California Project Management Methodology

Reference Manual

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CA-PMM

Overview

Methodology Framework

The methodology framework is based on four key life cycles that intersect and overlap one another throughout a project. These life cycles are:

1. Project Management Life Cycle
2. Project Approval Life Cycle
3. Procurement Life Cycle
4. System Development Life Cycle

Each life cycle touches a key aspect of a project. These life cycles ensure repeatable processes with extensible sets of artifacts for each major set of activities.

Lifecycles are defined as follows:

Project Management Life Cycle - articulates the stages and key tasks that are a part of all projects regardless of the end product.

Project Approval Life Cycle - articulates the key tasks in seeking approval to initiate a project and to receive the funding/resources needed.

Procurement Life Cycle - articulates the stages and key tasks of projects where goods and/or services will be purchased from vendors and includes executing the procurement plan.

System Development Life Cycle - articulates the phases and key tasks involved in building the end product of the project. Any number of Software Development Life Cycles (SDLCs) can be used.

The sum total of these tasks and activities does not follow a simple linear path. Combined, the four disciplines with their unique set of activities provide clear checkpoints. Documentation requirements (also referred to as artifacts) associated with these disciplines facilitate the minimization of risk while maximizing the multidisciplinary project teams' attention on creating value for the organization.

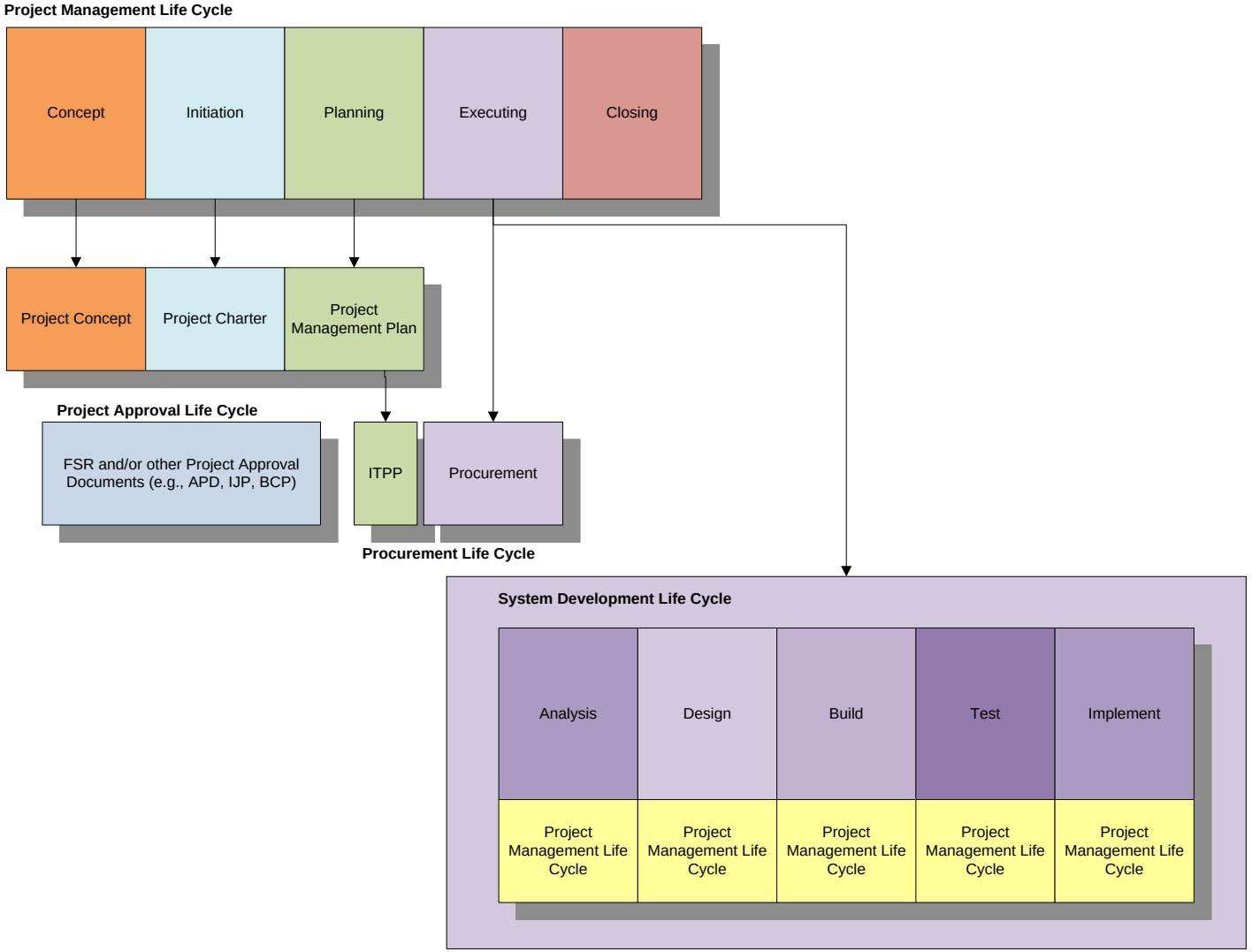
Software development projects touch upon all these areas. Any methodology in alignment with the Project Management Institute (PMI) standards incorporates repeatable processes and artifacts for all activities in the framework. The goal is to prevent Project Managers and their teams from reinventing the wheel and to assist them in becoming successful and effective in implementing IT projects. The rigor and thoroughness of a well thought out methodology mapped to these life cycles enables the Project Manager to focus attention on monitoring and controlling a project rather than building administrative infrastructures to support it.

Definition of an IT Project

For the purposes of determining when to apply the CA-PMM to IT efforts, to be considered an IT project, the effort must meet the following conditions:

- Consumes at least 500 hours of effort.
- Provides an IT solution to a business problem/opportunity.
- Has a start date.
- Has a target finish date.
- Has defined objectives.
- Has named deliverables.
- Has a defined budget and resources.

Project Life Cycle



Project Management Methodology Overview

“Project management is accomplished through processes using project management knowledge, skills, tools, and techniques that receive inputs and generate outputs” (PMBOK®). The California Project Management Methodology (CA-PMM) is a customized, orchestrated project management workflow derived from the Project Management Institute’s process groups.

The processes within each Process Group consist of inputs and outputs. A process input is “any item, whether internal or external to the project, that is required by a process before that process proceeds. It may be an output from a predecessor process” (PMBOK®). A process output is “a product, result, or service generated by a process. [It] may be an input to a successor process” (PMBOK®). An output may be a specific artifact as indicated in this document.

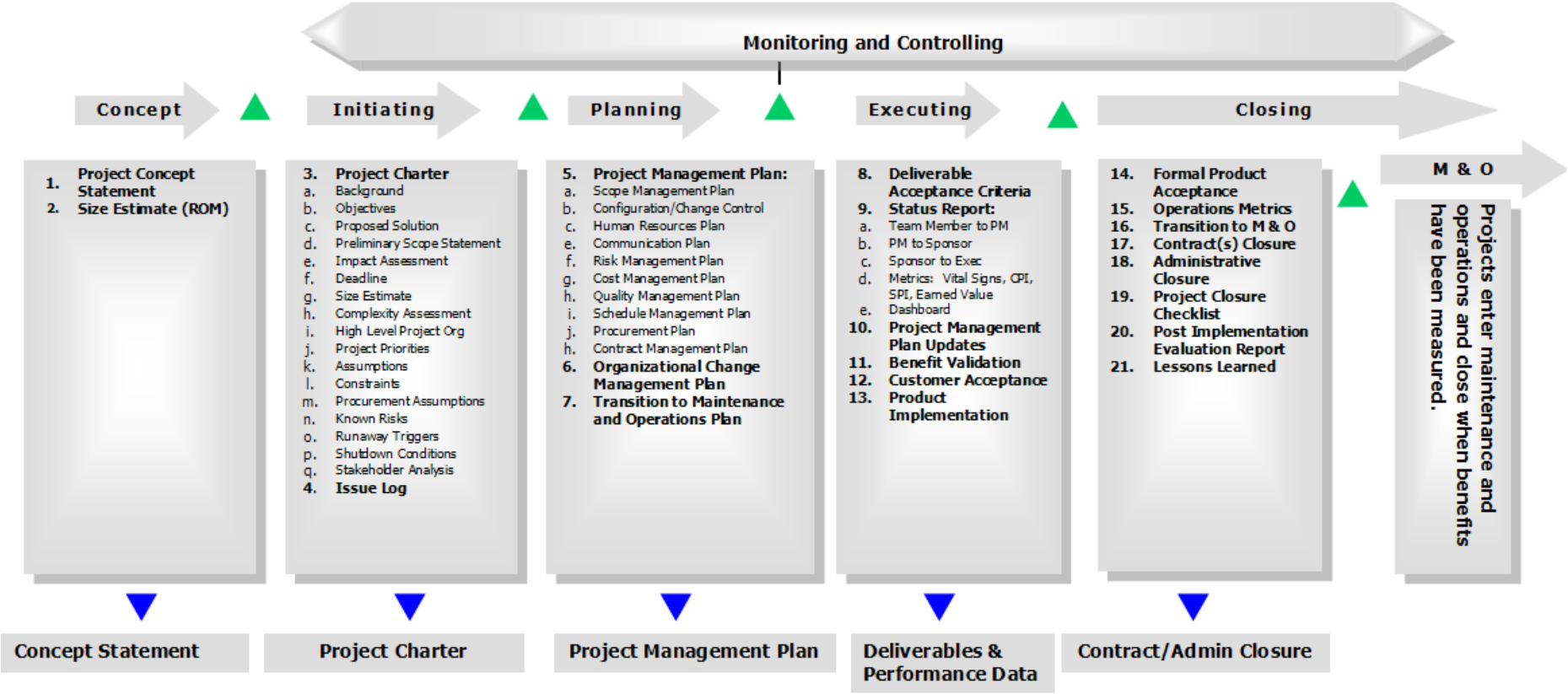
The CA-PMM Life Cycle represents best in class, since it leverages the lessons learned from literally thousands of software development projects from both the public and private sectors.

In this methodology process groups are referred to as stages. There are five stages:

1. Concept
2. Initiating
3. Planning
4. Executing
5. Closing

Monitoring and Controlling occur throughout the project. After the Closing Process group, maintenance and operations (M&O) are shown to round out the full life cycle of a project.

California Project Management Methodology



Note that each stage of the life cycle has a set of one or more key tasks that must be done to produce the major output of each stage.

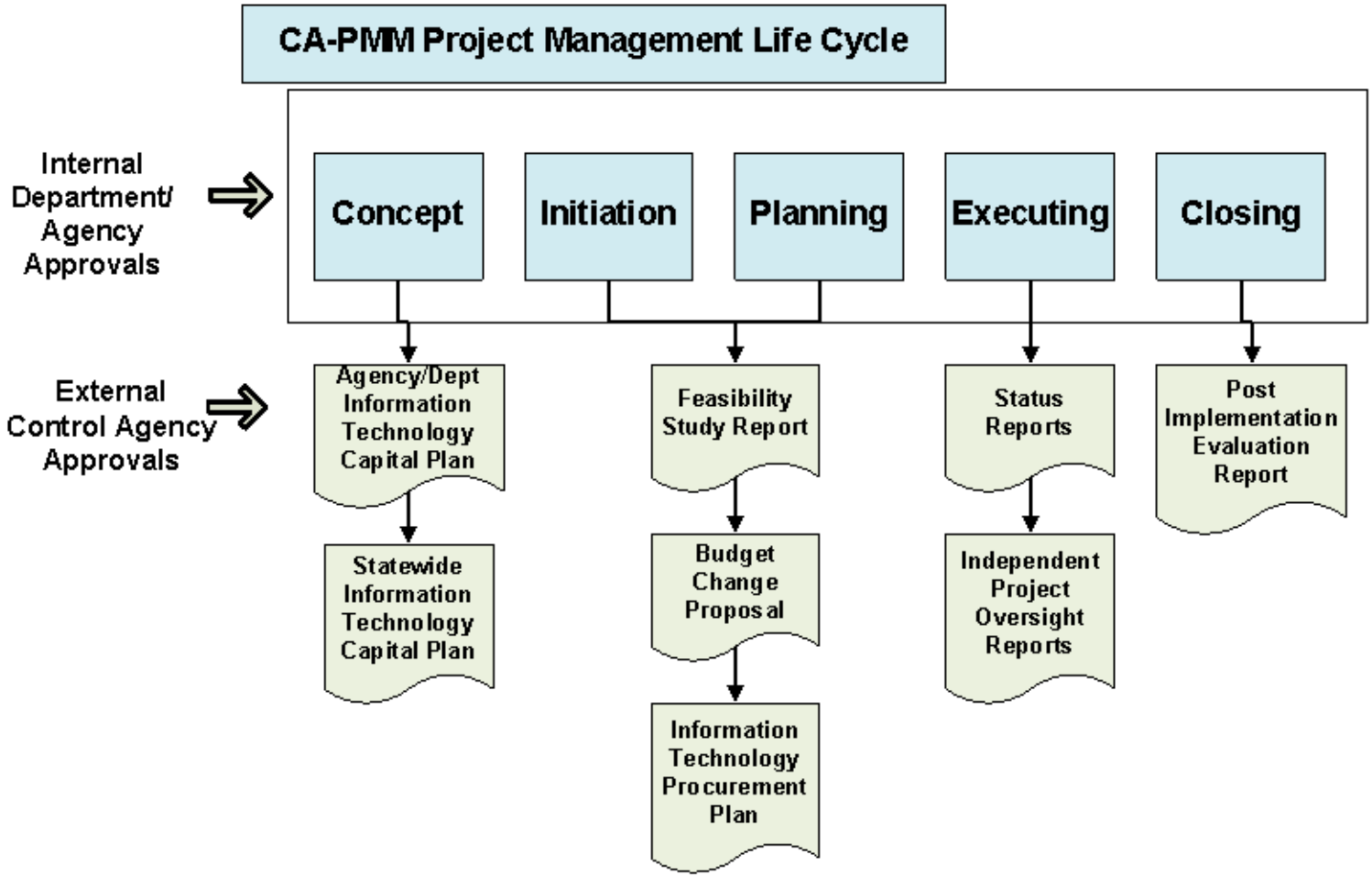
The green triangles on top represent the stage tollgate that must be hurdled to move from one stage to the next. Stage gates are reviewed by the Sponsor or steering committee. The blue triangles on the bottom point to the major output of each stage.

Also note the stage that floats above Initiating and Planning: Monitoring and Controlling. Once a Concept Statement has been approved and Initiating has begun, monitoring and controlling begin. The “stage” of Monitoring and Controlling runs in parallel with all of the other stages from the start to the finish of the project.

It is important to note that while the diagram depicts a linear process, project management is more three dimensional in nature. Concurrent with all of the stages of project management are the ongoing processes of executing, monitoring and controlling, and the Software Development Life Cycle.

Each stage and its activities plays a crucial role in managing stakeholders’ expectations, articulating goals and measurements, navigating competing demands, and most important, managing risk. Throughout the life of the project, it is vital to understand and deal with factors that endanger the project’s objectives. Risks must be identified, analyzed, and prioritized for action. Actions must be planned and executed. The risk picture is likely to change as the project progresses. This requires constant monitoring of risks and actions.

CA-PMM and External Approvals



Project Management Methodology Background

The purpose of project management is to ensure that the delivered product, service or result meets the customer's requirements and is delivered on time and within budget. A project management methodology improves the quality of project planning, communication, control of the execution and closure processes, and thus the deliverables. The concepts presented are here to assist Project Managers in managing projects from project initiation through closure.

As the project progresses, and as challenges or changes emerge, the Project Manager must understand and balance the project's scope, schedule, cost, and quality objectives. If there are challenges or changes in one of the objectives, it may be necessary to make adjustments in others. The activities and artifacts associated with each stage give Project Managers what they need to be successful.

An overview of each stage follows. Detailed descriptions of activities and artifacts associated with each stage are reserved for subsequent chapters.

Concept Stage

The purpose of the Concept Stage is to communicate high-level information about a project idea. Ideas for a proposed project go through due diligence to identify, at a high level rather than in great detail, their potential value, their alignment with organizational strategy, and whether they overlap with other existing or proposed projects. The major output of this stage is a Concept Statement. Usually written by the customer, this statement captures the intent of the project giving the Project Manager, customer, and all stakeholders a starting point for initiating a project.

Rough order of magnitude estimates are also made during the concept stage. Depending on the size and complexity of the project these estimates for any of the resources required for a project may represent a variance of plus or minus 50 percent or higher. The larger the project, the rougher the estimate will be. The variability of these estimates is reduced during the Initiating and Planning Stages of a project.

Initiating Stage

The purpose of the Initiating Stage is to "authorize and define the scope of a new project" (PMBOK®). It defines the project's purpose, identifies project objectives and early project risks, assigns a Project Manager, and authorizes the Project Manager to begin the project. The primary purpose of the Initiating Stage is to obtain formal authorization for a project (or authorization for a new phase in a multi-phase project). The case for authorization is summarized in the Project Charter, which includes a clear statement of the purpose of the project, its key objectives, and a number of other important factors. (Note: This is a separate but related effort from the project approval document requirements as identified in the State Administrative Manual and in the diagram on page 11. Much of the work in the Initiating Stage is incorporated into the State's project approval documents.)

The Project Charter links the project to the ongoing work or business strategy of the organization, as appropriate. The charter is supported by the Preliminary Scope Statement, which offers an initial definition of the boundary conditions of the project's product--that is, the features, functionalities, and other attributes that will or will not be included. The Executive Sponsor "owns" the charter. A core project staff person may assist in the preparation, but approval and funding are handled outside the project boundaries. It is critical to involve the customer and other stakeholders during the Initiating stage, gaining their "buy-in" at the outset of the project and paving the way for their involvement in later project activities.

Planning Stage

The purpose of the Planning Stage is to "define and mature the project scope, develop the project management plan, and identify and schedule the project activities that occur within the project" (PMBOK®).

The planning processes occur iteratively and overlap with other stages. As new project information is discovered, one or more of the planning processes may need to be revisited. New project information could identify additional dependencies, requirements, and risks that need to be taken into account. However, changes and refinement cannot

continue indefinitely. The Project Manager, working with the Sponsor, must at some point determine when changes and refinements can no longer be accepted without further changes to schedule and cost. The various plans from this process group may be simple for a low-risk project, or more elaborate for a high-risk project. Stakeholders should be involved in the planning process, leveraging their skills and knowledge, and setting the stage for open communication.

The primary input to Planning is the output of Initiating: the Project Charter.
In addition, it is vital during Planning to consider other factors that might apply, for example:

- Personnel administration policies.
- Standard project management processes.
- Quality management procedures.
- Organizational culture (e.g., risk takers or the risk averse).
- Political conditions (e.g., a good time for product introduction, or a bad time).
- Infrastructure (e.g., facilities, capital equipment, enterprise IT).
- Project management tools and techniques.
    - Hard: project file storage and retrieval, an automated tool suite, configuration management, scheduling software.
    - Soft: estimating techniques, team-building approaches, achieving executive buy-in.

The Project Management Plan forms the basis of the planning effort. The Project Management Plan forms a solid foundation for two other plans:

- Organizational Change Management Plan
- Maintenance and Operation (M&O) Transition Plan

Together these plans create a platform for the project's success.

Executing Stage

The purpose of the Executing Process Group is to "complete the work defined in the project management plan to accomplish the project's objectives defined in the project scope statement" (PMBOK®). Between 60 and 70 percent of the project team's time will be spent in this area because of the extent of the work to be accomplished: a detailed project schedule is developed, the team begins to work to produce project deliverables, and the Project Manager oversees the team's progress to the planned end of the project. Ongoing deliverables and performance data form the basis of the output of this stage.

Monitoring and Controlling Processes occur simultaneously during Executing, as during other Process Groups. As a result, variances in activity durations, resource availability or productivity, or unanticipated risks may be discovered. This could trigger change requests that may require re-planning and changes to the Project Management Plan. The purpose of the Monitoring and Controlling Process Group is to "measure and

monitor project execution so that corrective action can be taken when necessary to control the execution of the project" (PMBOK®). The project team must determine which of the processes are required for the project. The key benefit is that project performance is observed and measured regularly to identify variances from the project management plan. It also includes controlling changes and recommending preventive action in anticipation of possible problems.

Closing Stage

The purpose of the Closing Process Group is to "formally terminate all activities of a project, transfer the complete project to others or close a cancelled project" (PMBOK®). It includes finalizing all activities across all process groups, and transfers the completed or cancelled project as appropriate. It also establishes the procedures to coordinate activities needed to verify and document the project deliverables, to formalize acceptance of those deliverables by the Sponsor and/or customer, and to document the reasons for terminating a project.

The administrative closure procedure documents all the activities and related roles and responsibilities of the project team members involved in executing the administrative closure procedure. This procedure provides a step-by-step methodology for administrative closure that addresses the following:

- All activities and interactions required to execute the administrative closure process.
- Roles and responsibilities of the project team and/or other stakeholders who will be involved in executing the administrative closure process.
- Hand-off of the project products or services to production and/or operations.

