as described in the Risk and Issue Management Plans. This includes the processes for identifying, analyzing, tracking, and evaluating responses to risks and issues identified by the project. The Risk/Issue Manager helps the Project Manager prepare regular risk and issue status reports, ensuring that the Project Manager and project team can confirm risks are appropriately addressed on a timely basis. The Risk/Issue Manager should work closely with project operations to ensure he or she can help identify issues and risks that need to be documented. If a project has an integration contractor, the Risk/Issue Manager typically coordinates with any contract team Risk/Issue Manager to ensure coordination of risk and issue tracking. The Risk/Issue Manager reviews the risk/issue management plans and incorporate any required updates. The role is also responsible for maintenance of risk- and issue-related documentation in the Project Library.

Risk Likelihood - A qualitative or quantitative expression of the chances that an event will occur.

Risk Management Plan - Identifies the processes and procedures used for project risks including how the they will be identified, analyzed, tracked, and managed throughout the project lifecycle.

Risk Mitigation - The identification of ways to minimize or eliminate project risks. Depending on the severity of the risk and the level of effort for the mitigation strategies, it may be appropriate to initiate several mitigation activities. In other cases, it may not be possible to mitigate a risk.

Risk Probability - The likelihood that the risk will occur (high, medium, low).

Risk Profile - The current and historical risk-related information; a compendium or aggregate of all the individual risk profiles in a project.

Risk Register - Documents and manages known risks in accordance with the Risk Management Plan (may be incorporated within the Project Management Plan). This includes tracking information such as probability, impact, triggers, mitigation plans, and contingency plans.

Risk Response - An action or set of actions to reduce the probability or impact of a threat, or to increase the probability or impact of an opportunity. *[Source: APM]*

Risk Severity - A function of the risk exposure compared to the time frame. Ranking of risks is often driven by severity.

Risk Time Frame - The period of time within which the risk is expected to occur (short-term, medium-term, long-term).

Risk Tolerance or Threshold - The criteria against which Stakeholders evaluate a risk. Different risk tolerances may be defined for each risk, risk category, or combination of risks. Exceeding a risk threshold is a condition that triggers some action.

Role - A position on the project team, with designated duties and authority, filled by a particular person.

Roster - A list of people's names and their contact information, often with their assigned project roles or tasks.

SAM - See State Administrative Manual.

Schedule - Time-sequenced plan of activities or tasks used in the directing and controlling of the executing of a project. Usually shown as a milestone chart, Gantt or other bar chart, or tabular listing of dates. Often displayed through an interactive tool such as Microsoft Project.

Schedule Baseline - Documents the approved version of the project schedule, which can be changed only through formal change control procedures.

Schedule Management Plan - This document describes the process and how the defined tool (such as Microsoft Project) is used to implement the methodology for establishing, managing, and modifying the Master Project Schedule and Schedule Baseline, and coordinating inputs from the contractor and other role's work plans and schedules.

Schedule Performance Index (SPI) - Analysis of activity sequences, activity durations, and resource requirements to prepare the project schedule. A measure of schedule efficiency expressed as the ratio of earned value to planned value. *[Source: PMI]*

Schedule Risk - Risk that jeopardizes completing the project according to the approved schedule.

Schedule Update - Schedule revision to reflect the most current status of the project.

Schedule Variance (SV) - Difference between the scheduled completion of an activity and its actual completion.

SCM - See State Contracting Manual.

Scope - The totality of the outputs, outcomes, and benefits and the work required to produce them. *[Source: APM]*

Scope Baseline - The approved version of a scope statement, work breakdown structure (WBS) and its associated WBS dictionary, which can be changed only through formal change control procedures and is used as a basis for comparison. *[Source: PMI]*

Scope Change - Modification to the agreed-upon project scope as defined by the approved work breakdown structure (WBS).

Scope Change Control (Management) - The Process of: (1) influencing the factors that cause scope changes to help ensure that the changes are beneficial, (2) determining that a scope change has occurred, and (3) managing the changes if and when they occur.

Scope Creep - The uncontrolled expansion to product or project scope without adjustments to time, cost and resources. *[Source: PMI]*

Scope Definition - Division of the major deliverables into smaller, more manageable components to: (1) improve the accuracy of cost, time, and resource estimates; (2) define a baseline for performance measurement and control; and (3) facilitate clear responsibility assignments.