Roles and Responsibilities of the Project Management Team

There are a number of roles on the Project Management Team. A single person can perform multiple roles, or multiple people may be needed for a single role, depending on the size and complexity of the project. (See Human Resources Management Plan for the required reporting relationships.) The roles are defined as follows:

Please Note: The inclusion of roles and responsibilities with regard to contractors does not imply that all IT projects will utilize contractor services. The roles and responsibilities listed that include contractors apply only to IT projects with contractors on the project team.

Executive Sponsor

- Ensures an appropriately skilled Project Manager is selected for the project.
- Approves project charter and master project plan.
- Champions the project, Project Manager, and project team.
- Commits time and political capital to the project.
- Conducts appraisal of the Project Manager's performance.

- Empowers the Project Manager with the appropriate authority.
- Ensures sustained buy-in at all levels.
- Ensures timely availability of needed resources including administrative support, facilities and librarian.
- Follows up to ensure that promised benefits are realized.
- Approves significant changes to the project charter and master project plan.
- Keeps informed about project status.
- Guides through and minimizes the political minefields.
- Provides feedback on performance vs. expectations.
- Provides direction and guidance for key organizational strategies.
- Resolves strategic and major issues.
- Shields project teams from unrealistic customer demands.
- Understands project complexity.

Steering Committee

- Consists of those executives and other participant stakeholders with decision-making authority regarding the project.
- Resolves issues and disputes regarding the scope, cost, schedule, and quality of the project.
- Ensures that business and technical resources are made available as needed.

Project Director

- Provides oversight of the project.
- Ensures deliverables and functionality are achieved as defined in the Project Charter and subsequent project plans.
- Ensures effective management of all resources assigned to the project.
- Serves as the primary liaison between the project and the Project Sponsor and Governance Committee(s).
- Escalates decisions and issues as needed to the Sponsor.
- Coordinates project related issues with other efforts.
- Reviews and resolves project issues not resolved at lower levels.
- Ensures effective project management.
- Acts as the principal interface to the contractors.

Project Manager

- Plans the project.
- Ensures deliverables and functionality are achieved as defined in the Project Charter and subsequent project plans.
- Accountable to the Project Director and/or Sponsor for all the project office management related activities.

- Plans, guides, and oversees the day-to-day internal activities that support the Project Office.
- Develops or assists in the development of the master project schedule and all other project work plans.
- Accountable for the development, maintenance, and adherence to the Project Office infrastructure and supporting methodologies (e.g. processes, procedures, standards, and templates) that are in compliance with Best Practices and policies.

Project Support

- Provides various administrative and clerical support functions for the project.

Procurement Manager

- Oversees and manages the generation of the procurement documents.
- Integrates all the pieces and ensures consistency and continuity throughout the entire procurement process and conformity to procurement standards, rules, and regulations.
- Manages the procurement document development.
- Prepares and maintains the procurement schedule.
- Coordinates contract negotiations.
- Manages evaluation of proposals or offers and the selection of vendors.

Risk Manager

- Facilitates identification, manages and track risks and risk mitigation/contingencies on the project.
- Monitors risk management efforts to ensure they do not adversely impact the project.
- Maintains the risk management tool and documentation information.
- Leads risk identification sessions for the project.
- Monitors contractor risk management efforts.
- Participates in high-level risk management activities for risks that cross project boundaries or are beyond the project's control.

Contract Manager

- Manages and tracks contracts.
- Negotiates amendments, reviews work authorizations and invoices, and ensures that all contractual terms and deliverables are met.

Project Librarian

- Manages project documentation, and assists with administrative services support activities.

Project Scheduler

- Coordinates and manages inputs to the project plan.
- Tracks progress against the project schedule.
- Merges and identifies dependencies and risks in the project schedule.
- Tracks progress on prime contractor's and other participants' schedules.

Quality Manager

- Creates and ensures processes for quality assurance are present and executed on the project.

Technical Manager/Lead

- Responsible for the day-to-day activities of state and vendor technical staff who are engaged in the technical management aspects of the project.
- Manages the technical disciplines of the project.
- Partners with IT managers to acquire appropriate technical assistance for such areas as enterprise architecture, database, software development, security, testing, configuration management, change management, release management, and other technical areas of the new system.
- Provides leadership and support to technical staff that are assigned to the project throughout the project life cycle.
- Provides technical support to the Project Director, Project Manager, and other managers in the Project Office to establish and execute technical policies, processes, and procedures.

Business Manager/Lead

- Responsible for the day-to-day activities of the business/program staff who are engaged in the program management aspects of the project.
- Coordinates and ensures that organizational, policy, and procedure changes are developed and implemented according to the project schedule.
- Coordinates and ensures that subject matter experts are engaged appropriately and timely.
- Responsible to ensure that appropriate resources are engaged for User Acceptance Testing and Product Acceptance.

Implementation Manager

- Responsible for the implementation portion of the project.
- Provides implementation management leadership through planning, organizing, coordinating, and monitoring implementation activities.
- Responsible for effectively managing all information technology resources assigned by the Project Manager, including implementation strategy,

organizational change management, production support, IT training/knowledge transfer, defect/problem tracking, and Maintenance & Operation.

- Interfaces directly with project team members, including contractors, to ensure technical obligations satisfy all objectives and expectations.

Application Support Manager

- Oversees and coordinates the change request process for installed software and for ensuring the change requests adhere to specified quality and configuration standards.
- Manages application design sessions and walkthroughs, application change management processes and acceptance testing of application changes.
- Monitors contractor performance of application support and ensures that the contractor maintains quality control.

Test Manager

- Coordinates the testing of the system, including any system developed by a contractor.
- Works with the Quality Management staff to design test cases and data that will best represent "real-life" scenarios for the system.
- Coordinates interface tests with other organizations (e.g., programs, departments, county, state, federal), as needed.
- Plans, monitors, and evaluates test plans, problem reporting and resolution process, including any developed by a contractor.

Configuration Manager

- Supports the Technical Manager by administering the Configuration Management process.
- Coordinates the control of all non-product related configuration items.
- Works with the state staff, contractors, and/or any other partners to manage and coordinate the product related configuration items.
- Assists the System Engineer in maintaining the requirements database.
- Conducts configuration audits.
- Leads work with project stakeholders, in particular, the Change and Release Management Group for approval to release programs and configuration modifications into the production environment.

Operations Manager

- Coordinates and oversees the operations of the new system.
- Oversees problem resolution, administration and operations activities.
- Manages operations and resolution of operations support problems, and/or

- Monitors contractor management of operations and resolution of operations support problems, where applicable.

Customer Support Manager

- Oversees the M&O service efforts.
- Assists the customer with special requests or problems.
- Provides customer perspective.
- Prioritizes problems.
- Monitors contractor service levels and metrics.

CA-PMM

Toolkit Maps

Overview

To support the use of the California Project Management Methodology, two toolkits of standard templates have been created. The use of standardized templates enables the OCIO to review a consistent set of data for all projects under its oversight.

The toolkits are:

- **Concept Toolkit** – used to create a concept statement with enough information to determine if the concept should be approved as a project

- **CA – PMM Toolkit** – used to initiate, plan, execute, and close a project once the concept has been approved

The toolkits consist of Excel® workbooks with multiple worksheets.

The **Concept Toolkit** has two major templates:

- Concept Statement
- Size Estimating

Further details about the use of the toolkit is contained in the Concept Chapter of this document

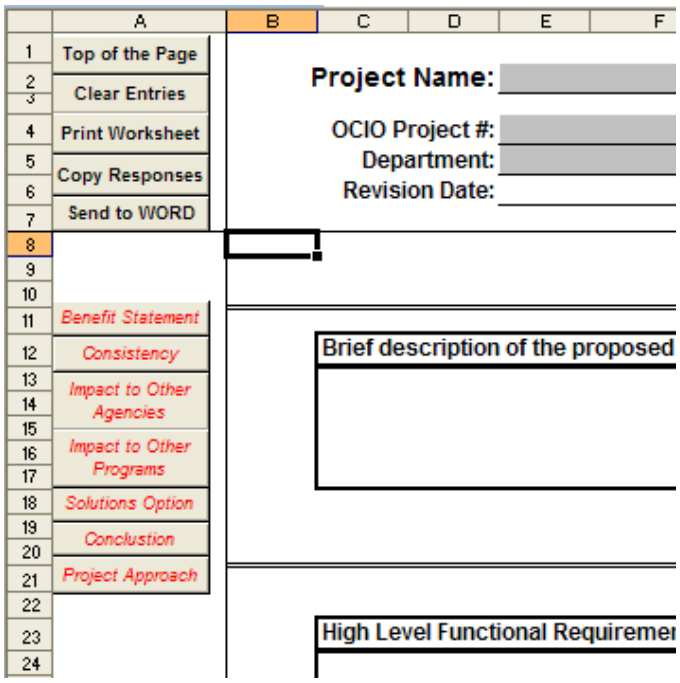
The templates provide additional instructions for their use in comments that are imbedded in cells. Hover the cursor over the small red triangle in the upper right corner of the cell to read the comment:

Probable Internal FTE	Probable External FTE	External Hourly Rate ($)	Estimated Phase Duration	Phase Overlap
0.0	0.0	0.00	0.0	
0.0	0.0	0.00	0.0	-20%
0.0	0.0	0.00	0.0	-20%
0.0	0.0	0.00	0.0	-20%
0.0	0.0	0.00	0.0	-20%
0.0	0.0	0.00	0.0	-20%
0.0	0.0	0.00	0.0	-20%

Est. Project Duration (Months): 0.0

Phases are rarely sequential; estimate the overlap between phases as a percentage of the preceding phase duration. For example, overlap the Requirements Analysis Phase by 50% if it can begin when the Procurement Phase is approximately 50% complete. The drop down menu runs from 0 - 90%.

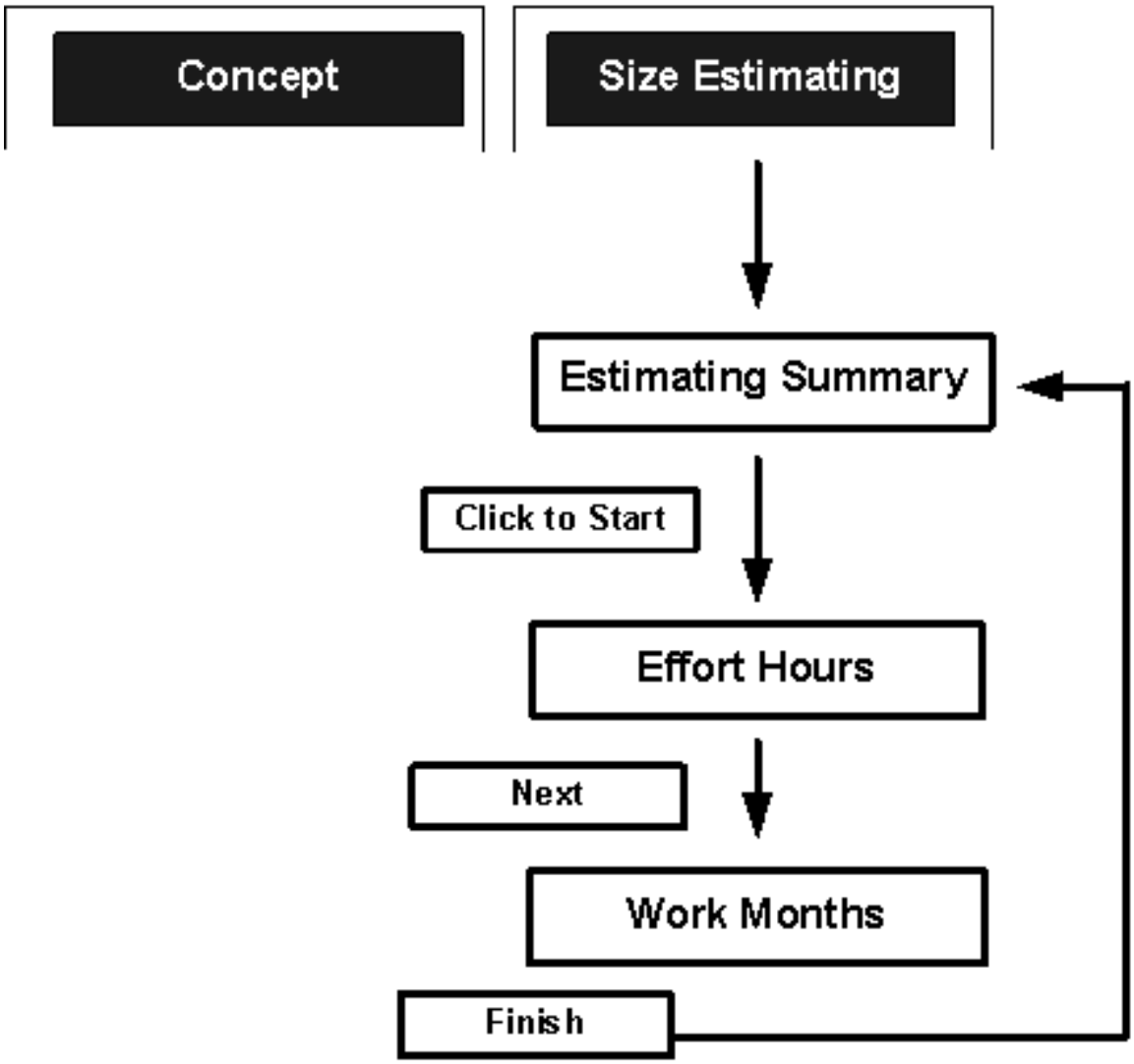
There are function and navigational buttons located in the left hand column of each template. The function buttons perform specific tasks and have black letters. The navigational buttons move the user to specific sections of the worksheet and have red letters.



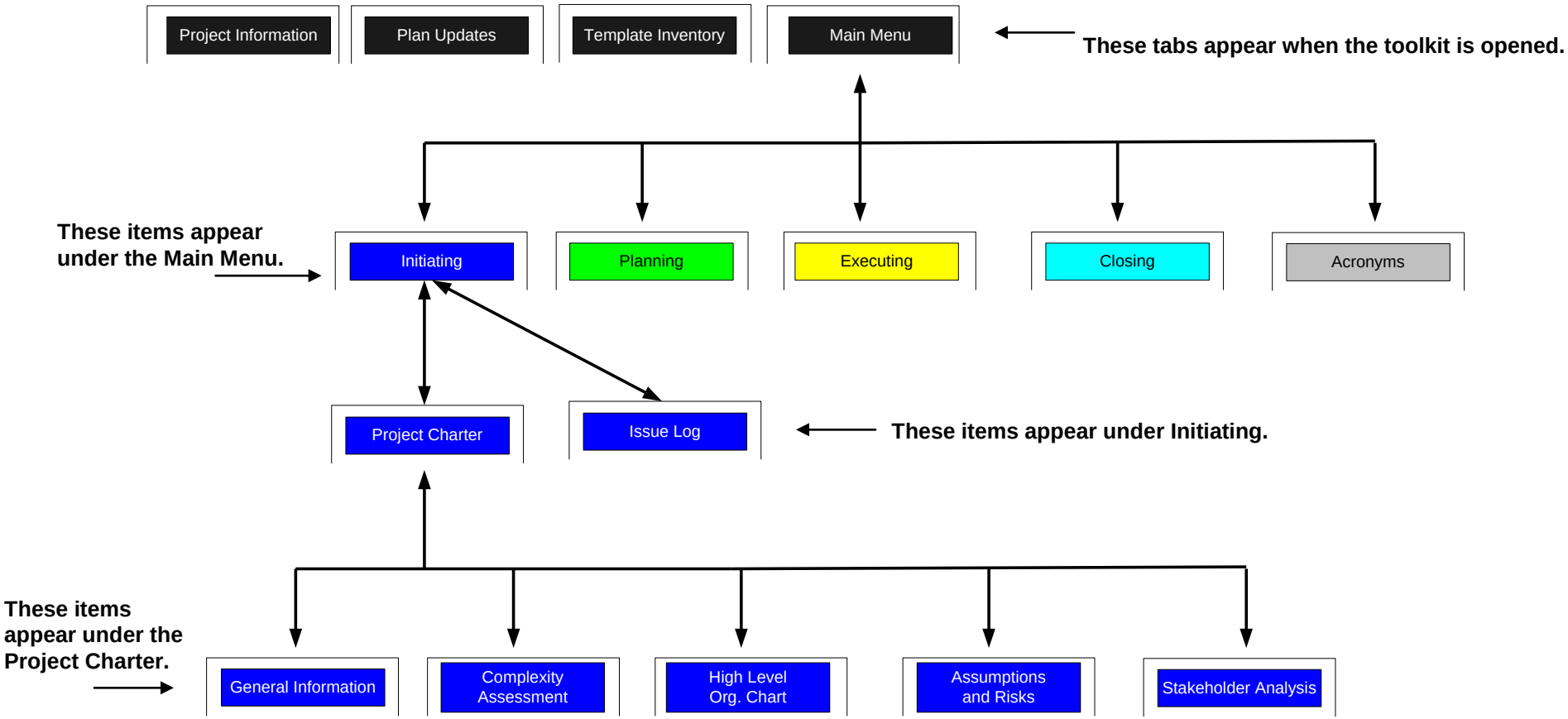
The CA-PMM Toolkit contains the templates that are required once the project has been approved. The first four worksheets in the toolkit are:

- **Project Information**: The purpose of the worksheet is to capture basic information about the project such as the Name of the Project, the Agency, Agency Organization Number, the name of the Sponsor, and so on. The Name of the Project, the OCIO Project Number, and the Department Name are automatically populated on every worksheet in the toolkit.
- **Plan Updates**: The purpose of this worksheet is to provide a history and nature of the revisions to the overall project plan.
- **Template Inventory**: The template inventory worksheet provides an alphabetical list of all of the templates in the toolkit. One method to go to a specific template is to click on the name of the template in the Template Inventory worksheet.
- **Main Menu** - The Main Menu worksheet is the major navigational page in the workbook. Under each menu selection (Initiating, Planning, Executing, Closing) there are a number of templates to facilitate project management activities. Please refer to the template map on the following pages to see which templates are contained in each sub menu.

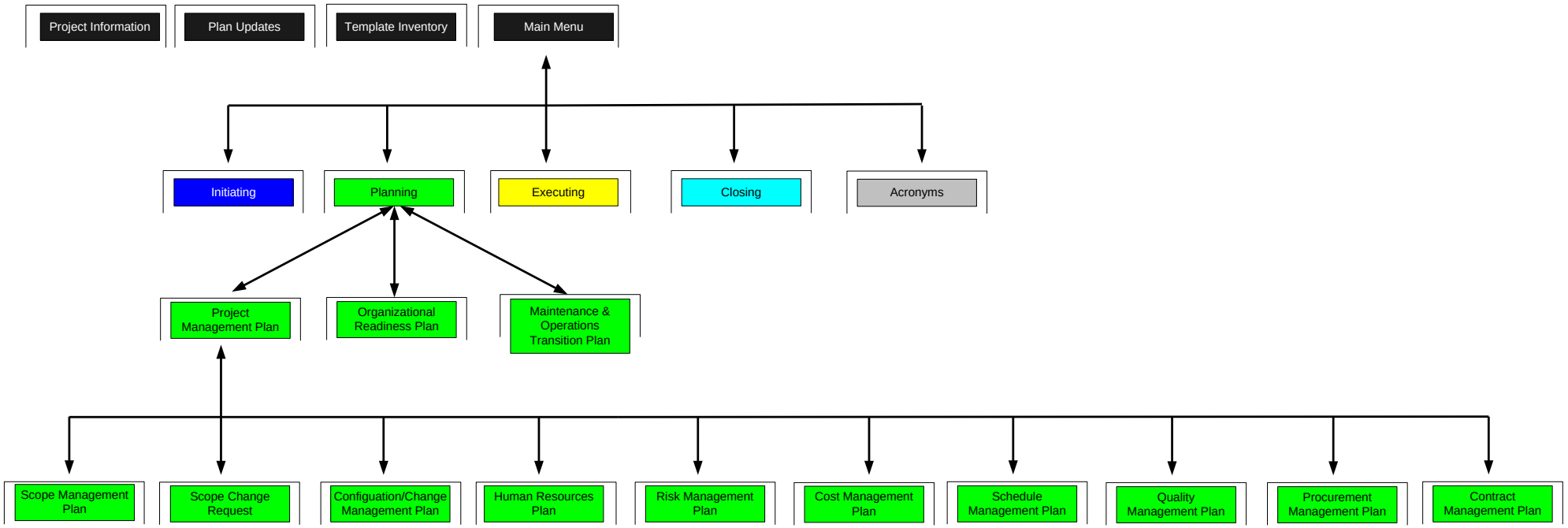
Concept Toolkit Map



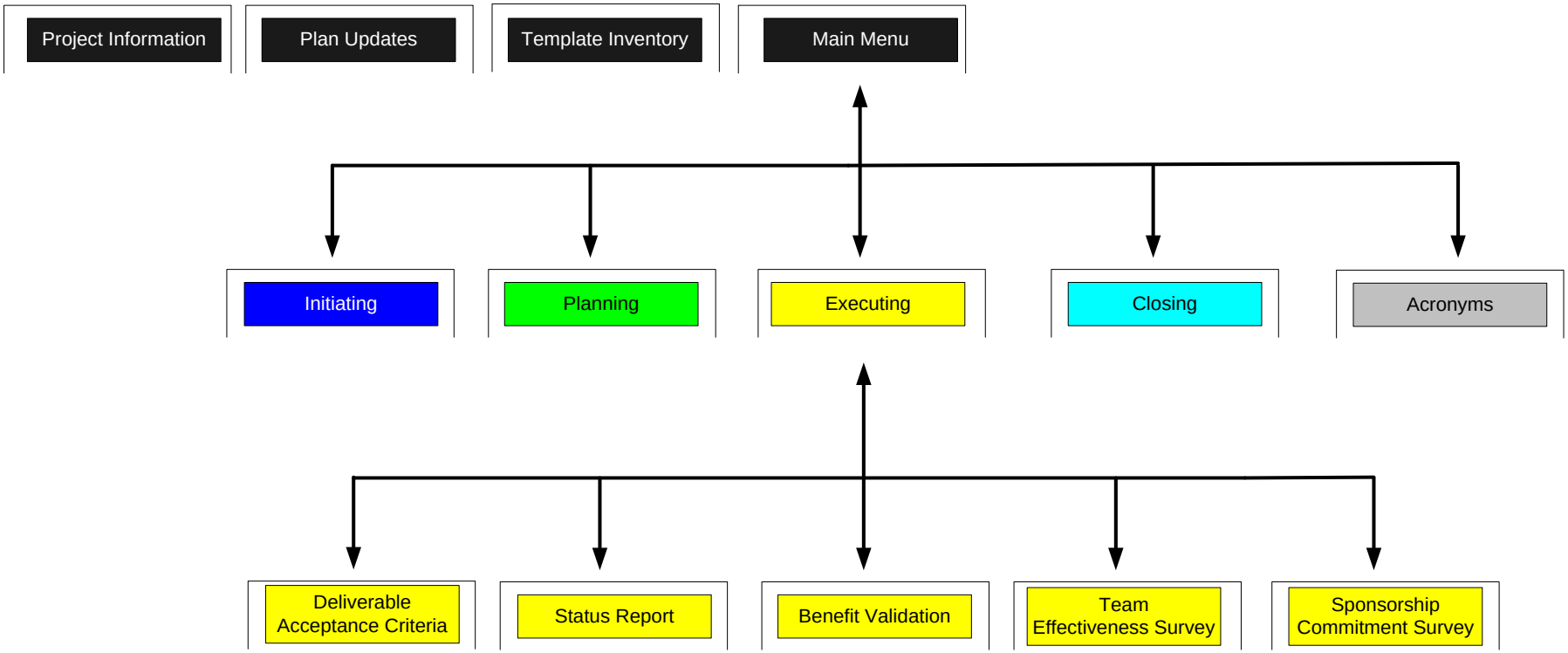
CA – PMM Toolkit Map – Basic Toolkit Structure and Initiating Templates



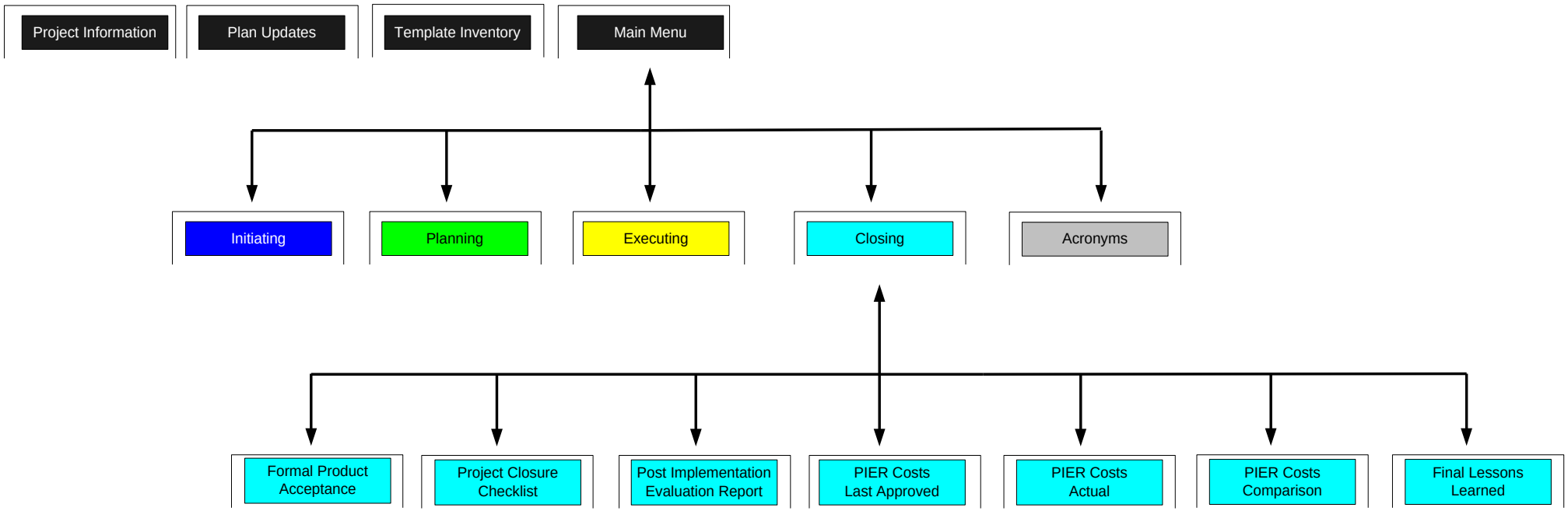
CA – PMM Toolkit Map – Planning Templates



CA – PMM Toolkit Map – Executing Templates



CA – PMM Toolkit Map – Closing Templates



CA-PMM

Concept Stage

CA - PMM

Concept

Project Name: _____

OCIO Project #: _____

Department: _____

Last Revision: _____

Click on the section that you would like to complete.

Concept Statement

Size Estimating

1.0 Concept Stage

1.1 Purpose of the Concept Stage

The purpose of the Concept Stage is to communicate high-level information about a project idea. Ideas for a proposed project go through due diligence to identify, at a high level rather than in great detail, their potential value, their alignment with organizational strategy, enterprise architecture, and whether they overlap with other existing or proposed projects. The major output of this stage is a Concept Statement. Usually written by the customer, this statement captures the intent of the project, giving the Project Manager, customer, and all stakeholders a starting point for initiating a project.

The start of a successful project is a clearly articulated statement of the project idea by the customer. This includes a high-level statement of:

- The need for the project.
- The benefits to be derived from the project.
- The potential impact on other systems, processes or projects of the organization.
- Alternative ways of meeting the recognized need or of achieving the desired benefits.
- A recommendation about how to proceed.

If approved, the Concept Statement becomes the basis for serious consideration of the project.

1.2 Responsibility

Typically customers or business analysts are responsible for developing a Concept Statement. Project Managers may facilitate or collaborate; however, at this level it is critical that the major stakeholders in need of a solution develop or at least play a key role in the development of the Concept Statement.

1.3 Key Tasks and Templates

The two main components of the Concept Stage are:

- Concept Statement
- Size Estimate

1.4 Concept Statement

The Concept Statement is made up of the following components:

- Description
- Need Statement
  - High Level Capabilities Needed
  - What is Driving This Need
  - Risk to the Organization if This Work is Not Done
- Benefit Statement
  - Intangible Benefits
    - Process Improvements
    - Other Intangible Benefits
  - Tangible Benefits
    - Revenue Generation
    - Cost Savings
    - Cost Avoidance
    - Risk Avoidance
    - Improved Services
- Consistency
  - Enterprise Architecture
  - Business Plan
  - Strategic Plan
- Impact to Other Agencies
- Solution Alternatives
  - Technical Considerations
- Recommendation
- Conclusions

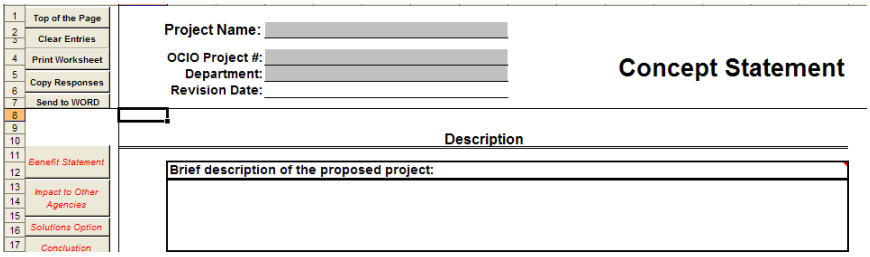
A description of each of the components follows:

1.4.1 Description

The Concept Statement begins with a brief description of the project. Stated in simple non-technical language, the description answers three questions in one or two sentences for each:

1. What is the context?
   Describe the problem or opportunity domain and the background surrounding the need for a solution.
2. What is the problem or opportunity?
   Describe specific issue to be addressed by the project.
3. What is the solution?
   Describe the proposed product and or service that most effectively solve the problem.

Anyone reading the description should immediately understand the problem or opportunity, as currently defined, that is driving the project. The description is often used to socialize a project. It is a succinct way of explaining the project to anyone.



1.4.2 Need Statement

The Need Statement provides details about the context of the project. Three areas are addressed:

- *High Level Functional Requirements*

The first area identifies the capabilities required by the system in order to satisfy the requirements of a solution. Understanding the capabilities needed helps define the objectives and may in some cases lead stakeholders, Project Managers and technical teams in new directions.

- *What is Driving This Need?*

The second area looks at what is driving the need for the project. It could be new regulatory requirements, organizational changes, technical infrastructure upgrades, standardization, or any number of other environmental factors. Being clear and transparent about these needs helps people to get on the same page. Capturing and documenting these needs spells out the project's motivation. Project success measurements will relate back to these needs. For example, projects undertaken to satisfy regulatory requirements may not have any cost savings or efficiencies associated with them.

- *Risk to the Organization if This Work is Not Done*

The third area answers the question, "What would happen if nothing was done?" If the project was not undertaken what would be the cost to the organization? Sometimes the cost or risk might be acceptable, in which case a decision might be made to not move forward with the project. These risks are carefully evaluated during the Initiating Stage. Be careful of overstating these risks. They are stated in objective and measurable terms that reflect the experiences of stakeholders.

Need Statement

High Level Functional Requirements:

What is Driving This Need?

Risk to the Organization if This Work is Not Done:

1.4.3 Benefit Statement

The Benefit Statement is divided into two sections:

1. Intangible Benefits

Intangible benefits are those benefits that cannot be quantified in terms of cost reductions, cost avoidance, revenue generation, or other financial terms. These are benefits of doing the project that may not be easily measured. A common intangible benefit to a project is a process improvement. If the system to be developed automates an existing process or codes some kind of process improvement to an existing workflow these are detailed in this section. Users of the system are often the best people to describe and verify these improvements. There is an additional field to document other types of intangible benefits.

Benefit Statement

Intangible Benefits

Process Improvements (describe the nature of the process improvement):

Other Intangible Benefits:

2. Tangible Benefits

These are anticipated benefits that can be measured as a result of the project. There are several tangible benefits documented in the Concept Statement:

a. Revenue Generation – In what ways will the new system generate revenues?
b. Cost Savings – How will costs be reduced as result of the system?
c. Cost Avoidance – How will future costs be avoided as a result of the system?
d. Risk Avoidance – How will major risks be eliminated by the system?
e. Improved Services – How will services to the stakeholders, customers, public, and/or other interested parties be improved by the system?

Tangible Benefits

Revenue Generation (describe how revenue will be generated):

Cost Savings (describe how cost will be reduced):

Cost Avoidance (describe the cost and how avoided):

Risk Avoidance (describe the risk and how avoided):

Improved Services:

To aid in the decision making process it is important to understand if the concept being proposed is consistent across the following areas:

- **Enterprise Architecture** ensuring that all the existing hardware and software standards of the enterprise are followed.

- **Business Plan** ensuring that the concept being proposed supports the organization's goals.

- **Strategic Plan** ensuring that the concept being proposed supports the organization's long term strategic plan.

If the concept is not consistent with the existing enterprise architecture, business plan or strategic plan, it is required to provide a rationale that explains how the value of the concept outweighs the inconsistency.

Consistency

"No" Responses →		Rationale	Action Required
Enterprise Architecture			
Business Plan			
Strategic Plan			

1.4.4 Impact to Other Agencies

Projects often have an impact on a variety of stakeholders. This section of the Concept Statement identifies agencies that will be affected by the outcomes of the project. The nature of the impact may vary widely from one agency to another. It is also important to note that the timing of these impacts will also vary. Some agencies may be impacted at the beginning of a project while others may be impacted at the end. Understanding the extent, nature, and timing of these impacts will assist in the decision to move forward with the concept.

Impact to Other Agencies

Nature of Impact to Other Agencies

Agency:
Describe the nature of the impact:

Agency:
Describe the nature of the impact:

1.4.5 Impact to Other Programs

Projects may have an impact on a number of existing programs. This section of the Concept Statement identifies programs that will be affected by the outcomes of the project. The nature of the impact may vary widely from one program to another. It is also important to note that the timing of these impacts will also vary. Some programs may be impacted at the beginning of a project while others may be impacted at the end. Understanding the extent, nature, and timing of these impacts will assist in the decision to move forward with the concept.

Impact to Other Programs

Nature of Impact to Other Programs

Program:
Describe the nature of the impact:

Program:
Describe the nature of the impact:

Program:
Describe the nature of the impact:

Program:
Describe the nature of the impact:

1.4.6 Solution Alternatives

Before pursuing any specific strategies, the customer(s) and the Project Manager must demonstrate that they have considered more than one solution to the problem being addressed by a project. Usually three alternatives are explored. Technical considerations for each alternative are detailed along with rough order of magnitude (ROM) estimates of the costs associated with each one (plus or minus 50 percent or more). Going through this exercise often leads customers and the Project Manager to discover new solutions or acceptable workarounds not previously considered.

Solution Alternatives

Alternative 1:

Technical Considerations for Alternative 1:	
ROM Cost: to	**Note: high end of range must not exceed 200% of low end of range**

1.4.7 Recommendation

The Concept Statement concludes with recommendations. A comparison of the three alternatives along with the costs and known risks associated with each one is analyzed. Based on these comparisons, conclusions are articulated and a recommendation is made regarding the solution to pursue. Projects may go through another round of the Concept Stage if it is concluded that more information is required before moving to the Initiating Stage. In other words a completed Concept Statement does not guarantee that the project satisfactorily passes the tollgate of the Concept Stage.

Recommendation

Comparison:

Alternative 1	Cost	Risk
	-	
Alternative 2	Cost	Risk
	-	
Alternative 3	Cost	Risk
	-	

Conclusions:

1	
2	
3	
4	

Recommendation:

1.4.8 Project Approach (if known)

The purpose of this section is to provide some technical information about the concept if it is known.

Project Approach *(if known)*

System Complexity:				System Business Hours: *(e.g., 24x7, 8am-5pm):*	
Architecture	☐ Mainframe	☐ Client Server	☐ Web Based	Num. of New Databases:	
Technology	☐ New	☐ New to Staff	☐ In-House Experience	Interfaces:	
Implementation	☐ Central Site	☐ Phased Roll-out		Num. of Sites:	
M & O Support	☐ Contractor	☐ Data Center	☐ Project	☐ Returned to Sponsor	
Procurement Approach: *(consult with OSI Procurement Center)*				Number of Procurements:	
Open Procurement? ☐ Yes ☐ No		Delegated Procurement? ☐ Yes ☐ No			
Scope of Contract	☐ Development	☐ Implementation	☐ M & O	☐ Other:	
Anticipated Length of Contract:	Years /	extensions for	years		

1.5 Size Estimate

As a part of the Concept Stage, the Project Manager will need to include an estimate of the proposed project's duration, resources, and cost. Project Managers struggle to reconcile the accuracy desired by the customer with project unknowns. The customer would like an estimate that will be close to the eventual cost and time to complete the project. However, unless the proposed project is less than four months in duration, there is not sufficient information to provide accurate estimates. The best that can be done at this early stage of a project is to create a *high-level* estimate, known as the *size* estimate and also known as the rough order of magnitude (ROM) estimate.

Size estimates are typically developed using models based on historical data. The various size estimating methods can be grouped into the following four primary categories:

- Effort Distribution Model
- Deliverables-Based Model
- Function Point Model
- Parametric Model

These models, with the exception of the Deliverables-Based Model, are statistical templates used to generate effort, duration, resource, and cost *size estimates* at a point

when little is known about the project. The use of more than one method to verify the size estimate for a given project is not uncommon. In this guide, the discussion will be limited to the Effort Distribution Model.

1.5.1 Effort Distribution Model Estimate

Distribution models are best suited for developing size estimates for the following types of projects:

- Projects based on a well-defined and consistently used lifecycle methodology.
- Projects with duration of nine months or more.

Effort Distribution models are not particularly suitable for developing size estimates for emerging technology projects because of a lack of historical data. Also, it is not possible to accurately calibrate (adjust) these models for evolving technology projects. If the project does not meet the above criteria, this model is not applicable.

1.5.2 Creating a Size Estimate Using an Effort Distribution Model

The Size Estimating tool opens to the following worksheet. There is button to the left of the table. It is labeled “Click to Start”. Clicking on the button takes the user to the worksheet that begins the process.

Print Worksheet
Copy Responses
Send to WORD

Project Name:
OCIO Project #:
Department:
Revision Date:

Estimating Summary

Click to Start

Project Phases	Effort Hours	PM Effort %	Total Effort Estimate	Internal Labor Costs ($)	External Labor Costs ($)	Prof. Fees ($ 000)	Misc. Fees ($ 000)	SW Costs ($ 000)	HW Costs ($ 000)	Estimated Costs ($)
Procurement	0	0	0	0	0	0	0	0	0	0
Requirements Analysis	0	0	0	0	0	0	0	0	0	0
Design	0	0	0	0	0	0	0	0	0	0
Development	0	0	0	0	0	0	0	0	0	0
Test	0	0	0	0	0	0	0		0	0
Implement	0	0	0	0	0	0	0	0	0	0
Transition to M&O	0	0	0	0	0	0	0	0	0	0
Totals	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Estimated Project Cost	$0
35%	$0
Total Estimated Project Cost	**$0**

Est. Project Duration (Months)	0
35%	0
Total Est. Project Duration (Months)	**0**

The foundation for creating an accurate size estimate is the comprehensiveness of the work completed to this point in the Initiating stage. It is very important to note that a simple project description is not sufficient to develop an accurate size estimate. The template provides instructions regarding the following steps to create a size estimate using an Effort Distribution Model. There is a comment embedded in each cell of the worksheet explaining how to complete the steps. Hover the cursor over red triangle in the cell to reveal the comment.

- Create or select a Base Model.
- Calibrate the Base Model.
- Select and Estimate the Base-Phase.
- Extrapolate effort estimates for various phases.

Effort Hours

Project Name:
OCIO Project #:
Department:
Revision Date:

Estimate One or More Phases (Totaling More Than 25%)

Project Phases	Base Model %	Calibrated Model	Effort Hours	Calibrated Hours
Procurement	5	5	0	0
Requirements Analysis	15	20	0	0
Design	20	30	0	0
Development	30	10	0	0
Test	10	15	0	0
Implement	15	5	0	0
Transition to M&O	5	15	0	0
	100	100		0

- Assign a Project Management Effort Percentage – the project management effort is the effort required to perform the project management activities. It is estimated by a simple calculation and depends on the complexity of the project. The range of the calculation is from as little as 5 percent to as much as 20 percent of the effort required to actually complete the project.

- For example, a medium complexity project requiring 2,000 hours of effort:
- Project management effort is estimated by multiplying 2,000 by .15
- 300 effort hours are added to the project to account for the project management effort

Percentage of Project Management Effort

Project Phases	PM Effort %	Effort Hours
Procurement	5	0
Requirements Analysis	20	0
Design	15	0
Development	10	0
Test	15	0
Implement	20	0
Transition to M&O	15	0

<< Back Next >>

The template will:

- Compute the estimated Work Months for each phase.
- Compute the Optimal Full-Time Equivalent (OFTE) resources for each phase of the project.
- The estimator must determine the Probable Full-Time Equivalent (PFTE) resources for each phase of the project.

The template will:

- Compute the estimated duration for each phase.
- Estimate project duration – work months.
- Compute estimated cost. (The estimator must enter the professional fees, miscellaneous fees, software costs, and/or hardware costs that are anticipated for the project.)

Project Name:
OCIO Project #:
Department:
Revision Date:

Estimating Summary

Project Phases	Effort Hours	PM Effort %	Total Effort Estimate	Internal Labor Costs ($)	External Labor Costs ($)	Prof. Fees ($ 000)	Misc. Fees ($ 000)	SW Costs ($ 000)	HW Costs ($ 000)	Estimated Costs ($)
Procurement	0	0	0	0	0	0	0	0	0	0
Requirements Analysis	0	0	0	0	0	0	0	0	0	0
Design	0	0	0	0	0	0	0	0	0	0
Development	0	0	0	0	0	0	0	0	0	0
Test	0	0	0	0	0	0	0		0	0
Implement	0	0	0	0	0	0	0	0	0	0
Transition to M&O	0	0	0	0	0	0	0	0	0	0
Totals	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Estimated Project Cost	$0
35%	$0
Total Estimated Project Cost	**$0**

Est. Project Duration (Months)	0
35%	0
Total Est. Project Duration (Months)	**0**

➲Note: There are instructions regarding the completion of each step embedded in the templates.