Scope Management - The process whereby outputs, outcomes, and benefits are identified, defined, and controlled. *[Source: APM]*

Scope Management Plan - (Also see Project Scope Management Plan.) A component of the project or program management plan that describes how the scope will be defined developed, monitored, controlled, and validated. *[Source: PMI]*

Scope Of Work - Description of the totality of work to be accomplished or resources to be supplied under a contract.

Service Level Agreement (SLA) - This document describes the system performance and service level expectations and requirements for the prime contractor during the Implementation and Maintenance and Operations (M&O) phases. The SLA includes target performance measures, unacceptable measures and penalties for not meeting required service levels. Usually included or referenced in a Statement of Work (SOW) and contract.

Significant Variance - A difference between the planned and actual performance that jeopardizes the project objectives. This commonly can be cost-related, schedule-related, or both.

SIMM - See Statewide Information Management Manual.

Solicitation - An activity carried out to ask for (and receive) bids for goods or services.

Solicitation Type - The category of activity used to begin and/or perform the solicitation process. Examples include IT CMAS RFO (IT California Multiple Award Schedule Request for Offer), IT MSA RFO (IT Master Service Agreement Request for Offer), and Formal RFP (Request for Proposal).

Solution - Determining what should be done to best support your current and future business strategy and needs. The deliverables clearly describe the solutions goals and scope, the capabilities to be implemented, and the risks associated with the program of work that must be carried out.

Sponsor Chief Information Officer - See IT Sponsor.

Sponsor Security Officer - The Sponsor Security Officer is responsible for security throughout the sponsoring organization. There may be more than one Sponsor Security Officer if the project has multiple sponsoring entities. The Sponsor Security Officer works closely with the Project Security Officer to ensure project operation and product development have appropriate protection of confidential data, are secure against unauthorized access, and that any breaches are reported according to state and federal requirements.

Sponsorship - An important senior management role. The sponsor is accountable for ensuring that the work is governed effectively and delivers the objectives that meet identified needs. See Project Sponsor. *[Source: APM]*

Span of Control - Number of individuals (direct reports) that a manager or Project Manager can and does effectively manage. Special Project Report (SPR): A report submitted to Department of Technology and Department of Finance that is required when changes to a project's previously approved schedule, scope or cost exceed 10 percent. In certain cases, the SPR is also required to be submitted to the Legislature.

Specification - Description of the technical requirements for a material, product, or service, including the criteria for determining that the requirements have been met. Generally, three types of specifications are used in projects: performance, functional, and design.

Sponsor (and/or Executive Sponsor) - Also see Project Sponsor. The individual who champions the project and provides the resources. Provides the executive leadership, priority and commitment to the project, its goals and objectives. Is accountable for promoting a successful project outcome. This is the manager representing the organizational unit most affected by the business change. If several organizational units will be heavily impacted by the business change, this is an executive manager with authority over the majority of the organizational units.

Staffing Management Plan - A component of the Human Resource Plan that describes when and how team members will be acquired and how long they will be needed. *[Source: PMI]*

Stakeholder - A Stakeholder is an individual or organization that can influence a project, or be affected by a project, in some way. "Stakeholder" is a very broad term that includes not only the actual project team members but also any individuals affected by changes brought about by the product. Stakeholders typically include all of the separate units within the sponsoring organization(s) who have a role to play in conducting or supporting the project, such as the budget shop, the IT division, and the personnel unit. Stakeholders also include interface partners and potential users of the project's product, whether they are part of the sponsoring organization or outside of it (including other branches of state government and federal and local government).

Stakeholders include control agencies that review project details, and those who have a role in reviewing and approving aspects of the business processes that may be modified during the course of the project (such as the State Controller approving payment processes). The Legislature is a Stakeholder that may be asked to approve project funding. Public sector project Stakeholders include

taxpayers, who have a stake in the effective use of public funds and an ongoing interest in the state's ability to manage projects and tax dollars effectively. Project teams may benefit by categorizing Stakeholders in various ways, such as internal or external, a member of the project team, a person within the sponsoring organization, or members of the public. Project teams typically find it helpful to identify key Stakeholders who have significant influence over the project or who are significantly affected by it.

Stakeholder Management - The systematic identification, analysis, planning and implementation of actions designed to engage with Stakeholders. *[Source: APM]*

Stakeholder Management Plan - Defines the processes, procedures, tools, and techniques to effectively engage Stakeholders in project decision making, based on analysis of Stakeholder needs, interests, and potential interests.