CA-PMM

Initiating Stage

CA - PMM

Initiating

Project Name: _____

OCIO Project #: _____

Department: _____

Click on the section that you would like to complete.

Project Charter

Issue Log

2.0 Initiating Stage

2.1 Purpose of the Initiating Stage

The purpose of the Initiating Stage is to "facilitate the formal authorization to start a new project or project phase" (PMBOK®). The culmination of the Initiating Stage is a Project Charter; i.e., a proposal to the Sponsor seeking project authorization. State of CA IT projects are formally authorized through the approval of the Feasibility Study Report, and the project charter is used to gain approval from the Project Sponsor and key stakeholders to move forward.

2.2 Responsibility

Typically, the responsibility for completing the various artifacts of the Initiating stage falls upon a person at the level of Project Manager who has comprehensive knowledge of the business area as well as the infrastructure in which the project's end product will be deployed. If an individual with the requisite knowledge and experience is not available and a Charter still *must* be developed, then we suggest the following steps:

- Provide access to appropriate subject matter experts.
- Have the person visit the appropriate customer department(s) and start learning as much as possible in the available time.
- Establish interim milestones where an experienced person can review the work in progress and provide necessary guidance.
- Do not assume that the Charter will be comprehensive and accurate.

Before starting the work to complete the Project Charter, the person responsible needs to make sure that the following people are easily accessible:

- The originator of the concept for the proposed project.
- The person who prepared the Concept Statement.
- Subject matter experts from appropriate business and technology groups.

In an ideal project management environment, the Initiating Stage would be the responsibility of the customer. However, because in most cases customer groups do not have sufficient project management knowledge and experience, the responsibility for doing the requisite work may be delegated to a Project Manager outside of the group. In this case developing the business case for the proposed project remains the responsibility of the group proposing the project.

The responsibility to "justify" a project belongs to a Project Manager. The responsibility of the Project Manager is to do his or her best to compose the Project Charter. The customer who requested the project has the responsibility to obtain Charter approval from the appropriate authority. The Project Manager can and should assist the customer in preparing the presentation of the Charter.

2.3 Project Charter Components

The Project Charter is made up of several components:

- Background
- Objectives
- Solution
- Requirements Traceability Matrix
- Preliminary Scope Statement
- Impact Assessment
- Deadline
- Size Estimate
- Complexity Assessment
- High Level Project Organization
- Project Priorities
- Assumptions
- Constraints
- Procurement Assumptions
- Known Risks
- Runaway Triggers
- Shutdown Conditions
- Organizational/Functional Stakeholders

The depth and detail of the Project Charter is directly related to the size and complexity of the project being chartered. A description of each of the components follows.

2.3.1 Background

The Background section of the project charter provides a brief description of why the project is being undertaken and the consequences to the organization if the project is not done.

Included in the background is a statement of the benefits to be derived from the project. Benefits typically fall into two categories:

- Intangible Benefits:
  - Process Improvements--Describe the process and the nature of the improvement.
  - Other Intangible Benefits--Describe other intangible benefits such as quality improvement, ease of use, and related issues.
- Tangible Benefits:
  - Revenue Generation--If the work is expected to produce revenue, describe how that revenue will be generated (new product, increased sales of existing product, new distribution channel, etc.).
  - Cost Savings--If the work is expected to reduce a cost, describe the nature of the cost savings (e.g., reduced maintenance fees, reduced program staff costs).
  - Cost Avoidance--If the work is expected to avoid a cost, describe the nature of the cost avoidance (e.g., avoiding penalties, avoiding anticipated price increase).
  - Risk Avoidance – If the work is expected to enable the organization to avoid a risk, describe the risk that will be prevented.
  - Improved Services – If the work is expected to improve services, describe the nature of the improvement.

I

Project Name:

OCIO Project #:
Department:
Revision Date:

General Information

Background

What is the business problem?

The business problem is

Briefly describe the benefits (tangible and intangible) of doing this project?

The benefits of doing this project are

What are the business consequences if this project is not done?

The business consequence if this project is not done are

2.3.2 Project Objectives

Four of the synonyms for the word objective are: aim, reason, purpose, and intent. Project objectives provide a clear and comprehensive statement of what the project will accomplish. The best way to ensure that individual objectives are well constructed is to make sure that each objective has a specific measure attached to it. For example, reduce time to complete a business process (objective) by 18 percent (measure), or reduce operational expenses (objective) by $50,000 per month (measure). One of the most common reasons for so many IT/Business projects not meeting customer needs is the fact that objectives are too often inadequately defined. The best way to make objectives specific is to attach a specific *measure*, or indicator of success, to each objective. For example:

- Decrease system response time from the current 9 seconds to optimally 2 seconds, or at the maximum 5 seconds.
- Bring the system uptime to 99.5 percent.
- Improve data accuracy to 98 percent or more.
- Train 80 percent of call center operators by August 15.
- Certify 65 percent of call center operators by October 15.
- Improve customer service by 8 points.

- Reduce cost per transaction by $.78.
- Improve productivity by 150 percent.

An effective method to assess the clarity of an objective is to put it through the SMART[1] filter:

- S: Specific
- M: Measurable
- A: Achievable
- R: Relevant to the strategy
- T: Time Bound

The objectives are then further broken down into the specific conditions that indicate success:

Objective: Increase system performance by 25 percent by March 31.

Critical Success Indicators:

- System response time: decrease by 50 percent.
- Up time: increase to 99 percent.
- Transaction Volume Capacity: increase by 20 percent.

The critical success indicators are the incremental points of measurement that will add up to a system performance improvement of 25 percent.

This process of writing SMART objectives and identifying critical success indicators can be a very challenging aspect of managing projects. However, the investment in developing appropriate objectives and critical success indicators is what makes defining success and measuring benefit achievement possible.

[1] "There's an S.M.A.R.T. Way to Write Management Goals and Objectives." Doran, George T. *Management Review*, November, 1981.

Objectives

What are the objectives of the project? *(list one objective per line)*

1	
2	
3	
4	
5	

Measurement

What are the critical success indicators that will tell us that we have accomplished the objectives? What metrics will we use to measure success?

Critical Success Indicators	Metrics

2.3.3 Solution

The Solution section of the Project Charter provides a brief description of what is being produced:

- A brief description of the alternatives that were considered.
- A brief description of the chosen solution.

Solution

Briefly describe what alternatives were considered to address the business needs.

The alternatives that were considered to address business needs were

Describe the chosen solution.

The chosen solution is

2.3.4 Requirements Traceability Matrix

The Requirements Traceability Matrix is used to document and track the project requirements from inception through to testing to verify that the requirement has been fulfilled. Requirements are added and modified throughout the project so it is imperative that solid records are kept. During the Initiating Stage, higher level functional requirements are typically known. As the project moves through it' lifecycle, more requirements are identified and recorded. The CA-PMM Toolkit contains a section to assist in this process. Because requirements vary greatly depending on the type of product being produced, each department is free to supplement the Requirements Traceability Matrix with a matrix that is designed specifically to capture the detailed requirements for the types of products it produces.

The components of the Requirements Traceability Matrix are:

- Unique identification number – each requirement must have a unique identification number to facilitate tracking and avoid duplication
- Description – a brief narrative describing the requirement
- Rationale for Inclusion – a brief description of why that requirement is important to the success of the project
- Owner – the individual who initiates the requirement
- Source – the business need that is driving this requirement
- Priority – an extremely critical component of the matrix; each requirement must be tagged "Must Have" (essential to the viability of the product), "Should Have" (significantly impacts quality and or usability), or "Nice to Have" (improves aesthetics, extra features), this rating is used to establish scope boundaries and to renegotiate scope if cost or time becomes an issue
- Current Status – the status of the requirement can be described as Approved (approved for inclusion in the scope of the project), Active (the work is underway to fulfill the requirement), Deferred (the requirement will not be fulfilled at this time; will be reconsidered at a later date), or Cancelled (once the work is underway, the decision is made not to fulfill the requirement)
- Testing Methodology – a description of how the requirement will be tested to see that it has been fulfilled
- Date Completed – the date the requirement is proven to be fulfilled through testing.

Requirements Traceability Matrix

No.	Description	Rationale for Inclusion	Owner	Source	Priority	Current Status	Testing Methodology	Date Completed

2.3.5 Preliminary Scope Statement

The project scope defines the sum total of deliverables and features; i.e., the total functionality to be delivered to the project customer at the completion of the proposed project. At this point it is not possible to define the final scope because detailed customer requirements are not yet fully understood.

Here are three key terms associated with Scope Statements:

- Deliverable: Any tangible item that is built to provide (deliver) a function.
- Function: Describes the purpose or utility of an object.
- Feature: Characteristic, trait, or attribute of a deliverable; i.e., the elements that enhance the ease of use, or add utility above and beyond the essential functionality, of a deliverable.

It is important that everyone involved with the project: Sponsor, customers, key stakeholders, and the team--clearly understand the distinction between a deliverable and its features. A deliverable adds to the functionality of a product, while features enhance the ease of use or add to the utility of a deliverable. This distinction becomes important when a Project Manager needs to negotiate the scope of a project due to limitations such as time, money, resources, or skills.

The Preliminary Scope Statement contains four sections:

1. Current Scope: The current scope is a statement of deliverables and features planned for inclusion in the project.

2. Future Opportunities: The future opportunities section of the preliminary scope statement is critical. It requires careful deliberation of what future development could, or should, occur for the end product of this project. Each item listed as a future opportunity is accompanied by a reason for its exclusion from the current scope list. The reasons vary as follows:

- Tight deadline
- Shortage of funds
- Lack of resources
- Lack of skills
- Deficit in technology

It is always important to provide this type of explanation to the customer who requested the project so that there is no misunderstanding of the reason for exclusion. Of course, the customer may be so committed to some of the items in the future opportunities list that they will then demand their inclusion in the current scope. In such a case, the customer takes on the primary responsibility for removing the stated hurdles.

3. Outside of Scope

This section contains items that are outside the scope of the project. By making a clear statement of what is outside the scope of the project to the customer, you can more effectively manage their expectations. As with the future opportunities list, always provide the reason(s) for any exclusion.

4. Summary Milestones

Milestones are defined as significant points of progress. The milestone list will be used throughout the project to communicate progress to the Sponsor and key stakeholders. At this point it is not realistic to have “due dates” for these milestones unless there is a contracted or statutory date imposed. In general, Summary Milestones are typically given a target timeframe rather than a specific due date.

Project Name:

OCIO Project #:
Department:
Revision Date:

General Information

Preliminary Scope Statement

Current Scope

Key Product Deliverables	Features	Users	Locations	Sign Off Required	By Whom

Future Opportunities

Future Opportunity	Recommended Scope Adjustment

Outside of Scope

Product, Function or Feature	Reason

Summary Milestones

Summary Milestones	Target Date if Known

2.3.6 Impact Assessment

The Impact Assessment identifies any systems, processes, or projects that will impact, or be impacted by, the proposed project. For example:

- A new software system may increase the number of calls (transactions) to the call center.
- Deployment of a new software package may require all PCs to be upgraded to the latest version of the operating system.
- Introduction of a new product into the market may render certain current products obsolete, and they may need to be retired (e.g., existing warehouse stock may need to be liquidated).
- The implementation of a project may impact the redesign of the database structure used by another project currently under development.

The list below suggests many common factors that can have an impact on a project. Keep in mind that during this stage, the idea is not to define the exact extent of the impact for each item; the purpose is to identify the events and situations that will impact the project being chartered:

- Data Quality
- Volume
- Frequency
- Media Compatibility
- Security
- Timeliness
- Infrastructure
- Cross-Project Dependencies

Data Quality: This focuses on the quality and compatibility of data to be input to this project. It is surprising how many people do not realize that data from disparate current systems may not share the same attributes. The one-time cost of preparing the existing data, especially if it resides in legacy systems, may approach 40 percent of the total planned project budget.

Data quality problems are understood and solved long before implementation begins. Trying to clean up the data during the implementation stage is an exercise in futility and is almost always unsuccessful. Many mission-critical IT/Business projects have come to a dead halt due to data quality problems and have subsequently taken the organization down the path of financial ruin. Poor quality data will require that additional deliverables

in the form of software programs and procedural steps be included in the project plan. Because this is overlooked until late into a project, the team is forced to scurry to clean up the “bad” data by writing last minute software programs (most of which are also of poor quality), and a vicious cycle begins.

Volume: An assessment of the proposed system’s ability to handle the transaction volume. Countless examples abound of instances where accounts receivable, shipping, and billing systems were not able to process the volumes of transactions generated by the deployment of a successful project. The worst scenario is created when the project has to deal with a high volume of bad data at the last minute.

Frequency: Assess the likelihood of episodes of high transaction volume. In many cases, a system is able to handle the transaction volume, but not abrupt or extremely high spikes in transaction volume.

Media Compatibility: This deals with the ability to read data from, and write data to, other systems. Ignoring this important item can create major problems because of the variety of disparate hardware and software systems. Most new projects mean new and updated technology for the development team. However, many of the implementation-level stakeholders may not have the same “new and improved” technology infrastructure that you will soon have.

Security: The degree of protection needed from unauthorized access. All too often security is an afterthought for many Project Managers, producing the commensurate results–high risk, vulnerable, and unstable systems.

Timeliness: The ability to provide data to, or receive data from, other systems in a timely manner. A common example of negative behavior by some stakeholders is their tardiness in supplying data due from them.

Infrastructure: Stability and quality are the primary concerns when assessing the impact to infrastructure. It is important to ascertain the degree of stability of the infrastructure for this and other related projects. Unplanned hardware and software upgrades and obsolescence are not only expensive, but will inevitably add extra cost and time to the entire project. Similarly, the reliability of the infrastructure can also have significant impact on time and cost of the proposed project.

Cross-Project Dependencies: Identify the various projects this project is dependent upon (e.g., certain deliverables to be completed by other projects are key inputs to this project). In the same vein, it is important to identify the projects that are dependent on your projects.

Remember that the purpose of the Action Required component of the template is not to develop a solution to solve the problems uncovered through this assessment. At this point in the project lifecycle, the Initiating stage, the focus is to discover the vagaries that may impact the successful completion of the project and also uncover the scope of the

work to be done to complete the project successfully. If the proposed project is approved, then the findings from this assessment, along with recommended actions, will become input to the task plan to be developed in the Planning Stage.

Impact Assessment

What systems, processes or projects will be impacted by the project? and/or What systems, processes or projects will impact the project?

System, Process, Project	Nature of Impact	Owner	Action Required

2.3.7 Deadline

The purpose of a discussion of the deadline in the Project Charter is to communicate whether there is a hard deadline, the reasons for such a deadline, and the consequences of not meeting it. Additionally, possible trade-offs from scope, budget, and quality must be considered and documented. Those trade-off considerations provide the foundation for corrective actions proposed during Executing if time becomes short.

Deadline

What is/are the deadline(s) for this project?

The deadline for this project is

What are the reasons for this deadline(s)?

The reason for this deadline is

What are the implications of not meeting this deadline(s)?

The implications of missing the deadline are

What trade-offs are possible? (Consider scope, budget, and quality)

The possible trade-offs are

2.3.8 IT Project Complexity Assessment

In many projects, complexities and complications are discovered only as work progresses, causing missed deadlines, budget overruns, and thwarted management expectations. If a project's complexity is not assessed at the start, the later discovery of complexity results in a last minute patchwork of Band-Aid® solutions—a key cause of scope creep and poor product quality. Invariably, the project team becomes overwhelmed by problems and loses control of the project. By ascertaining the complexity of a project at its early stage, most eventualities can be preempted and surprises kept to a minimum. Additionally, knowing the complexity of any project can be of considerable assistance when faced with project planning, estimating, and staffing decisions, including the level of project oversight required for the project.

The IT Project Complexity Assessment is a self-assessment tool to be completed by the project team members.

For the purpose of assessing the complexity of a project, imagine that the project has two *dimensions*, each consisting of a series of *attributes*. The two most common dimensions of project complexity are:

- Business Complexity
- Technical Complexity

Each dimension can be characterized by a set of attributes that can vary in number depending on the project. Typical business attributes include size, geography, and financial risk. Typical technical attributes include level of technology integration, security needs, stability of hardware/software, and team experience. Technology does not necessarily mean IT; it could be any technology used to build the proposed system and/or product. The complexity introduced by each of the individual attributes can be scored on a scale ranging from Low to High, and the composite score developed for each of the two dimensions. The two composite scores, when plotted in a two-dimensional chart, depict the project's relative business and technical complexities.

The complexity diagram is divided into four primary zones (See Template):

- Zone IV: Projects in this space are highly complex – very high business and technical complexity
- Zone III: This space of the diagram depicts high business complexity projects and is further divided into two sub areas:
    - High Business Complexity
    - Medium Business Complexity
- Zone II: This space of the diagram depicts high technical complexity projects and is further divided into two sub areas:
    - High Technical Complexity
    - Medium Technical Complexity
- Zone I: Projects in this space are of low complexity – simple or routine projects

2.3.8.1 Business Complexities

When assessing the business complexity of a given project, create a *tailored* attribute list to reflect the business environment of the given project. A complexity continuum needs to be defined for each attribute. For example:

- Financial Exposure
  - Low: In case the project is not successful, the direct and indirect financial losses to the organization will be minimal (or within acceptable range).
  - High: In case the project is not successful, the direct and indirect financial losses to the organization will be high – beyond the acceptable risk range.

- Geography
  - Local: The area in which the project will be managed and implemented is limited to local offices.
  - Statewide: The area in which the project will be managed and implemented spans the entire state.

The steps to compute a project's Business Complexity are as follows:

- Assess each attribute on a scale of 0 to 4, where 0 means no complexity and rating of 4 depicts a highly complex situation. We advise the use of 0.5 increments to depict the complexity of a given attribute (e.g. 0.5, 1, 1.5, 2.0). Although we have observed the use of 0.25 increments in some cases, we believe that is too precise and difficult to accomplish in assessing the value of individual attributes.
- Add all of the assessed values.
- Divide the total assessed value by the number of non-zero attributes.

Assume that the total number of attributes rated above 0 is 16 and their total assessed value is 42. Therefore, the net business complexity is computed as:

$$42 \div 16 = 2.6$$

.

Business Complexity

Instructions: On a scale of 0-low to 4-high, rate each applicable attribute and compute the Business Complexity by dividing the total by the number of items rated above zero. *[Notes: Business and technical complexity will be computed automatically in this worksheet, using the ratings you enter. Move your pointer over each attribute cell, marked with a red triangle, to see a definition of the attribute.]*

Low Complexity 0 1	Business Attribute 2 3	High Complexity 4	Rating
Static	**Business rules**	Changing	0
Static	**Current Business Systems**	Changing	0
Known and Followed	**Decision Making Process**	Not Known	0
Low	**Financial Risk to State**	High	0
Local	**Geography**	State Wide	0
Clear and Stable	**High Level Requirements**	Vague	0
Few & Routine	**Interaction with Other Departments and Entities**	Many and New	0
None	**Impact to Business Process**	High	0
Few & Straight Forward	**Issues**	Multiple & Contentious	0
High	**Level of Authority**	Low	0
Clear	**Objectives**	Vague	0
Established	**Policies**	Non-existent	0
Minimal	**Politics**	High	0
Familiar	**Target Users**	Unfamiliar	0
Experienced	**Project Manager's Experience**	Inexperienced	0
Experienced	**Team**	Inexperienced	0
Loose	**Time Scale**	Tight	0
Low	**Visibility**	High	0
		Total:	0
		Complexity:	0.0

➲**Note: The definitions for the attributes are embedded in the template**

2.3.8.2 Technical Complexities

The steps to compute a project's Technical Complexity are the same as for computing Business Complexity. For example, if the total number of attributes is 15 and their total assessed value is 54.5, the net technical complexity is computed as:

54.5 ÷ 15 = 3.6

The number of attributes in the two categories (Business and Technical) ***does not*** have to be the same.

Project Name:

OCIO Project #:
Department:
Revision Date:

Complexity Assessment

Technical Complexity

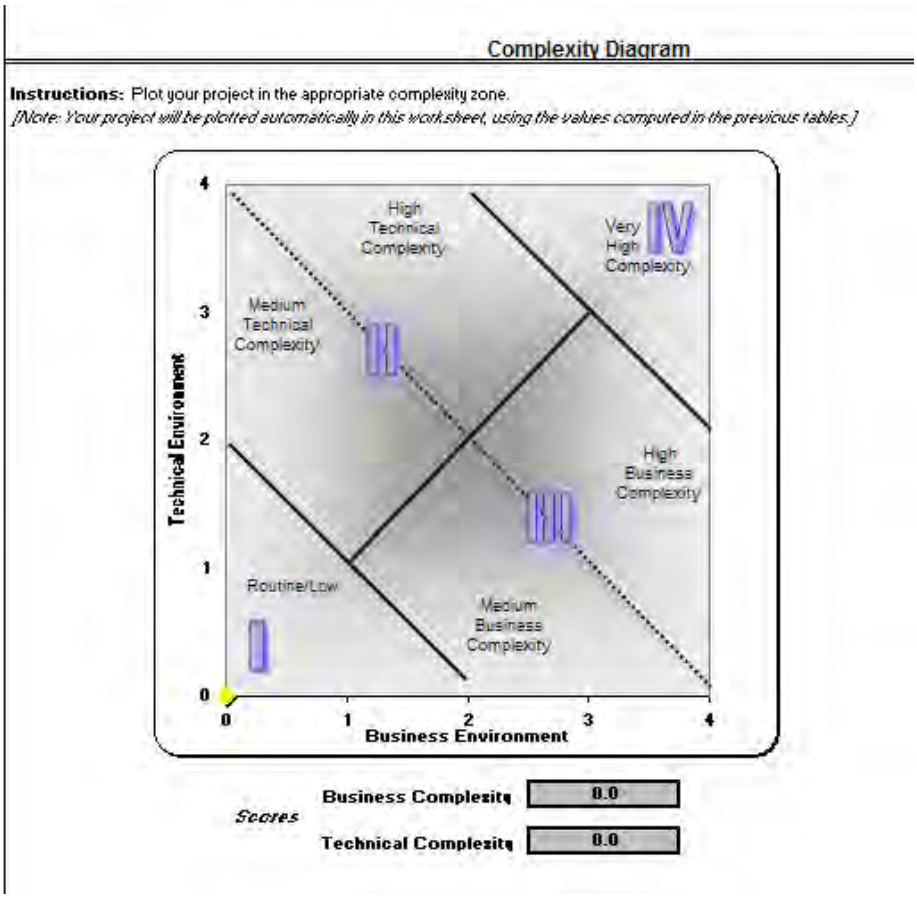
Instructions: On a scale of 0-low to 4-high, rate each applicable attribute and compute the Technical Complexity by dividing the total by the number of items rated above zero. Use the definitions in the student notebook for clarity.

Low Complexity 0 1	Technical Attribute 2 3	High Complexity 4	Rating
Local	**Communications**	State wide	0
Established	**Delivery Mechanism**	New	0
Local	**Geography**	State wide	0
Proven	**Hardware**	New	0
Stand-alone	**Level Of Integration**	Tightly Integrated	0
Proven/Stable	**Networks (L/W)**	New	0
In place	**New Technology Architecture**	Not in place	0
9-5, Mon-Fri	**Operations**	24-hour, 7-day	0
Expert	**PM Technical Experience**	Novice	0
Established and in use	**Scope Management Process**	None	0
Light	**Security**	Tight	0
Proven	**Software**	New	0
Established and In Use	**Standards And Methods**	None	0
Experienced	**Team**	Inexperienced	0
High	**Tolerance To Fault**	Low	0
Low	**Transaction Volume**	High	0
		Total:	0
		Complexity:	0.0

➲Note: the definitions for the attributes are embedded in the template.

2.3.8.3 Complexity Zones

Now the project can be plotted in the complexity diagram.



A note of caution – *do not* be concerned with the *precision* of a project's placement within the complexity diagram. The purpose is to ascertain the key complexity contributors and the zone in which the project falls, and not the precise placement of a project within the complexity chart.

Understanding the project's complexity helps in assembling the right Sponsors, Project Manager, and the team, as well as getting the first glimpse of the risks inherent in the project. It also provides the measure for the level of project oversight required for the project (see the Oversight Framework, SIMM Section 45.)

Two frequently asked questions, along with responses, regarding the complexity assessment are:

Question: Should each attribute carry the same weight, or would it be better to assign relative weights to various attributes?

Response: Of course, assigning each attribute a relative weight and then assessing each attribute's degree of complexity would certainly result in a more accurate complexity assessment. However, assessing a large number of projects has shown that the resulting complexity values are not *significantly* different. Again, keep in mind that complexity assessment is not a precise tool; it involves a certain degree of subjectivity.

Question 2: Why divide the total assessed complexity value by the number of *non-zero* attributes?

Response: Many Project Managers tend to include a large number of insignificant complexity attributes, which they rate as 0. They then divide the sum of the values by the number of attributes. Because many of the attributes carry a 0 rating, the net complexity computes to a low figure, implying that this is a low complexity project--the results, of course, are then misleading. Use the following approach: be careful in creating the complexity attributes and include only those that have values higher than 0. At times, Project Managers want to include attributes that currently have an extremely low complexity rating (zero), but may become more complex later in the project's lifecycle. In these cases, do not count them in the total number of attributes used to compute the net complexity value. If any of the attributes rated as 0 become more complex at a later date, use the new value to recalculate the complexity.

Another item of frequent discussion is: business complexity included a total of six attributes; one was assessed at 4 and all others at 1 each. This resulted in the total complexity value of 9 and a complexity of 9 ÷ 6 = 1.5. This indicates a relatively low business complexity, but the high complexity attribute (rated as 4) cannot be ignored. That is the right conclusion. To make sure that any individual attribute with a high complexity rating is not overlooked, each such item will become an input to risk assessment. By the way; the same approach applies to a technical complexity assessment. Finally, a few quick reminders regarding complexity assessment:

- A complexity analysis is useful to Project Managers in project staffing decisions, where individual skills must be carefully matched to project complexity.

- Do not be concerned with the precision of a project's placement within the complexity diagram. The purpose is to ascertain the key complexity contributors and the zone in which the project resides.

- Any attribute, business or technical issue that is given a rating higher than 3 must be treated as a potential risk to the project. Carefully consider how to manage these high complexities attributes to reduce the risk potential. A risk management plan must be developed for each attribute rated higher than 3.

- The complexity assessment process is dynamic and a project's complexity should be reviewed and updated any time key changes take place (e.g., major changes in scope, resources, technology, and/or strategy)

2.3.8.4 Suggested Project Manager Skill Sets

Several project characteristics (complexity, duration, budget, and team size) are assessed to determine the suggested project manager skill set that is appropriate for the project. These qualifications are not absolute requirements; however, deviation from the guidelines must be justified. To use the tool, select the level in each category that best describes the project. The tool assigns points based on the levels selected. The Project Manager Skill Set Guideline is selected based on the total points and will appear ***automatically***. A table describing all levels is on the following page.

Suggested Project Manager Skill Set Guideliines

Complexity		Duration		Budget		Resources	
◉	Zone 1	◉	< 6 months	◉	<$500K	◉	< 5
○	Zone II, Medium Zone III, Medium	○	< 1 year	○	<$1M	○	<10
○	Zone II, High Zone III, High	○	>1 year; < 3 years	○	>$1M; <$5M	○	11 – 20
○	Zone IV	○	>3 years; <10 years	○	>$5M; <$100M	○	21 – 40
		○	>10 years	○	>$100M	○	40+

PM Level: Novice

Experience: Minimum 1 year working as a key team member on an IT project.
Technical experience commensurate with the proposed technology.

Professional Knowledge: Understands the CA-PMM and department's methodology.

Score	Level	Guidelines
33 - 40	Novice	***Experience:*** Minimum 1 year working as a key team member on an IT project. Technical experience commensurate with the proposed technology.
		Professional Knowledge: Understands the CA-PMM and department's methodology.
41 - 50	1	***Experience:*** Minimum 3 years working as a key team member on an IT project or as a Project Manager on other small IT projects. Technical experience commensurate with the proposed technology.
		Professional Knowledge: Understands the CA-PMM and department's methodology.
51 - 75	2	***Experience:*** 3 – 5 years as a key team member on a medium or large IT project or as a Project Manager on small or medium IT project. Technical experience commensurate with the proposed technology.
		Professional Knowledge: Strong working knowledge of the CA-PMM, department's methodology, Software Development Life Cycle. Familiar with CA Budgeting, Procurement and Contracting processes.
76 - 90	3	***Experience:*** 5+ years working as Project Manager or Project Director on large IT projects. Technical experience commensurate with the proposed technology.
		Professional Knowledge: Strong working knowledge of the CA-PMM; CA Budgeting, Procurement and Contracting processes; department's methodology; and Software Development Life Cycle.
91+	4	***Experience:*** 5+ years working as Project Manager or Project Director on large IT projects . Technical experience commensurate with the proposed technology. Technical experience
		Professional Knowledge: Strong working knowledge of the CA-PMM; CA Budgeting, Procurement and Contracting processes; department's methodology; and Software Development Life Cycle. Technical experience commensurate with the proposed

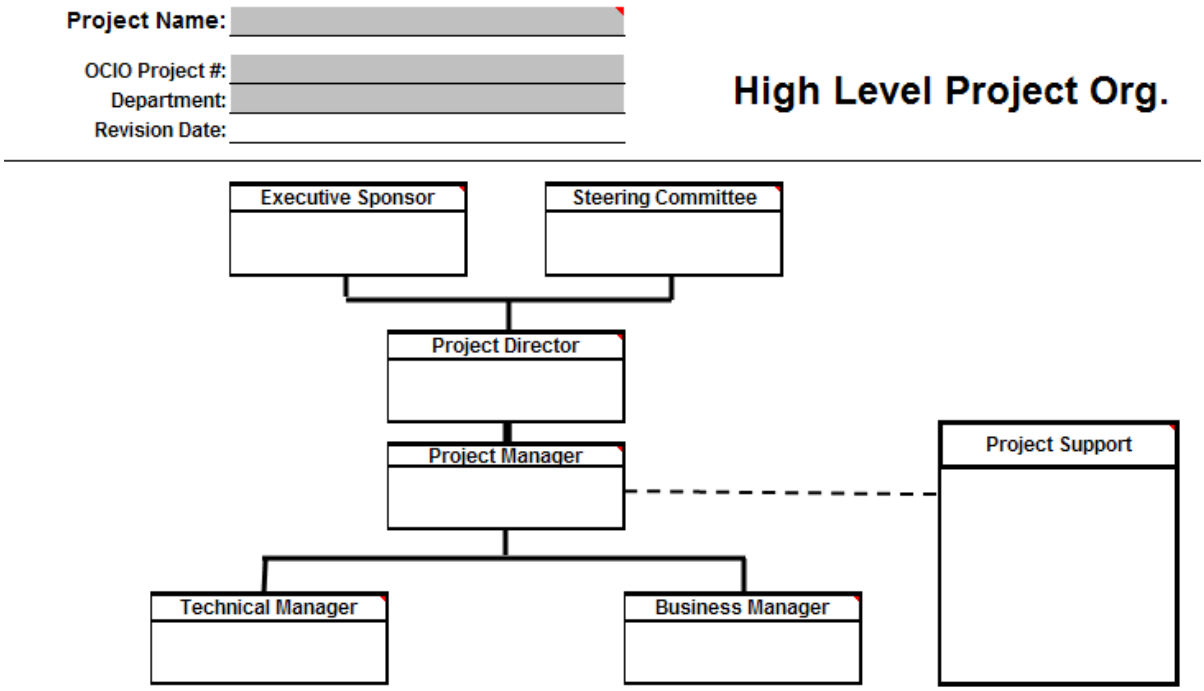
➲Note: This is not a Human Resources Allocation Tool.

The Complexity Assessment is also being used to determine the level oversight required for a particular project:

For Oversight Purposes:
Zone I = Low Criticality/Risk
Zone II and III = Medium Criticality/Risk
Zone IV = High Criticality/Risk

2.3.9 High Level Project Organization

The project charter must contain a depiction of the organization that will be managing the project. The leadership of the project reflects the size and the complexity of the project. Typically this is done on an organization chart showing the following (See Overview for the roles of the project management team members):



2.3.10 Project Priority Analysis

The following formula illustrates the basic project equation:

Project = Schedule + Scope + Budget + Quality

At this point, the customer needs to define the *relative* priorities of these four components. In the absence of well defined (and realistic) customer expectations, no matter what the Project Manager delivers, the customer will not be satisfied with the outcome.

2.3.10.1 Quality Definition

A common concern voiced by many Project Managers is: “It is not easy to discuss the subject of assigning quality a low ranking with the customer as that would be seen as compromising the quality of the end product.” To prepare for such discussions with the customer, and to make sure everyone on the team has the same point of view, look at the definition of quality of a software product. The following alphabetically sorted list contains software quality attributes:

- Amount of training required
- Difficulty of misuse
- Ease of adaptability
- Ease of configuration
- Ease of maintenance
- Efficiency of hardware utilization
- Efficiency of human resources utilization
- Functionality
- Mean time to repair
- Quality of graphic user interface (GUI)
- Quality of system documentation
- Quality of user documentation
- Reliability (mean time to failure)
- Reusability
- Safety
- Security
- Usability

The list of quality attributes is long. Discuss attributes with key customers and the quality assurance group to determine what may need to be “compromised” due to limited time, budget, and/or resources. It is also possible that certain additional attributes may be added due to the specific needs of a given project. The quality assurance group defines a master list of quality attributes. Once a master list has been created, individual Project Managers can develop project-specific lists.

At the start of most projects, the stated priorities often conflict; for example, a tight schedule may be unattainable in the face of vaguely defined scope, a low budget, and unrealistic quality expectations. Also, different stakeholders may have differing priorities and interests. The existence of such conflicts makes it essential that priorities be well defined and clearly understood by both the customer and the project team.

Each project has its own urgencies and must be looked at individually. The best approach is to *prioritize* the four attributes so that no two attributes have the same ranking (importance). If this is not possible because of certain circumstances, make sure

the customer clearly understands the consequences resulting from not establishing a fully ranked set of priorities.

- For the attribute(s) ranked 1st, define the consequences of failing to meet the stated priority and clearly communicate the same to the project team.

- For the attribute ranked 2nd define which parts of the attribute the customer would be willing to negotiate.
- For the attributes ranked 3rd and 4th, define which parts of the attribute are under the direct control of the project manager.

It is important to know, "Who has the final say in defining the relative priorities of the four project components?" For example:

- Is it the customer who requested the project?
- Is it the Sponsor?
- Should we be concerned about the priorities of the end-users?
- What about the input from the team?

The answers to these questions become critical when the relative rankings by the various groups do not converge, which often is the case.

When key stakeholder's priorities differ, the project team can find it very difficult to decide on a course of action. One of the responsibilities of the Project Manager is to facilitate the alignment of the project priorities among various stakeholders. The best way to proceed is for the Project Manager, working with the Sponsor, to ascertain which stakeholders need to be consulted. Once a decision has been reached, the next step is to specifically document selected stakeholders' priorities.

A frequently asked question by many Project Managers at this point is, "What if the various stakeholders cannot agree on a common ranking of the priorities?" The answer may lead to one of two options:

- The Project Manager and the Sponsor work together to assess who is the most influential stakeholder and then see whether that stakeholder's priorities should prevail. If that is the case, then the Project Manager and the Sponsor will need to work with other stakeholders to build consensus.

- If the step above is not practical, or does not produce consensus, then the Sponsor decides on the priority rankings, because ultimately the Executive Sponsor is responsible for project success and needs to manage the priorities.

The final step is to communicate the Project Priorities to the various stakeholders. The Project Manager must also keep the defined priorities in mind when deciding on the project scope, creating the project task plan, developing the project schedule, and managing the activities in the Execute and Implement stages.

2.3.10.2 Worst Case Scenario

When defining the relative rankings of the four components of the Intra-Project Priority, it is a good idea to raise the question of the worst case scenario for each of these items. For example:

- Scope: The minimal scope that must be delivered to the customer.
- Budget/Cost: The maximum amount of money the customer is willing to spend on the project.
- Schedule: The latest date by which the project must be finished and implemented.
- Quality: The level of quality below which the product will be unacceptable to the customer.

These conditions collectively can be summed up as the performance baseline for the project. If the stated thresholds of any of these items are breached, the project is in jeopardy.

There will be situations when there is pressure to change the "weight" of one or more of the components. When this is the case, ask the Sponsor what tradeoffs he/she is willing to accept. For example, the list below suggests tradeoffs for each of the four components:

- Add Scope: Lengthen schedule, reduce quality, increase budget.
- Reduce Schedule: Reduce scope, reduce quality, increase budget.
- Reduce Budget: Reduce scope, reduce quality, lengthen schedule.
- Improve Quality: Reduce scope, increase budget, lengthen schedule.

Of course, if the Sponsor will not agree to any of the tradeoffs, the risk of not completing the project successfully has just increased.

In summary, each project attribute (schedule, scope, budget, and quality) must be managed. The Sponsor and the key stakeholders must play active roles in helping establish their relative priorities for the project. Sponsors need to learn to define equilibrium among the four project attributes: schedule, scope, budget, and quality. Keep in mind that priorities may change during a project's life cycle, so revisit priority assessment every two to three months.

A word of caution to the Sponsor: If the priorities have to be changed, forthrightly describe to the team the reasons for the proposed change, the downside of not making the change, and then work with the Project Manager and the team to develop the plan to meet the new priorities.

Project Name:

OCIO Project #:
Department:
Revision Date:

Project Priorities

Priority Analysis

Instructions: Identify the sponsor and key stakeholders for this project. In rank order (1)-high to (4)-low define the priorities for the following stakeholders.

	Sponsor	Key Stakeholder	Key Stakeholder	Key Stakeholder	Final Ranking
Name					
Schedule					
Scope					
Budget					
Quality					

Consequences

For the attributes ranked 1st for each key stakeholder, define the consequences of failing to satisfy the stakeholder's number one priority.

Sponsor

The consequences of failing to meet the sponsor's number one priority is

Key Stakeholder

The consequences of failing to meet this priority are

Key Stakeholder

The consequences of failing to meet this priority are

Negotiations

For the attributes ranked 2nd for each key stakeholder, define precisely which parts of the attribute or to what degree the stakeholder would be willing to negotiate.

Sponsor

The degree of flexbility in the 2nd prirorty

Key Stakeholder

The degree of flexibility in the 2nd priority is

Key Stakeholder

The degree of flexibility in the 2nd priority is

Key Stakeholder

The degree of flexibility in the 2nd priority is

Control

For the attributes ranked 3rd and 4th, define how much of the attribute will be under the control or discretion of the project manager.

Schedule

The degree to which the schedule will be under the control of the project manager is

Scope

The degree to which the scope will be under the control of the project manager is

Budget

The degree to which the budget will be under the control of the project manager is

Quality

The degree to which the quality will be under the control of the project manager is

2.3.11 Assumptions

Assumptions are conditions that are presumed to be in place that will impact the project either positively or negatively. For example,

- Resource availability assumptions
- Technology assumptions
- Economic assumptions

The Project Manager must work with the Sponsor during the Initiating Stage to verify assumptions. The Project Charter must clearly state the assumptions (unverified) on which the planning will be based.

2.3.12 Constraints

Constraints are conditions that exist and must be considered while planning how a project will be managed. The project charter must articulate those constraints.

- When considering what constraints exist, think about the following categories: Organizational constraints–limits placed on the project due to organization policies, resource availability, etc.
- Environmental constraints–limits placed on the project due to technology, politics, regulations, etc.
- External constraints–those limits placed on the projects by vendor availability, public perception, etc.

Project Name:

OCIO Project #:
Department:
Revision Date:

Assumptions & Risks

Assumptions

What assumptions have been made about the project?

The assumptions are

Constraints

What constraints exist for the project?

The constraints are

2.3.13 Procurement Assumptions

The Project Charter must contain the Project Manager's assumptions regarding those goods and services that he/she is intending to buy. The procurement assumptions must also describe the approach that will be used to acquire the goods and/or services.

Procurement Assumptions

What work (if any) will be contracted to outside groups?

Work that will be contracted to outside groups include

What software purchases are assumed for this project?

The software purchases assumed for this project are.....

What hardware purchases are assumed for this project?

The hardware purchases assumed for this project are.....

What other purchases are assumed for this project?

The other purchases that are assumed for this project are.....

2.3.14 Known Risks

The Project Charter contains a statement regarding the high level risks that have already been identified for the project, accompanied by strategies that may have been developed to address these risks. High level risks are defined as risks that have a high (greater than 80% chance) probability of occurring accompanied by a significant (resulting in a material increase in cost or duration) impact if they do occur. Later on in the process, a deeper treatment of risk identification and assessment will occur.

Known Risks

#	Risks	Risk Management Approach

2.3.15 Runaway Triggers

Many IT/Business projects fail; however, most IT/Business professionals and business customers are not fully aware of the massive financial losses incurred by failed projects.

The Center for Project Management's research shows that in mid- and large-size organizations, the average financial loss of a failed IT/Business project is close to $4 million, with many projects costing tens of millions of dollars. One of the questions that begs to be asked here is: "Did the Project Manager, working with the Sponsor, define a dollar and/or schedule threshold above which the project would be considered in a 'runaway condition' and would automatically come under management scrutiny?" Examples of runaway conditions might be:

- If actual cost-to-date is running 20 percent over planned cost-to-date for more than 30 days.
- If the actual schedule is behind the planned schedule by more than 15 percent for a period of more than 30 days.
- If the scope growth to date has exceeded the planned scope reserve.

These types of performance variances indicate that the project is in trouble, and that management needs to make a specific Go or No-Go decision. Keeping all of this in mind, it is important that the customer is asked to define the runaway triggers at the start of a proposed project.

Runaway Trigger

How much over budget?

If at any point during the project we forecast that we will be overbudget by

How much over schedule?

If at any point during the project we are behind schedule by

Other?

Other runaway triggers are

2.3.16 Shutdown Conditions

Shutdown conditions are defined as the conditions under which a project becomes no longer viable and further investment is no longer warranted. Examples of shut down conditions are:

- Technology obsolescence (can occur in projects of long duration).
- Change in the organization's strategic direction.
- Pending legislation passes (or is defeated if the project was initiated under the assumption that a particular piece of legislation would pass).