Stakeholder Manager - Projects with a variety of external Stakeholders, who have significant influence over the project or are likely to be affected by it, may assign an individual to be responsible for managing Stakeholder contact as described in the Communications Management Plan or Stakeholder Management Plan. The duties typically include managing the process of identifying Stakeholders, analyzing appropriate levels and strategies for engagement, and structuring Stakeholder input into project activities, including requirements and design. The Stakeholder Manager may play a lead role in developing the Stakeholder Management Plan or the Stakeholder management aspects of the Communications Management Plan. As determined by the Project Sponsor, the Stakeholder Manager may serve as the point of contact for external Stakeholders, or communication may be handled by appropriate existing staff of the sponsoring organization. In either case, the Stakeholder Manager should coordinate closely with staff of the sponsoring organization responsible for contact with target Stakeholders. This staff may include the organization's legislative liaison, the budget manager, and the public affairs officer.

Stakeholder Register - Documents the quantitative and qualitative analyses of people whose interests should be considered. Typically contains at least this minimum information for each identified Stakeholder: name, title, organization, position, and location; contact information (such as phone, email, and address); Stakeholder classification, based on the level of project influence and the level of project impact the on the Stakeholder's business or life; and the need for and type of early engagement with the Stakeholder.

Standard - (1) Basis for uniformly measuring or specifying performance. (2) Document used to prescribe a specific consensus solution to a repetitive design, operations, or maintenance situation. (3) Document approved by a recognized body that provides for common and repeated use, rules, guidelines, or characteristics for products, processes, or services; however, compliance is not mandatory. (4) Documentation that establishes engineering and technical limitations and applications of items, materials, processes, methods, designs, and engineering practices.

State Administrative Manual (SAM) - The State Administrative Manual (SAM) is a reference resource for statewide policies, procedures, requirements, and information developed and issued by authoring agencies which include the Governor's Office, Department of General Services (DGS), Department of Finance (DOF), and Department of Human Resources (CalHR).

State Contracting Manual (SCM) - The State Contracting Manual (SCM) contains policies, procedures, and guidelines in securing necessary services for the state.

Statement of Work (SOW) - The SOW describes the specific tasks, activities and deliverables the contractor will provide to the project. The SOW is used with some type of contract vehicle to establish binding responsibility for the work to be performed. A Service Level Agreement (SLA) may be included or referenced by the SOW, if appropriate.

Statewide Information Management Manual (SIMM) - The Statewide Information Management Manual (SIMM) Sections 10 through 80 and Sections 5300 et seq. contain standards, instructions, forms and templates that State agencies must use to comply with Information Technology (IT) policy. SIMM Sections 110 through 200 contain guidelines, models, forms, and templates that State agencies will find useful in the management of their IT programs.

Status Report (Internal) - Internal reports include those that provide information on project progress from the project team to each manager on the team, and for a periodic progress report for the Project Sponsor. Project status reports are defined in the Communications Management Plan.

Status Report (External) - A key external report is provided to the Department of Technology oversight unit. It is defined in *the Statewide Information Management Manual (SIMM).*

Strategy - Action plan to set the direction for the coordinated use of resources through programs, projects, policies, procedures, and organizational design and establishment of performance standards.

Strengths, Weaknesses, Opportunities, Threats (SWOT) Analysis - Analysis used to determine where to apply special efforts to achieve desired outcomes. Entails listing: (1) strengths and how best to take advantage of them, (2) weaknesses and how to minimize their impacts, (3) opportunities presented by the project and how best to take advantage of them, and (4) threats and how to deal with them.

Subject Matter Experts (SME) - Subject Matter Experts (SMEs) provide the project team with knowledge of the details of the business operation, financial controls, current database history and structure, and other aspects of the business processes related to the project. These experts often are not assigned fulltime, but they are brought in as needed during requirements definition, design sessions, validation of design, or at various stages of testing. In more iterative development, SMEs may be closely engaged in the development process.

Sub-process - A set of related activities and tasks within a process.

Sustainability - An approach to development that integrates environmental, social, and economic factors with the goal of maintaining and protecting the environment going forward. *[Source: APM]*

System Architecture - The manner in which hardware or software is structured, including how the system or program is constructed, how its components fit together, and what protocols and interfaces are used for communication and cooperation among the components, including human interaction.

System Architect - The System Architect is responsible for ensuring the proposed system architecture fits with the overall architecture strategy and meets the needs of the sponsoring entity. The System Architect typically oversees activities of the technical consultants and prime contractor's staff responsible for the design, development, and maintenance of the project's product or service delivery systems.

System Design - Translation of customer requirements into comprehensive, detailed functional, performance, or design specifications, which are then used to construct the specific solution.

System Development Lifecycle (SDLC) - (also called SDLC.) This is a model used in project management that describes the stages (or phases) involved in an information system development. The purpose is to meet user requirements in support of business strategic goals and objectives. Also see SDLC Phase descriptions. *[Source: PMI]*

SDLC Plan Phase - Establishes an initial view of the intended project and determines its goals. *[Source: PMI]*

SDLC Analyze Phase - Refines project goals into defined functions and specific requirements. *[Source: PMI]*

SDLC Design Phase - System and software design is prepared from the requirements specifications. *[Source: PMI]*

SDLC Build Phase - The product is developed. *[Source: PMI]*

SDLC Test Phase - The product is tested to validate that it functions as expected and that the requirements are satisfied. *[Source: PMI]*

SDLC Implement Phase - The product is delivered or deployed and the system becomes operational. *[Source: PMI]*

SDLC Maintenance & Operations Phase - Changes or updates to the product after it has been delivered or deployed are undertaken. *[Source: PMI]*

System Environment - The hardware and software platforms, including development tools and databases, as well as the shop standards and styles, in which the system exists.

System Interface - The services, system, or mechanisms that a business system uses to gather or provide information. The source may include external systems services or information repositories, or the internal data source managed by the business system. interfaces among connecting parts of a system, or performance interfaces among various functional or product subsystems.

System Requirement - A condition or capability that must be met or possessed by a system to satisfy a condition or capability needed by a user(s).

System Requirements Specification - Developed by the project to describe the business and system requirements based on the user or sponsor needs. This specification can be included or referenced in the Request for Proposal (RFP) or other appropriate document and forms the basis for the system. Typically, a member of the project team will further refine the requirements in the software requirements specification and resulting design documents.

Systems Analyst - The Systems Analyst reports to the Project Manager, System Architect, or Technical Lead. He or she acts as a liaison between project team members and among Stakeholders, helping them understand the structure, policies, and systems engineering operations of the organization. The Systems Analyst recommends and implements technical solutions that enable the organization to achieve its goals through the project.

Tasks - The smallest unit of work, limited in duration and scope, performed by a project or organization.

Technical Complexity - The technical difficulty or risk associated with a particular business issue or opportunity that is driving a need for change.

Technical Lead - A role that reports to the Project Manager, works in partnership with the Business Lead, and provides leadership on the project team for ensuring the fulfillment of project technical requirements. This includes overseeing the process that documents and tracks technical requirements, as described in the Requirements Management Plan. The Technical Lead should develop a clear understanding of the business needs to be addressed and ensure the technical requirements and design fully support the business needs. He or she should ensure the project team fully addresses the technical requirements. The Technical Lead typically works closely with the System Architect and is a key point of contact for the IT Project Sponsor. As the project progresses the Technical Lead works to ensure that the technical solution is compatible with the existing environment of the sponsoring organization.

Technical Requirements - Description of the features of the deliverable in detailed technical terms, providing project team members with crucial guidance on what needs to be done on the project.

Template(s) - Set of guidelines that provide sample standardized outlines, forms, checklists, and other documents or media. Templates typically can be populated with the user's own information. A template commonly is used to record the work activities, discussions, findings, and specification to help achieve a common understanding. In addition, it may be used to provide a consistent look and feel to the project documentation.

Test Manager - Leads a team to improve product quality by implementing structured testing processes and tools.

Test Plan - Defining responsibilities, identifying test methodologies and phases, and identifying the test environment throughout the project lifecycle.

Test Scripts - A record of actions to be performed, expected results, and actual results used to test the effect of the modifications.

Threat - A risk that would have a negative effect on one or more project objectives. *[Source: PMI]*

Threshold - Assigned duration, monetary unit, or resource level used as a guideline that, if exceeded, triggers some type of management action or review.

Timeline - A schedule showing a planned order or sequence of events and procedures.

To-Be - Also known as "future state." A model of the future structure (such as process, data, applications, technology).

Traceable - The characteristic whereby the origin of each end product requirement is clear and can be traced backward to the Stakeholder need.

Traceability - (1) Ability to trace the history, application, or location of an item or activity by means of recorded identification. (2) Ease with which a project can be systematically traced forward from specifications to the final deliverable, or traced backward from the deliverable to the original specifications.