Shutdown Condition

What conditions could develop that would shut this project down?

Conditions that would shut down the project are

2.4 Organizational/Functional Stakeholders

It is imperative that Project Managers identify the key players in the project and judiciously assess their views of the project, especially any turf issues. It is extremely important to focus on the "politics" of the proposed project.

> "The objectives of top management can and frequently do come in conflict with objectives of other stakeholders in the firm." Corporate Strategy, H.I. Ansoff.

Unfortunately, too many Project Managers, especially newly promoted, technology-minded individuals, often ignore this important component of successful project management–understanding the organization's politics and then maneuvering around it in a professional manner.

(Note that stakeholders may be identified by organization or function, rather than as individual names, where political sensitivity is of concern.)

2.4.1 Stakeholders

Project stakeholders can be grouped into two primary categories:

- Policy-Level Stakeholders – those who shape the project.
- Implementation-Level Stakeholders – those who will be shaped by the project.

Stakeholders can be internal or external to the organization undertaking the project. For example, internal stakeholders might include organizations or individuals not working directly on the project, but whose operations, costs, and risks could be impacted by the project. External stakeholders are those individuals or groups outside of the organization who will be impacted by the implementation of the project, or those who control policy that impacts the project. Such groups might include business partners, vendors, unions, regulatory agencies, or the public at large.

2.4.2 Interest

To be classified as a stakeholder, the individual or entity must have an active interest in the project. The Project Manager must be able to articulate the "interest" of each of the stakeholders. In other words, specify exactly how the stakeholder will impact or be impacted by the project.

2.4.3 Support

At this point in the project, the Project Manager needs to analyze the attitude and behavior of various stakeholders towards the project. Stakeholder behavior can be classified into the following categories:

- In favor
- Neutral
- Uncertain

In favor: An individual/entity who sees the merits of the proposed project and is willing to use political capital to remove obstacles from the path of successful project completion.

Neutral: An individual/entity who presently does not perceive any particular stake or interest in the project; could be converted to champion status if shown how successful project completion could provide benefits.

Uncertain: An individual/entity who does not see any merit to the project and may very well use political capital to place obstacles in the path of successful project completion.

For each stakeholder, the Project Manager must assess the:

2.4.4 Degree of Readiness

The Implementation-Level stakeholder assessment gives the Project Manager the first glimpse into the degree of change the proposed project will bring, and the degree to which the Implementation-Level stakeholders are ready and willing to accept the changes. This information will be used as an input to risk assessment as well as for developing a comprehensive Organizational Change Management Plan.

2.4.5 Tolerance to Risk

An important component in effectively managing a stakeholder is to understand their tolerance for risk. Some stakeholders have a high tolerance while others might have a lower tolerance. Understanding risk tolerance level enables the Project Manager to develop solutions and recommendations and to shape their communication with the stakeholder more effectively.

2.4.6 Training/Other Needs

The ability of the stakeholders to use the product of the project can have an enormous effect on the success of the project. It is essential to appropriately prepare stakeholders. Be sure to assess what it will take to get the stakeholders ready to use the project:

- **Training Needs**: Focus on the stakeholders in greater detail to begin to define the educational and training needs of various stakeholders, as this will help you to prepare the stakeholders for successful project development and deployment.
- **Other Needs:** Additionally, the Project Manager must assess what other requirements the stakeholders may have such as hardware, software, or other needs.

Project Name:

OCIO Project #:
Department:
Revision Date:

Organizational/Functional Stakeholders

Instructions: Identify all of the stakeholders in this project. Define their interest; support level, readiness, training needs, and other needs.

Lock Header | Unlock Header

Stakeholder	Interest	Support	Readiness	Tolerance to Risk	Training Needs	Other Needs

2.5 Issue Management

Issues are defined as unanswered questions and difference of opinion. Issues must be managed conscientiously and in a timely manner. Once an issue has been analyzed and recorded, it is important to assign a specific person as owner of the issue resolution. The owner's responsibility is to facilitate, rather than dictate, the resolution process. Best results occur when the non-agreeing people jointly determine the issue resolution. Further, as work on a project continues and as issues are resolved, it is equally important to document and *broadly* communicate the resolution to appropriate stakeholders and team members. This practice not only keeps those affected by the resolution informed, but also discourages "second thoughts" that might develop later in the project.

2.5.1 Issue Log

- **Issue #:** Each issue must have a unique number for tracking purposes.
- **Date Opened:** The date the issue was first reported.
- **Issue Description:** A succinct definition of the issue.
- **Impact:** The impact on the project, if the issue is not resolved satisfactorily.
- **Raised by:** The name of the person who raised the issue.
- **Best Resolved by:** The individual(s) with the knowledge and/or authority to resolve the issue.
- **Action Taken to Date:** Lists any effort made to date to resolve the issue.
- **Owner:** The person with the responsibility to get the issue resolved by its resolution date.
- **Next Steps:** What are the next steps towards resolution?
- **Due Date:** The latest point in time by which the issue needs to be resolved. Each issue must have a "must resolve" date/point.
- **Date Resolved:** All issues without a resolution date are considered "open"; a good indicator of project health is to measure the typical difference between the due date and the date resolved.

Project Name:

OCIO Project #:

Department:

Revision Date:

Issue Log

#	Date Opened	Issue	Impact	Raised By	Best Resolved by Whom	Action to Date	Owner	Next Steps	Original Due Date	Date Resolved
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										

CA-PMM

Planning Stage

CA - Project Management Methodology

Planning

Project Name: _____

OCIO Project #: _____

Department: _____

Click on the section that you would like to complete.

Project Management Plan

Organizational Change Management Plan

Maintenance & Operations Transition Plan

3.0 Planning Stage

3.1 Purpose of the Planning Stage

The purpose of the Planning Stage is to "define and mature the project scope, develop the project management plan, and identify and schedule the project activities that occur within the project" (PMBOK®). The planning processes occur iteratively. As new project information is discovered, one or more of the planning processes may need to be revisited. New project information could identify additional dependencies, requirements, and risks that need to be taken into account. However, changes and refinement cannot continue indefinitely. The Project Manager, working with the Sponsor, must at some point determine when changes and refinements can no longer be accepted without additional changes to schedule and cost. Stakeholders should be involved in the planning process, leveraging their skills and knowledge, and maintaining open communication.

The main objective of the Planning Stage is the development of a Project Management Plan. Development of the plan includes the following key tasks:

1. Scope Management Plan
2. Configuration/Change Control Plan
3. Human Resources Plan
4. Communication Plan
5. Risk Management Plan
6. Cost Management Plan
7. Quality Management Plan
8. Schedule Management Plan
9. Procurement Plan
10. Contract Management Plan

Other key tasks of the Planning Stage include:

- Organizational Change Management Plan
- Maintenance and Operations (M&O) Transition Plan

3.1.2 Scope Management Plan

The scope of a project is concerned with defining what *is* and *is not* within the project boundaries. Its purpose is to ensure that the project includes all the work required, and *only* the work required, to complete the project successfully.

The Scope Management Plan "documents how the project scope will be defined, verified and controlled, and how the work breakdown structure will be created and defined." (PMBOK®). The Scope Management Plan answers the fundamental question: "are the benefits of the added scope worth the loss of the cash flow?" This question needs to be answered *every time* a change of any type is requested by anyone on a project.

The Scope Management Plan includes the following components:

- What process will be used to develop a detailed scope statement?
- What process will be used to develop a work breakdown structure?
  - Key product deliverable
  - Target completion
- Scope Control Process
  - Change control process
  - Criteria that will be used to evaluate proposed changes
- Scope Change Request
  - Description of change
  - Category
  - Benefits
  - Impact of change
  - Risk
  - Approval

3.1.2.1 Detailed Scope Statement

Scope impacts all stakeholders. The Project Manager and Sponsor need to lay out a strategy for how they are going to collect, analyze, prioritize and communicate project requirements. The scope statement from the Project Charter needs to be matured. It cannot be assumed that it adequately reflects the nature of the project and it does not include enough detail to develop a Work Breakdown Structure (WBS) or many of the other artifacts necessary to execute and control a project. The purpose of the Scope Management Plan is to think through how the detailed scope statement will be developed, how changes to scope will be evaluated, approved, or rejected, and how the baseline scope will be established.

Project Name: _____

OCIO Project #: _____
Department: _____
Revision Date: _____

Scope Management Plan

What process will be used to develop a detailed scope statement?

The process that will be used to develop a detailed scope statement is

3.1.2.2 Work Breakdown Structure

A Work Breakdown Structure (WBS) is the process of "subdividing the major project deliverables and project work into smaller, more manageable components" (PMBOK®). A WBS is a hierarchical decomposition of the work, usually deliverable-oriented, that organizes, defines, and graphically represents the work necessary to accomplish the project objectives. This includes product deliverables and project management deliverables. The purpose of the WBS process is to help identify the major deliverables of the project, create a total view of the project in terms of small manageable components, and create a common understanding of the project deliverables.

The resulting WBS process is iterative until all key stakeholders agree that the level of detail is sufficient to ensure a successful project completion. It becomes the input for subsequent processes such as defining and sequencing activities, resource and estimating activities, and developing schedules.

It is important that input to the WBS come from those who will actually do, or have responsibility for doing, the work. Usually, the project management team will identify the top-level deliverables of the WBS and those deliverables are refined further by other members of the team. This becomes part of the scope baseline.

Project Name:

OCIO Project #:
Department:
Revision Date:

Scope Management Plan

What process will be used to develop a work breakdown structure?

The process that will be used to develop a work breakdown structure is

Key Product Deliverables	Target Completion

➲**Note:** The key product deliverables will be automatically populated from the Preliminary Scope Statement (Project Charter).

3.1.2.3 Scope Control Process

Even with standard change control processes in place, projects need to specify what process they will follow. Given the size, complexity, and risk of a given project, this will likely vary from project to project, even if it falls within standard change control practices. There are two questions to be addressed:

1. What is the appropriate change control process?
2. What criteria will be used to evaluate proposed changes?

It is critical that stakeholders understand how they can request changes and how these change requests will be handled. Addressing these questions also provides the project management team with a tool for managing expectations and communication risks that can potentially undermine a project's success.

Scope Control Process

Describe the change control process.

What criteria will be used to evaluate proposed changes?

The criteria that will be used to evaluate proposed changes is

3.1.2.4 Scope Change Request

The use of a formal, consistent Change Request Template is highly recommended. The details of the proposed changes are defined. The request consists of the following components:

1. Description
2. Category
3. Benefits
4. Impact
5. Risk
6. Approval

3.1.2.5 Description

The initiator or owner of the change describes the details of proposed new requirements. This description must be sufficiently detailed to allow the Project Manager or Change Control Board to evaluate it against the criteria it has established. An effort needs to be made to clarify the frequent ambiguities among the detailed requirements that may or may not affect scope. Separate processes and controls exist within whatever System Development Life Cycle that is being followed to handle iterations of requirements. Only requirements that will change the scope of the project along any dimension (organizational, technical, etc.) must be submitted.

Scope Change Request

Instructions: Answer the following questions.

Description

Provide a description of the change.

The change is

3.1.2.6 Category

Every change request must specify a category and brief statement presenting the rationale for the requested change. These help both the requestor and the review team evaluate the change. The three categories are:

1. **Must Have**: This is a change that is necessary for the functional viability of the product.
2. **Should Have:** This is a change that will significantly increase the product quality/marketability.
3. **Nice to Have:** This is a change that would enhance the product's ease of use.

Category

Specify the change category.

Category	Definition	Rationale
☐ Must Have	Necessary for the functional viability of the product	
☐ Should Have	Will significantly increase product quality/marketability	
☐ Nice to Have	Would enhance the ease of use.	

3.1.2.7 Benefits

One minimum evaluation criteria of any change request is that some benefit will be realized by modifying the scope of a project. These benefits are best evaluated if they can be measured--especially in financial terms such as cost savings or new revenues realized as a result of the proposed change. These benefits need to be verified by the stakeholders to verify that they will be positively impacted. Assuming benefits for a group not directly consulted about the potential impact of a change introduces an unacceptable risk to a project.

Benefits

What are the quantifiable benefits this change will provide to the project (to be provided by requestor)? (Think in terms of cost savings, added

The benefits this change will provide are

Think in terms of cost savings, added revenue, or other quantifiable benefits.

3.1.2.8 Impact

The impact of a change request is characterized across five areas:

1. **Schedule**: How many days will be added to the schedule?
2. **Cost**: How many dollars will be added to the cost?
3. **Quality:** How will the quality of the product be affected?
4. **Resource Availability**: Will there be adequate resources to make the change? Will there be adequate resources downstream if the change causes a delay in the schedule?
5. **Risk of New Errors**: What is the probability that new errors will occur? What is the level of impact of those errors?

Impact

Describe the impact(s) that the change will have on the project.

Attributes	Impact	
Schedule	How many days will be added to the schedule?	
Cost	How many dollars will be added to the cost?	
Quality	How will the quality of the product be impacted?	
Resource Availability	Will there be adequate resources to make the change?	
	Will there be adequate resources downstream if the change causes a delay in the schedule?	
Risk of New Errors	What is the probability that new errors will occur?	
	What is the level of impact of those errors?	
	Risk Level:	**0**

Use the following scales to assess the probability and the impact of the potential risk of new errors. Enter the rating and the template will calculate the risk level by multiplying the probability (1 -5) by the impact (1 – 5). This process will be discussed in detail in the Risk Management section of this manual.

Probability Scale (likelihood)		Impact Scale
1	<20%	1 Less than a 5% change to schedule, scope, budget, or quality
2	21 - 40%	2 5 - 10% change to schedule, scope, budget, or quality
3	41 - 60%	3 11 - 15% change to schedule, scope, budget, or quality
4	61 - 80%	4 16 - 24% change to schedule, scope, budget, or quality
5	>80%	5 25% or greater change to schedule, scope, budget, or quality

3.1.2.9 Risk

Regardless of the benefits, any change in scope introduces new risk to a project. These risks need to be carefully evaluated. More often than not assessments of the possible risks associated with changes are minimized in an effort to accentuate the benefits. This is a disservice to a project. A careful and honest assessment of risks may in some cases even reveal benefits not yet articulated. This may be the case when mitigation strategies for a risk are indentified. If the value of the change outweighs the risk, the mitigation strategy of some risks may also address previously unaddressed risks from other areas of the project.

Two questions need to be answered:

1. What are the risks associated with making this change?
2. What actions must be taken to manage the risk of making this change?

Risk

What are the risks associated with making this change?

The risks associated with this change include

What actions must be taken to manage the risk of making this change?

Actions that must be taken to manage the risk are

3.1.2.10 Approval

The last component of the Scope Management Plan is approval. Three signatures are required for a change request to become incorporated:

1. Change request submitted by
2. Change request reviewed by
3. Change request approved by

Approval

Change request submitted by:

Change request reviewed by:

Change request approved by:

<<Previous Next >>

➲Note: Because there may be any number of change requests over the life of a project, there is a separate file containing multiple Scope Change Request worksheets.

3.1.3 Configuration/Change Control Management Plan

Any system or product is composed of a set of constituent components that change and evolve as the system or product is being developed. For example, computer hardware and/or software may be updated a number of times during the development life cycle of an IT/Business system. Configuration management is the process of documenting, controlling, and managing any changes to key project components and deliverables throughout the project life cycle. Without a well-defined and rigorously followed configuration management system, various project components can easily get out of control as different people access these to review, change, and update their contents. Duplication overlaps, and out-of-date hardware, software, and documentation are the primary result of poor configuration management.

Effective configuration management requires an effective and well-defined configuration management organization. The configuration organization is responsible for:

- Defining who will be responsible for, and have authority over, configuration management.
- Setting standards, procedures, and guidelines for the full project team to follow.
- Defining tools, resources, and facilities to be used for configuration management.

This information is summarized in either a standard state organization configuration management policy manual and/or in the project Configuration/Change Control Management Plan. This document could range from a few pages to hundreds of pages for very large software development activities with extensive procedures and control items. The detailed configuration/change control management information is represented as a summary in the Project Management Plan.

The Configuration/Change Control Management Plan includes the following components:

- Introduction
  - Repository location for all project configuration and change control documentation
  - Tool used for managing project configuration and change control
- Participant Roles and Responsibilities
  - Department Roles
  - Project Sponsor
  - Federal Partners
  - Contractors
  - Counties/Local Offices
- Configuration and Change Control Management Steps
  - What is the process to be followed for managing project configuration and change control?

- What are those components of the Project Management Plan governed by this Change Control Process?
- What are the steps, or what is the flow, of a Change Request through the Change Process?
- What is the method for selecting each Configuration/Change Control Item?
- What are the identified Configuration Management Control Items selected for the project?
- What are the steps within the flow for the process of making changes to a Configuration Management Controlled Item?
- How are the documents, components, revisions, and releases named and marked (for consistency)?
- What is the Document Version Control and Release Approval procedure?
- What are the procedures for storage, handling and disposition requirements for project media?
- What are the steps for archiving data from legacy systems impacted by this project?
- What are the steps for administrative close of the project?
- What are the steps for archiving data from legacy systems impacted by the project?
- Configuration/Change Control log

3.1.3.1 Introduction

The Configuration/Change Control Management Plan begins by listing the repository location of for all project configuration and control documentation. It also details the tools to be used for managing project configuration and change control.

Project Name:

OCIO Project #:
Agency:
Revision Date:

Configuration/ Change Control Mangement Plan

Introduction

Where is the repository located for all project configuration and change control documentation?

The repository for all project configuration and change control documentation is located

What tools will be used for managing project configuration and change control?

Tools that will be used for managing project configuration and change control include

3.1.3.2 Participant Roles and Responsibilities

Throughout the life of a project different people, stakeholders, and teams will assume roles and responsibilities for changes. Identifying these roles and responsibilities at the front of the project lowers the inherent risks associated with configuration and control management. The roles and responsibilities information will be folded into the Communication Plan. It is important to know how configuration and change control moves from one party to another or might be owned by multiple parties at key junctures or milestones during the project. Where multiple parties share joint responsibilities coordination becomes tricky. Without proper planning these orchestrated flows of information can quickly fall apart and result in serious delays and or costs to projects.

Participant roles and responsibilities are documented for the following:

1. Department
2. Project Sponsor
3. Federal Partners
4. Contractors
5. Counties/Local Offices

Participant Roles & Responsibilities

Department Roles
What are Department roles for configuration and change control management?

The Department roles for configuration and change control management are

Project Sponsor
What will be the role for Project Sponsor for configuration and change control management?

The role for the Project Sponsor for configuration and change control management is

Federal Partners
If there are Federal Partners, what will be the role for the Federal Partners for configuration and change control management?

The role of the Federal Partners for configuration and change control management is

Contractors
What will be the role for Contractors for configuration and change control management?

The role of the Contractors for configuration and change control management is

Counties/Local Offices
Will there be a role for Counties and Local Offices for configuration and change control management?

The role of the Counties/Local Offices for configuration and change control management is

3.1.3.3 Configuration and Change Control Management Steps

Far too many Project Managers learn too late in the project lifecycle that the team has not followed the requisite configuration management discipline and the instances of duplication, overlapping, and out-of-date deliverables begin to consume extensive team time.

The following sections guide the completion of a thorough Configuration/Change Control Management Plan:

Configuration and Change Control Management Steps

What is the process to be followed for managing project configuration and change control?

The process to follow for managing project configuration and change is

What are those components of the Project Management Plan governed by this Configuration/Change Control Process?
Project management documents typically covered by Configuration/Change Control include the Scope, Schedule, Budget and

The components of the Project Management plan are

What are the steps or what is the flow (provide diagram) of a Change Request through the Change Process?

	The steps of the Change Request through the Change Process are
1	
2	
3	
4	
5	
6	

How are Configuration Management/Change Control Items selected for the project?

Configuration Management Control items are selected by

What are the identified Configuration/Control Items selected for the project?

The identified Configuration/Change Control items are

How are the documents, components, revisions, and releases consistently named and marked?

Items are consistently named and marked by

What is the Document Version Control and Release Approval procedure?

The Document Version Control and Release Approval procedure is

What are the procedures for storage, handling, and disposition requirements for project media (both automated and paper)? The information in this paragraph is also included in the Communications Plan. Verify that there is no conflict in the plans for storage, handling, and disposition of project documentation.

The procedures for project media are

What are the steps for administrative close out of the project?

The steps for administrative close out are

What are the steps for archiving data from legacy systems impacted by this project?

The steps for archiving data are

3.1.3.4 Change Control Log

The final element of the Configuration/Change Control Management Plan is the Configuration/Change Control Log. The purpose of this log is to record every configuration or change request that is made during the life of the project. Each change request is recorded on the log along with:

1. A description of the proposed change.
2. A statement as to which project parameters will be impacted.
3. The result (approved/rejected) of the change request.
4. A description of the next steps if needed.
5. The date of the result.
6. A list of the stakeholders that need to be informed about the result of the change request.