Trade-Off - Giving up an advantage or accepting a disadvantage in order to gain another advantage that has more value to the decision maker For example, accepting the higher cost of a project (a disadvantage) because there will be more functionality (an advantage) in the delivered product.

Travel Budget - Allocates and plans funding for travel on behalf of the project. Travel may include visits to off-site contractors or data centers, travel to other government offices, or attending training opportunities or relevant conferences. Travel budgets are controlled and submitted in accordance with applicable Department of Finance rules and/or other controls relevant to the sponsoring organization(s).

Trigger Event (or Trigger Condition) - An event or situation that indicates a risk is about to occur.

User (End User) - Ultimate customer for the product; the people who will actually use it.

User Acceptance Testing - Structured testing performed by users of the system being built or modified to determine if it meets their requirements previously identified in the project.

User-Centered Approach - An approach that shifts the focus of project delivery from merely meeting a pre-determined set of requirements, to delivering technology that helps people get jobs done more simply, clearly, and quickly.

Is also an approach to deliver working products as fast as possible. To accomplish this a project team can use the idea of incremental or modular delivery that focuses on taking the project's overall scope and breaking it into smaller pieces, or modules.

User Requirements - User requirements define requirements from the user's point of view, describing tasks users need to accomplish with the product and the quality requirements from the user's point of view. Developing and documenting accurate and comprehensive requirements early in the project lifecycle is generally considered critical to project success.

User Training Plan - A document describing how system or other end product users will be trained. Specifics may include the targeted audience segments and the level and details of training for each, course materials and training media (classroom, on-line, presentation such as PowerPoint), measurement of training effectiveness, and plans for ongoing or remedial training.

Variance - Actual or potential deviation from an intended or budgeted amount or plan. Difference between a plan and actual time, cost, or performance.

Variance Analysis - The goal is to determine the causes of a variance, such as the difference between an expected result and an actual result). *[Source: PMI]*

Vendor - Distributors of commonly available goods or services when requirements and specifications are well defined. Vendors commonly are contracted to assist with state projects.

Version - (1) An initial release or re-release of a system or software solution, frequently accompanied by an identifier such as "Version 1.0." (2) An initial release or complete revision and re-release of a document, as opposed to an amendment resulting from issuing change pages or errata with a previous release.

Version Control - Version Control is the systematic process that captures and maintains accurate date and content information of the successive versions.

Vision Statement - A statement that captures the long-term picture of what the organization or project wants to become. A vision statement typically strives to be inspirational, memorable, and reflect the desires of those with vested interests.

Walk-through - (1) A peer review and examination of the requirements, design, or implementation of a project by qualified experts to ensure that the project objectives will be met. (2) A process used by software developers in which a group of knowledgeable peers mentally step through the design and logic flow of a program with test cases to identify errors and inconsistencies. (3) Rehearsal of an operational procedure by stimulating the executing of all its steps, but often excluding those that are high risk or prohibitively expensive.

Work Authorization - Permission for specific work to be performed during a specific period; generally used in cases where work is to be performed in segments because of technical, scheduling, or funding limitations.

Work Breakdown Structure (WBS) - A product or deliverable-based grouping of project work that defines the scope of work for the project. The WBS does not identify organization or responsibility, nor does it describe dependencies between products.

WBS Dictionary - A document that provides detailed deliverable, activity and scheduling information about each component in the work breakdown structure. *[Source: PMI]*

Work flow - Activities or steps that add or change a product or service as the process develops. These commonly are activities or steps the customer views as important.

Work Package - The work defined at the lowest level of the Work Breakdown Structure (WBS) for which cost and duration can be estimated and managed or a group of related activities that are defined at the same level. *[Source: PMI, APM]*

Work Performance Data - The raw observations and measurements identified during activities being performed to carry out the project work. *[Source: PMI]*

Work Performance Information - The performance data collected from various controlling processes, analyzed in context and integrated based on relationships across areas. *[Source: PMI]*

Work Plans - Detailed descriptions of work activities performed by the project in carrying out the duties of the project. The work plans are derived from and traceable to the Work Breakdown Structure (WBS elements), include interfaces from the prime contractor schedule, and may form the basis for critical path analysis, and the creation of the master project schedule.

Work Products - An item or deliverable (such as a plan, document, or software) produced by the project.

Workaround - A response to a threat that has occurred, for which a prior response was not planned or was not effective A workaround may be an interim solution that is used to maintain project progress until a permanent solution can be developed, tested and implemented. *[Source: PMI]*