Configuration/Change Control Log

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#	Date Submitted	Proposed Change	Impact To	Result	Next Steps	Date	Informed
			☐ Scope ☐ Schedule ☐ Budget ☐ Quality				
			☐ Scope ☐ Schedule ☐ Budget ☐ Quality				
			☐ Scope ☐ Schedule ☐ Budget ☐ Quality				
			☐ Scope ☐ Schedule ☐ Budget ☐ Quality				
			☐ Scope ☐ Schedule ☐ Budget ☐ Quality				
			☐ Scope ☐ Schedule ☐ Budget ☐ Quality				
			☐ Scope ☐ Schedule ☐ Budget ☐ Quality				
			☐ Scope ☐ Schedule ☐ Budget ☐ Quality				
			☐ Scope ☐ Schedule				

3.1.4 Human Resources Management Plan

Human Resource Planning is the process of "identifying and documenting project roles, responsibilities and reporting relationships as well as creating a staffing management plan" (PMBOK®). Human Resource Planning includes identifying how and when labor needs will be met to ensure that the project has sufficient staff with the appropriate skill sets and experience. It is important to know the team's current skills and expertise as they relate to the project. This information is used to determine what additional training the team will need and to identify additional skills that will need to be brought in, either as additional or contracted staff.

The Human Resources Management Plan includes the following components:

- Project Organization Chart
- Staffing Management Plan
    - Role
    - Type
    - Location
    - Time Frame
    - Release Criteria
    - Rewards and Recognitions
- Required Skills and Skill Gap Plan
- PASI Chart
- Project Management Roles and Responsibilities

3.1.4.1 Project Organization Chart

Project organization is used to coordinate the activity of the team and to define the roles and responsibilities of team members. Project organization is needed for every IT project, and a Project Manager must always be identified.

Confusion and lack of productivity are frequently the result of poor project organization. This is where many projects run into trouble. A good organization facilitates communication and clearly defines roles and responsibilities.

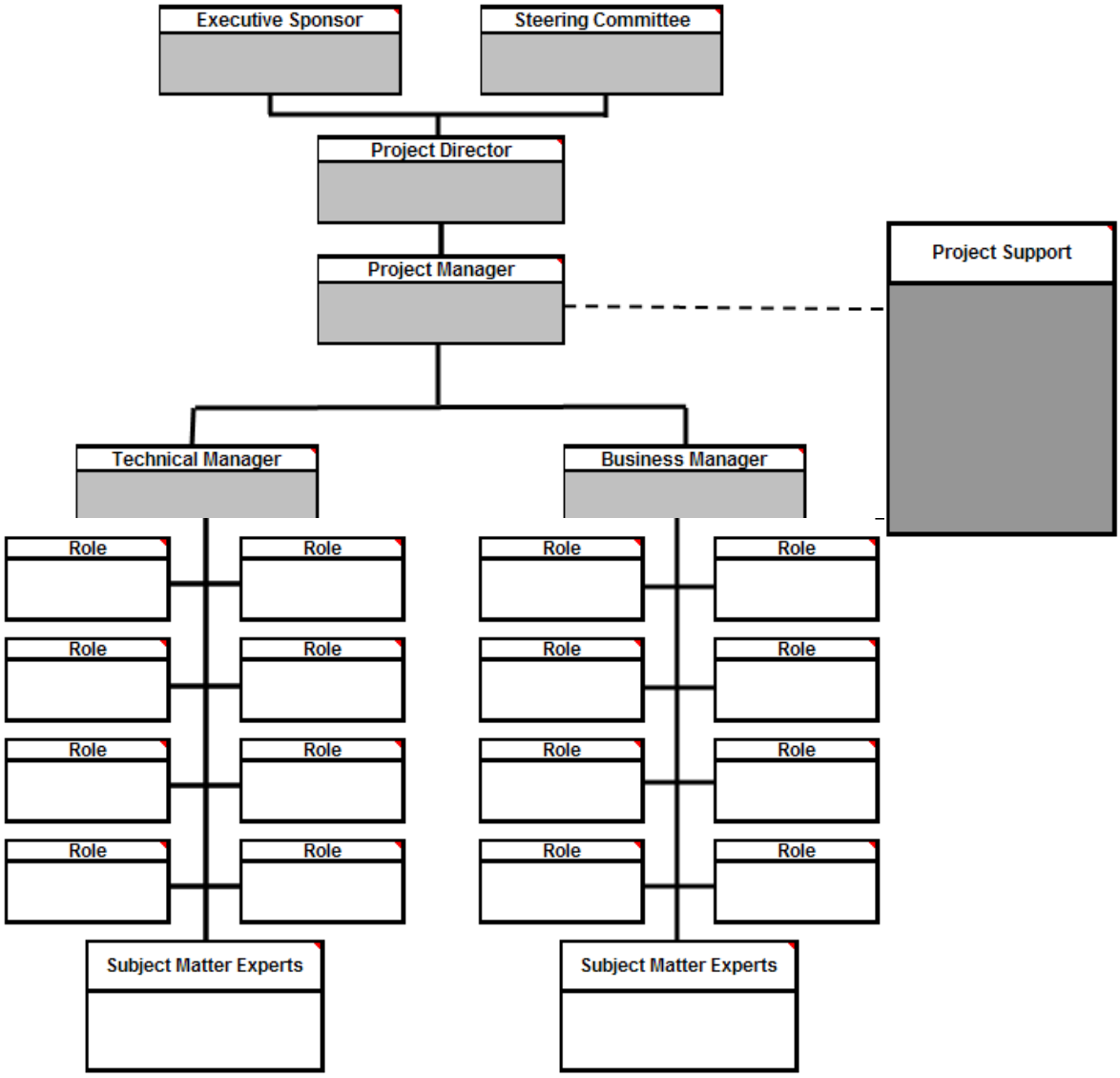
During the Initiating Stage the High Level Project Organization was identified. During the Planning Stage, the business and technical roles that will be needed to complete the project deliverables are identified. The High Level Project Organization roles are automatically populated from the Project Charter.

Project Name:

OCIO Project #:
Department:
Revision Date:

Human Resources Management Plan

Project Organization Chart



3.1.4.2 Staffing Management Plan

Large projects involve teams of people who can be from a single program or department or include other agencies, local government, federal government, and/or private sector stakeholders. A list of staff and even roles is not enough. A Project Manager must keep track of where people are located, what type of role they will play, when their expertise will be required, when they can be released from the project, and how people will be recognized. The roles in the Staffing Management Plan are automatically populated from the Project Organization Chart.

Staffing Management Plan

Lock Header | Unlock

Role	Type	Internal	Location	Time Frame	Release Criteria

3.1.4.3 Required Skills and Skill Gap Plan

Any successful project must have people with the right set of skills and experiences. In many cases, with proper planning, there may be enough time to get people the training or support they need in order to succeed. Every skill critical to the completion of assigned deliverables needs to be identified and assessed in terms of the level of skill required (a scale of 1 to 4 is used where 1=Proficient and 4=Novice). Focus on skills rather than characteristics; for example, “Network convergence skills” vs. “organized”. Then resources are evaluated in terms of their actual skill level. Skill development strategies can be articulated where necessary. A project without enough of the requisite skills or experiences, or one which relies heavily on many new outside resources introduces higher levels of risk. This risk needs to be evaluated and may potentially cause enough problems to delay or cancel a project until skill gaps have been sufficiently addressed.

Please Note:

- This tool is not a performance appraisal or any other Human Resources tool. It is solely designed for project planning, as described above. It is designed to be used once a team is assembled to plan and assess training and mentoring efforts, which in turn will provide input into the project schedule and cost.

- If a Project Manager is rank and file, as opposed to supervisory/managerial, the Required Skills & Skill Gap Plan must be completed with the assistance of the supervisor/manager of the staff assessed.

  There are a variety of assessment techniques that may be employed, including self-assessment, supervisor/manager assessment, Project Manager assessment, and/or use of knowledgeable third parties.

- It may be useful to use an identification number rather than a name to help protect an individual’s privacy.

Required Skills & Skill Gap Plan

Role: _____ Source: _____

Resource Name: _____ When Needed: _____

Required Skills	Skill Level Required				Actual Skill Level	Skill Gap Mitigation Plan
	1 Proficient	2 Competent	3 Learner	4 Novice		
	☐	☐	☐	☐		
	☐	☐	☐	☐		
	☐	☐	☐	☐		
	☐	☐	☐	☐		
	☐	☐	☐	☐		
	☐	☐	☐	☐		
	☐	☐	☐	☐		
	☐	☐	☐	☐		
	☐	☐	☐	☐		
	☐	☐	☐	☐		

➲Note: Because one sheet is needed for each role to be filled by a State resource there is a separate file containing multiple Required Skill Gap worksheets.

3.1.4.4 PASI Chart

The Primary Approval Supporting Information (PASI) Chart is used to illustrate the connections between work that needs to be done and the project team members that will do the work. The PASI includes the elements listed below:

- Activity
- Person(s) and Group(s) assigned to activity(s)
- Responsibility and authority
    - Primary Responsibility
    - Approval Authority
    - Supporting Responsibility
    - Information Only

PASI Chart

P = Primary Responsibility A = Approval Authority S = Supporting Responsibility I = Information Only Activity	Role/Person							

3.1.4.5 Project Management Roles and Responsibilities

This area of the Human Resources Management Plan focuses on the staffing and resource planning for the project management activities. It is important not to make any assumptions as to what standard project management responsibilities will be covered by the Executive Sponsor, the Project Manager, or any other role commonly associated with them. Spelling out these responsibilities averts confusion.

The twenty-four project management Phases/Activities are:

1. Assign the Project Manager
2. Identify Core Team Members
3. Review the Project Charter
4. Conduct the Project Kick-off meeting
5. Determine Project Category and Define Project Structure
6. Define the Work
7. Develop the Project Schedule
8. Develop the Resource Plan
9. Refine the Project Plans
10. Assess Project Risk
11. Set the Baseline and Publish Project Plans
12. Track Team Progress
13. Update Schedule and Resource Plans
14. Assess Projected vs. Actuals
15. Implement Adaptive Actions
16. Identify and Mitigate Project Risk
17. Update Risk Log
18. Review and Assess Project Change Requests
19. Distribute Project Status Reports
20. Conduct Project Review
21. Deliver Products
22. Transition Project to Operations/Maintenance
23. Archive Project File
24. Evaluate Project

Project Management Roles & Responsibilities

Project Responsibilities			
Phase/Activity	**Project Sponsor**	**Project Manager**	**Other**
1. Assign the PM			
2. Identify Core Team Members			
3. Review the Project Charter			
4. Conduct the Project Kick-off meeting			
5. Determine Project Category and Define Project Structure			
6. Define the Work			
7. Develop the Project Schedule			
8. Develop the Resource Plan			
9. Refine the Project Plans			
10. Assess Project Risk			
11. Set the Baseline and Publish Project Plans			
12. Track Team Progress			
13. Update Schedule and Resource Plans			
14. Assess Project vs. Actuals			
15. Implement Adaptive Actions			
16. Identify and Mitigate Project Risk			
17. Update Risk Log			
18. Review and Assess Project Change Requests			
19. Distribute Project Status Reports			
20. Conduct Project Review			
21. Deliver Products			
22. Transition Project to Operations/Maintenance			
23. Archive Project File			
24. Evaluate Project			

3.1.5 Communication Management Plan

Communication Management Planning is the process of "determining the information and communications needs of the project stakeholders: who they are, what is their level of interest and influence on the project, who needs what information, when will they need it, and how it will be given to them" (PMBOK®). It is important that the Project Manager match the *right* information to the *right* audience in the *right* format at the *right* time. Ensuring that all stakeholders receive timely and accurate information about the project is important in facilitating decision making as well as ensuring the overall project's success.

Communication can be formal or informal, written or verbal, depending on the situation, need or influence of the stakeholders and the type of information to be conveyed. Communication can take the form of one-on-one conversations, e-mails, regular meetings, documentation, status reports, variance reports, and anything that is done to keep *all* stakeholders informed. Projects with few stakeholders may not need as formal communication as projects with a large number of stakeholders. Below are guidelines for creating an information distribution strategy (Project Management Workbook®):

1. Determine the form of communication for the various types of information that will be distributed (e.g., presentation for executives, status reports for owners, status meetings with the team, etc.).
2. Determine the technology or distribution method to be used (e.g., e-mail, Internet, directory structure on a network, etc.).
3. Determine how often the various types of information will be distributed.
4. Ensure that the project team and other stakeholders know where all important information is located, where they can place their information, and how they can get the information.
5. Follow internal data classification requirements.

It is important to remember that the project team members are stakeholders as well. The Project Manager must effectively communicate with the team so that the team fully understands expectations and their expected contributions to the success of the project. Keeping them focused on the goals of the project, listening carefully, providing feedback, and resolving conflicts are all important aspects of team communication**.**

The Communication Plan includes the following components:

- Internal Stakeholders
- External Stakeholders
- Recurring Meeting Planner
- Project Roster

3.1.5.1 Internal Stakeholder and External Stakeholders

Effective Project Managers, as well as team members, aggressively communicate with their stakeholders, management, Executive Sponsor, customers, vendors, and among themselves. In selected projects, communications with external entities are key to the success of a project. Communications can take many forms--formal or informal, e-mail or voice mail, urgent or routine--but in all cases, communications must be accurate, forthright, timely, and properly distributed to be effective. Well-designed and timely communications are key to the management of expectations, whether in a formal briefing for management or in an informal conversation with a fellow team member.

There are eight essential questions to consider in terms of communications with internal and external stakeholders:

1. **Stakeholder**: Who you need to communicate with?
2. **Communication Item**: What needs to be communicated?
3. **Objective of Item**: Why it is being communicated?
4. **Level of Detail**: What level of detail is required?
5. **Frequency**: How often the item needs to be communicated?
6. **Timeframe**: When is it communicated?
7. **Method:** How is it communicated?
8. **Owner**: Who will be responsible for its communication?

Project Name:

OCIO Project #:
Department:
Revision Date:

Communication Management Plan

Directions: Describe the communication systems and methodology that are already in place, if applicable, and how they will be leveraged to the project. Include any political, policy, or regulatory considerations.

Internal Stakeholders

Stakeholder (Who Receives)	Communication Item	Objective of Item	Level of Detail	Frequency	Timeframe	Primary Method	Secondary Method	Owner

External Stakeholders

Stakeholder	Communication Item	Objective of Item	Level of Detail	Frequency	Timeframe	Method	Owner

3.1.5.2 Recurring Meeting Planner

Projects may have a number of meetings that occur on an ongoing and regular basis. It is best to identify these at the onset of a project. This enables stakeholders to know when they are required to attend a meeting, or when information or decision relevant or pertinent to them will be discussed.

Eight pieces of information are detailed:

1. **Meeting Name**: The name of the meeting.
2. **Purpose**: What is being accomplished through the meeting?
3. **Attendees:** Who must attend the meeting?
4. **Primary Mode**: The preferred type of meeting (e.g., face to face, teleconference, etc.)
5. **Secondary Mode**: An acceptable alternative mode of meeting
6. **Frequency**: How often does the meeting need to occur?
7. **Other**: The frequency of a meeting may be tied to a specific event or deadline rather than at time specific intervals
8. **Owner**: The individual responsible for scheduling the meeting, managing the attendee list, and creating the agenda.

Recurring Meeting Planner

Meeting Name	Purpose	Attendees	Primary Mode	Secondary Mode	Frequency (minimum)	Other	Owner

3.1.5.3 Project Roster

A master list of project staff and contacts is maintained throughout the life of the project.

Project Roster

Project Staff and Contacts List					
Name	Role	Organization	Contact Information		Preferred Method
			Email	Phone	

3.1.6 Risk Management Plan

Risks are defined as uncertain conditions or events that should they occur will impact the project negatively or positively.

Risk Management Planning is the process of "deciding how to approach, plan, and execute risk management activities for a project" (PMBOK®). Risk management planning is completed early in the Planning Stage. The purpose is to establish an agreed-upon basis for evaluating risks and to ensure that sufficient resources and time are allocated for risk management activities.

Risk Identification is the process of "determining which risks might affect the project and documenting their characteristics" (PMBOK®). All project stakeholders should be involved in identifying risks. This includes the risk itself, what triggers the risk, the risk category, and further actions that need to take place.

Risk Identification is an iterative process as new risks may be uncovered as the project progresses.

Qualitative Risk Analysis is the process of "prioritizing risks for subsequent further analysis or action by assessing and combining their probability of occurrence and impact" (PMBOK®). The focus is on the high-priority risks to the project's success. The priority of a risk is determined by assigning a probability of occurrence, the impact it may have on the project, and a risk tolerance in terms of the project constraints of cost, schedule, scope and quality. Qualitative risk analysis should be revisited throughout the project.

Quantitative Risk Analysis is the process of "numerically analyzing the effect on overall project objectives of identified risks" (PMBOK®). In Quantitative Risk Analysis, a more detailed approach is taken to assess the risk, such as modeling or simulation. It usually follows Qualitative Risk Analysis, but sometimes can be done without it or may not be done at all. The size, complexity, and importance of the project determine if further analysis of risks needs to be done.

Risk Response Planning is the process of "developing options and determining actions to enhance opportunities and reduce threats to the project's objectives" (PMBOK®). Risk Response Planning follows the Qualitative and Quantitative Risk Analysis processes, and includes the identification and assignment of one or more persons (the risk response owner) to take responsibility for each agreed-to risk response. Risk Response Planning addresses the risks by their priority, inserting resources and activities into the budget, schedule, and project management plan as needed.

The Risk Management Plan includes the following components:

- Risk identification Process
- Risk Escalation Process
- Definition of Probability and Impact Scales.
- Risk Register.
- Plans for monitoring high and medium level risks.
- Approach to measuring the effectiveness of the risk response plans.

3.1.6.1 Risk Identification

Risk management is an ongoing activity that never stops. Project teams need to establish how they plan to identify risks.

3.1.6.2 Risk Escalation

Often the actions needed to manage specific risks exceed the authority of the project manager. When this occurs, the risk must be escalated to the appropriate party. The risk management plan must address this potential situation through the articulation of the process to be used by the team to escalate the risk.

Project Name:

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Department:

Revision Date:

Risk Management Plan

What process(es) will be used to identify risks?

The following process(es) will be used to identify risks

Describe the process to be used to escalate risks the resolutions of which are beyond the project manager's level of authority?

The process used to escalate risks beyond the PM's level of authority is

3.1.6.3 Definition of Probability, Impact, and Timing Scales

The Risk Management Plan includes a Risk Register, which is a detailed list of prioritized risks analyzed in terms of their impact on a project, and the probability that they will occur. The scales used for the Risk Register are:

Probability Scale
(likelihood)

1	**<20%**
2	**21 - 40%**
3	**41 - 60%**
4	**61 - 80%**
5	**>80%**

Impact Scale

1 Less than a 5% change to schedule, scope, budget, or quality
2 5 - 10% change to schedule, scope, budget, or quality
3 11 - 15% change to schedule, scope, budget, or quality
4 16 - 24% change to schedule, scope, budget, or quality
5 25% or greater change to schedule, scope, budget, or quality

The timing scale is used to assess the impact of the urgency with which risk management act ivies must be undertaken. The following Timing Scale is based on the need to begin risk management work. It varies based on the duration of the project.

Project Duration	Timing Scale		
6 months	1 = immediately	.66 = within the next 3 months	.33 = more than 3 months from now
>6 months to < 1 year	1 = within the next 3 months	.66 = 3 - 6 months from now	.33 = more than 6 months from now
1 year to < 3 years	1 = within the next 6 months	.66 = 6 months to a year from now	.33 = more than a year from now
3 years to <5 years	1 = within the next year	.66 = more than a year from now	.33 more than two years from now

3.1.6.4 Risk Register

The Risk Register captures risks and evaluates them in terms of the relationship between their probability of occurring, the impact of the risk if it does occur and its timing. These three ratings are used to determine a risk level for a project (1-25 where 1 is low and 25 is high). The Risk Register is pre-populated with the Known Risks from the Project Charter along with a list of common risks. There are also blank spaces for risks that could occur that are not on the list. The list is there to provide a stimulus to the brainstorming process. The assessment of the probability, impact and timing of the risk management activities is recorded and a risk level is calculated.

Risk Register

Instructions: Consider each potential risk and quantify the risk level. Use the definitions in the student notebook for clarity. A

*** 1-9 = Low Risk Level, 10-15 = Medium Risk Level, 16-25 = High Risk Level**

Lock Headings | Unlock

#	Risks	Probability (1 - 5)	Potential Impact (1 - 5)	Risk Management Timing	Risk Level* (1 - 25)
					0
					0
					0
					0
					0
					0
	Audit and Control Needs				0
	Budget				0

Additional information included in the Risk Register is:

- **Cause:** The triggers that create the conditions for the risk to occur.
- **Consequence:** Describes the results of the realization of a risk.
- **Avoidance Plan:** Attempts that are made to overcome the risk by trying to stay away from it or eliminate it. This may require a change to the project plan so that the risk will not occur, possibly resulting in reducing scope, obtaining additional information, adding resources, or acquiring additional expertise.
- **Mitigation Plan:** The probability of the risk and impact to the project is reduced, but not fully avoided. For example, selecting a known technology lessens the risk as compared to using new technology. If a new technology cannot be avoided, then selecting a contractor experienced in the technology could mitigate the risk.

Cause	Consequences	Avoidance Plan	Mitigation Plan

An additional table is provided in the Risk Register to record the following (the risk identification numbers, the list of risks, and risk levels are prepopulated):

- **Transference:** The ability to have another entity absorb some of the risk such as an insurance company or late fees for vendors.
- **Acceptance:** Understanding the risk and its potential impact and choosing to take no action.
- **Contingency Plan:** The steps and procedures to follow if a known potential risk occurs.
- **Trigger Events:** Trigger events are occurrences or activities that indicate that a given risk will occur, or is already occurring. A trigger event can be internal to the project, meaning that at the conclusion of a particular activity or deliverable, the risk either will or will not happen. Trigger events can also be external to the project, such as a change in the political landscape or economic environment.
- **Owner:** The individual on the team who has been assigned the responsibility of monitoring the risk and letting the team know if the risk management plan needs to be activated.

Risk Register - continued

#	Risks	Risk Level* (1 - 25)	Transference	Acceptance	Contingency Plan	Trigger Event	Owner
		0					
		0					
		0					
		0					
		0					
		0					
	Audit and Control Needs	0					
	Budget	0					
	Client/Server Architecture	0					
	Customer Sophistication	0					
	Design and Implementation	0					

Risk Register – continued

The risk register continues with:

- **Response Plan Effectiveness:** An assessment of the degree to which the risk management activities were effective in dealing with the risk.
- **Residual Risks:** Risks that remain even though risk management activities took place as planned
- **Secondary Risks:** Risks that are actually created through the implementation of the planned risk management activities.
- **Risk Status:** A statement of the current condition of the risk
- **Closure Date:** The date the risk was determined to be longer possible or threatening to the project.

Response Plan Effectiveness	Residual Risks	Secondary Risks	Risk Status	Closure Date

Finally, the risk management plan concludes with a statement of the project team's plan to:

- Monitor high and medium level risks to determine when and if they actually will occur and to assess and reassess the level of potential impact
- Measure the effectiveness of the risk management activities to determine if those activities are doing what they were designed to do.

What are your plans for monitoring the high and medium level risks?

The plans for monitoring the high and medium level risks are

What is your approach to measuring the effectiveness of the risk response plans?

The approach to measuring the effectiveness of the plan is

3.1.7 Cost Management Plan

"Project Cost Management includes the processes involved in planning, estimating, budgeting, and controlling costs so that the project can be completed within the approved budget." (PMBOK®). There are three main activities:

1. **Cost Estimating:** The process of "developing an approximation of the cost of the resources needed to complete each scheduled activity" (PMBOK®). Comprehensive estimates include, but are not limited to, the cost of personnel, tools, training, equipment, and materials.

   There are three types of estimates (Kerzner 2003):

   Rough order of magnitude (ROM) estimate is made without any detailed data. The accuracy is -25% to +75%. This type of estimate is usually done very early in the project as described in the Develop Project Charter process in the Initiating Process Group.

   - ***Budget estimate***, or approximate estimate, is made using comparisons to similar activities. The accuracy is -10% to +25%.

   - ***Definitive estimate***, or detailed estimate, is made from well-defined data and depending on the size and complexity of the project. The accuracy is -5% to +10%.

2. **Cost Budgeting:** The process of "aggregating the estimated costs of individual activities or work packages to establish a cost baseline for measuring project performance" (PMBOK®). This aggregated cost becomes the cost required to fund the project.

3. **Cost Control:** A process which begins with a baseline cost that is the approved time-based budget. A time phased budget establishes funding limits per specific time periods. This is particularly true in projects that span multiple years where annual funding is set based on organizational budget concerns and/or planned deliverables. This budget is used as the basis for monitoring and controlling overall cost performance, and is an output of the Cost Budgeting process and is used as input and updated during the Cost Control process. During the Planning Stage, this is referred to the *original* cost baseline. The approved budget identified in the approved FSR is the baseline cost for measuring project performance.

The Project Manager must track the costs of all resources required to complete all project activities. The Project Manager and stakeholders are challenged to look at the whole picture and take a broader view of the project life cycle and not just the development efforts. Cost reductions in development may equal greater costs in either operations or maintenance thereby reducing the project's overall value to the organization. This highlights the critical nature of considering all stakeholders in estimating, budgeting, and controlling project costs.

3.1.7.1 The Cost Management Plan Components

- Introduction
  - What tool(s) will be used for managing costs?
  - What is the location of the project cost management documents?
- Participant Roles and Responsibilities
  - What are the department roles for cost management? (e.g., Project Sponsor, Executive Steering Committee, Project Director, Project Manager, Project Team members.)
  - Are there other state agencies participating in the project and what are their roles for cost management?
  - Are there federal partners and, if so, what will be their role for cost management?
  - If contractors are used what will be their role for cost management?
  - Will there be a role of county and local offices for cost management?

- Cost Management Approach
  - Cost Planning
    - What methods will be used for project resource planning?
    - What methods will be used for project estimating?
    - How will the cost baseline be established?
  - Cost Tracking
    - How will project labor hours be tracked for the state staff?
    - How will project labor hours be tracked for consultants?
    - How will hardware and software costs be tracked?
    - How will overall project costs be tracked?
    - How will OE&E and other costs be tracked?
  - Cost Reporting and Metrics
    - What metrics and cost reporting will be used for tracking actual cost and analyzing cost variations?
  - Cost Control and Changes
    - What are the thresholds for project cost variances?
    - What will be the process for project cost re-planning?
    - What will be the process for re-baselining the project cost?
  - Cost Closeout
    - What will be the process for project cost close?
    - What will be the process for development and documentation of the project annual cost summary?

Project Name:

OCIO Project #:
Department:
Revision Date:

Cost Management Plan

Introduction

What tool(s) will be used for managing costs?

The tool(s) used to manage costs is/are:

What is the location of the project cost management documents?

The location of the project cost documents is

Participant Roles and Responsibilities

What are the department roles for cost management?

The department roles for cost management are

What role will the Executive Steering Committee have to control cost?

The role of the Executive Steering Committee is

Who is the project sponsor and what are the associated sponsor roles for cost management?

The project sponsor and roles is

Is there a federal partner, and if so, what will be there role for cost management?

The federal partner roles for cost management are

If used, what will be the role of contractors for cost management?

The role of the contractor for cost management is

Will there be a role for county and local offices for cost management?

Will there be a role for county and local offices

Cost Management Approach

Cost Planning

What methods will be used for project resource planning?

Methods used for project resource planning are

What methods will be used for project cost estimating?

Methods used for project cost estimating are

How will the cost baseline be established?

The cost baseline will be established by

Cost Tracking

How will project labor hours be tracked for State staff?

Project labor hours for state staff will be tracked by

How will project labor hours be tracked for consultants?

Project labor hours for contractors will be tracked by

How will overall project costs be tracked?

Overall project costs will be tracked by

How will OE&E costs be tracked?

OE&E costs will be tracked by

Cost Reporting and Metrics

What metrics and cost reporting will be used for tracking actual cost and analyzing cost variances?

The metrics and cost report used will be

Cost Control and Changes

What are the thresholds for project cost variances?

The thresholds for project cost variances are

What will be the process for project cost re-planning?

The process for project cost re-planning is

What will be the process for re-baselining the project cost?

The cost for the process for re-baselining will be

Cost Closeout

What will be the process for project cost close?

The process for project cost close will be

What will be the process for development and documentation of the project annual cost summary?

The process for development and documentation will be

3.1.8 Quality Management Plan

"The National Institute of Standards and Technology (NIST) estimates that software errors cost U.S. users some $59.5 billion each year."

Quality Management Planning is the process of "identifying which quality standards are relevant to the project and determining how to satisfy them" (PMBOK® Guide 2004). Fundamentally, quality and quality management is planned, designed, and built in to the process, not inspected in. That is, no amount of inspection after a product is produced can put quality into a product. In order to have a quality product you must plan for it (Kerzner 2003). Quality planning, assurance, and control apply to both the product and the project management components of the project.

Comprehensive quality management includes three key components:

1. **Quality Planning:** This involves defining the ranking of quality vis-à-vis schedule, scope, and budget, and defining the quality standards (thresholds) for the end product.

2. **Quality Assurance:** The process of determining whether the plans (deliverables, tasks, resources, and milestones) to create the quality are appropriate and adequate. Also, periodic assessment of the project in progress to assure that the finished product will meet quality requirements. This is best done through independent reviews by subject matter expert(s) who are not a part of the project core team (they are not the people who are responsible for creating the overall functionality of the end product).

3. **Quality Control:** The process of specifically assessing project deliverables (as they are being defined, designed, built, and used) to ensure that they map to the defined quality standards and variance thresholds. Quality control steps are typically the domain of the Execute, Implement, and Operation stages of the project.

The Quality Management Plan includes the following components:

- Introduction
  - What tools will be used for managing quality?
  - Where is the repository for all project quality documentation?
- Participant Roles & Responsibilities
  - Department Roles (e.g., Project Sponsor, Executive Steering Committee, Project Director, Project Manager, Project Team members.)
  - Federal Sponsor
  - Contractors
  - Counties/Local Offices

- Quality Management Steps
  - What is the process to be followed for managing project quality?
  - What are the standards and guidelines that will be followed?
  - How will compliance with the standards and guidelines be determined and to which project deliverable will they apply?
  - What project, product, and process metrics will be captured and monitored?
- Quality Review/Audit
  - Deliverables – the specific product deliverables that must go through a review, walk through, or some other method of determining if the deliverable meets the quality requirements.
  - Quality Review/Audit – the process that will be used to measure the quality.
  - Target Date – the date by which the quality review must be performed.
  - Resources – the people, equipment and/or other resources needed to perform the quality review/audit.
  - Procedures – the specific actions involved in the quality review.
  - What are the planned procedures to be followed to prevent, track or resolve problems or issues identified in project processes detected in QA reviews of this project?
- Quality Action Form

3.1.8.1 Introduction

The front of the Quality Management Plan identifies the tools to be used for managing quality during a project and the location/repository where these tools can be found.

Project Name:

OCIO Project #:
Agency:
Revision Date:

Quality Management Plan

Introduction

What tools will be used for managing quality?

Tools that will be used for managing project configuration and change control include

Where is the repository located for all project quality documentation?

The repository for all project quality documentation is located

3.1.8.2 Participant Roles & Responsibilities

Every project member needs to buy-in to the responsibility for producing a quality product. Team members become the most effective way to implement quality into products efficiently and completely. A quality policy cannot rely on “adding” quality at the end of a process; it must be built into the work of each individual on the team. It is far more cost effective to have team members add quality into their day-to-day jobs than to have a quality analyst find a problem after a process has been completed.

The following roles are defined:

- Department Roles (e.g., Project Sponsor, Executive Steering Committee, Project Director, Project Sponsor, Project Team members.)
- Federal Partner
- Contractors
- Counties/Local Offices

Participant Roles & Responsibilities

Participant	Role	Responsibility
Department		
Sponsor		
Federal Partner		
Contractors		
Counties/Local Offices		

3.1.8.3 Quality Management Steps

The Quality Management Steps document how the quality process will be implemented by the project management team. It includes an identification of relevant quality standards and objectives as well as a determination of how to satisfy the quality standards (e.g., testing).

Four questions are addressed:

1. What is the process to be followed for managing project quality?
2. What are the standards and guidelines that will be followed?
3. How will compliance with the standards and guidelines be determined and to which project deliverables will they apply?

Quality Management Steps

What is the process to be followed for managing project quality?

	The process for managing project quality is
1	
2	
3	
4	
5	
6	

What are the standards and guidelines that will be followed?

The standards and guidelines followed will be

How will compliance with the standards and guidelines be determined ?

The compliance with standards and guidelines will be determined by

3.1.8.4 Product Quality Review Procedures

The Quality Management Plan includes planning a process for reviewing key product deliverables. The process includes naming the deliverables that will need a quality review, stating the criteria by which quality will be measured, determining the timing of the review, stipulating the resources needed for the review and designing the review procedures

Product Quality Review/Audit

Deliverable	Criteria	Timing	Resources	Procedures

What are the planned procedures to be followed to prevent, track or resolve problems or issues identified in project processes detected in QA reviews of this project?

The procedures to follow to prevent, track, or resolve problems are

3.1.8.5 Quality Action Form

The use of a Quality Action Form is the output from the Quality Review/Audit if a defect is found. Defects are defined as an imperfection or deficiency in a project component where that component does not meet its requirements or specifications and needs to be either repaired or replaced. It is used to record and track defects to ensure that they are resolved. The Form has fields to record: #, deliverable, defect, corrective action, date (that the corrective action must be complete), the outcome of the corrective action, any further action that may be necessary, and a date to follow up.

Quality Action Form

Instructions: Use the following form (or equivalent) to document and track recommended corrective action or changes based on quality audits?

#	Defect	Corrective Action	Date	Results Acceptable	Further Action	Follow up Date

3.1.9 Schedule Management Plan

The Schedule Management Plan establishes how the project schedule will be managed and controlled. Estimating the duration of activities is the principal work. Activity duration estimating is the process of "estimating the number of work periods that will be needed to complete individual schedule activities" (PMBOK®). Number of periods refers to the hours, days, or weeks that it will take to perform the activity, taking into account elapsed time. The purpose for duration estimating is to develop an approximation of time (usually expressed in a range of time) and an understanding of the magnitude of effort.

The Schedule Management Plan includes the following components:

- Introduction
  - What is the name of the tool used for managing the schedule?
  - How will the schedule baseline be established?
  - At what intervals will the schedule be updated and who will have the authority to update it?
  - What procedure will be followed to propose and approve changes to the schedule baseline?
  - Where is the schedule maintained if kept in a database/tool/spreadsheet?

- Activity Duration Estimate Worksheet
  - Skill Factor Table
  - Work Interruption Factor Table
  - Multi-Project Factor Table
  - Project Productivity Influencing Factors

3.1.9.1 Introduction

The purpose of the Schedule Management Plan is to provide for the timely completion of the project. The initial sections of the Schedule Management Plan describe what tool is going to be used to manage the schedule, how a baseline schedule will be established, how often schedule will be updated, how changes to the schedule will be proposed and approved, how and where the schedule will be kept.

Project Name:

OCIO Project #:
Department:
Revision Date:

Schedule Management Plan

What is the name of the tool used for managing the schedule?

The name of the tool used for managing the schedule is

How will the schedule baseline be established?

The schedule baseline will be established by

At what intervals will the schedule be updated and who will have the authority to update it?

The intervals with the schedule update will be

What procedure will be followed to propose and approve changes to the schedule baseline?

The procedure for changes to the schedule baseline are

Where is the schedule maintained if kept in a database/tool/spreadsheet?

The schedule is located

3.1.9.2 Activity Duration Estimating Worksheet

Before a schedule can be created, estimates for the duration of the individual activities must be developed. An estimate is based on a list of activities, a group of people to do the activities, and a number of environmental variables that can impact the estimate. If Project Managers do not incorporate the appropriate factors into their estimating algorithms, the resulting estimates will not be reliable.

Task-based (activity based) estimates include estimates of effort, cost, and duration based on detailed work breakdown structures, network diagrams, and resources profiled for their respective skills. Two key terms to keep in mind while developing task-based estimates are effort and duration.

Effort is defined as the number of *hours* it will take a person with specific skills to complete a given task. Duration is defined as the *number of work days* needed to complete an effort of a given task. Often there is *not* a one-to-one relationship between the number of hours (effort) and the number of days (duration). The estimated duration is dependent on a number of variables; the prime one is the percent of time the person assigned to a task can actually devote to the task. For example: a task that requires 20 hours of effort will have a duration of 5 days if the resource assigned to the task can devote four hours per day to the task.

The ability to change the team size and/or the team skill levels easily and re-compute the estimates quickly strengthens the effectiveness of the schedule. The Activity Duration Estimate Worksheet provides that functionality. The worksheet includes the following parts:

1. ID
2. Task
3. Baseline Effort (BE)
4. Resources
5. Skill Factor (SF)
6. Work Interruption Factor (WIF)
7. Multi Project Factor (MPF)
8. Project Productivity Influencing Factor (PPIF)
9. Effort Variance Factor (EVF)
10. Activity Hrs/Work Day
11. Duration Estimate (DE)

Activity Duration Estimate Worksheet

BE = Baseline Estimate
SF = Skill Factor
WIF = Work Interruption Factor
MPF = Multi Project Factor
PPIF = Project Productivity Influencing Factor

EVF = Effort Variance Factor
EE = Effort Estimate
Activity Hrs/Work Day = the number of hours the resource can work on the task each work day
DE = Duration Estimate

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ID	Task	BE (hrs)	Resources	* SF	* WIF	* MPF	* PPIF	= EVF	= EE(hrs)	/	Activity Hrs/Work Day	=	DE (days)

The effectiveness of the Activity Duration Estimate Worksheet is derived from four factors that together generate a measure called, “Effort Variance Factor.”

3.1.9.3 Effort Variance Factor (EVF)

When multiple team members are working on a project, their rate of performance (the speed at which they complete their tasks) can vary considerably. In fact, the productivity of the same person can vary widely depending on the quality of the work environment. This variance in the rate of different team member’s productivity can have dramatic results for the effort and time needed to complete a project. You must account for these variances while computing project estimates.

The reasons are many – team member’s skill and experience level, work interruptions, motivation, performance objectives, and the very nature of the work by IT/Business teams. Before realistic estimates can be computed, you need to profile various team members for their respective proficiency levels and derive a specific Effort Variance Factor (EVF). The EVF is a composite of the following productivity influencing factors:

- Skill Factor (SF)
- Work Interruption Factor (WIF)
- Multiple Project Factor (MPF)
- Project Productivity Influencing Factor (PPIF)

The EVF for a particular team member is computed as follows:

EVF = SF * WIF * MPF * PPIF

Each of the factors is used to develop a dynamic snapshot of the project schedule that will reflect rapid and unpredictable changes during the project life cycle. Definitions for Skill Factors, Work Interruptions, Multi-Projects, and Project Productivity Influencing Factors are described below.

3.1.9.4 Skill Factor (SF)

Of the four productivity-influencing factors listed above, the Skill Factor has the biggest influence on the time needed to finish a given task. The computation of a team member's Skill Factor is a two-step process:

1. Assess the individual's skill level and assign a numeric value.
2. Compute the individual's skill factor.

1. Assess Skill Level (SL)

In this step, the Project Manager reviews the information regarding the individual's experience and skill and assigns a numeric skill level value ranging from 1 to 4. For example:

> **Skill level 1** denotes a novice (trainee) resource. This person has a decent understanding of the subject matter, but has not worked independently on similar tasks. Typically, novice resources are *not* given primary responsibility for tasks. They may assist someone until a sufficient level of experience has been gained.
>
> **Skill level 2** denotes an individual who has an *average skill* in this or related tasks. This person has perhaps assisted someone engaged in similar tasks or has a theoretical understanding of the task.
>
> **Skill level 3** denotes an individual who has *above average skill* in the task and has a good understanding of the subject matter.
>
> **Skill level 4** denotes a *highly skilled* resource–a subject matter expert.

2. Compute Skill Factor (SF)

Once an individual's skill level has been determined, the next step is to compute the individual's s*kill factor*, which will reflect the *rate* at which the person will do his/her work – the *lower* the skill level, the *longer* the time needed to finish a given task.

Skill Factor Table

Skill Level	Description	Skill Factor
Proficient; Level 1	Fully experienced, subject matter expert	1
Proficient; Level 2	Fully experienced, extensive subject matter knowledge	1.1
Proficient; Level 3	Proficient at similar tasks, extensive subject matter knowledge, some learning curve required	1.2
Competent; Level 1	Competent in all task-related skills, solid knowledge of subject, good experience	1.4
Competent; Level 2	Competent at similar tasks, solid subject knowledge, some learning curve required	1.5
Competent; Level 3	Competent at basic skills for the task, mid-range subject knowledge, some experience	1.75
Learner; Level 1	Possesses basic competencies for the task, some subject knowledge, little experience	2
Learner; Level 2	Possesses most of the basic competencies for the task, some subject knowledge, little experience	2.25
Learner; Level 3	Possesses less than half of the basic competencies for the task, some subject knowledge, little experience	2.5
Novice; Level 1[1]	Some knowledge of subject matter, extensive training required in basic task competencies, good work habits	3
Novice; Level 2	Little knowledge of subject matter, complete training required in basic task competencies, good work habits	3.5
Novice; Level 3	No knowledge of subject matter, complete training required in basic task competencies, little or no work experience.	4

[1] Novice level resources should not be assigned the primary responsibility for tasks or deliverables, but rather should act as an assistant or helper to a more qualified resource.

3.1.9.5 Work Interruption Factors (WIF)

The Work Interruption Factor (WIF) is the measure of the loss of productivity as a result of unplanned interruptions *during* the work day. A natural result of any interruption is the accompanying extra effort associated with the time needed to re-focus and restart. The chart below is in the CA-PMM Toolkit in the Schedule Management Plan in its entirety. Studies have shown that the percentage of work time that is spent dealing with interruptions has a direct impact on the amount of extra effort that is required to complete tasks.

% of Lost Time Due to Interruption	WIF
5%	1.05
10%	1.11
15%	1.18
20%	1.25
25%	1.33

3.1.9.6 Multiple Project Factor (MPF)

The Multiple Project Factor accounts for the effort that is required to switch back and forth between tasks. It is based on the level of assignment that a resource has to the project being estimated.

Multi-Project Factor Table

% Assignment to the Project	M P F
75% Assignment	1.11
50% Assignment	1.18
25% Assignment	1.25

3.1.9.7 Project Productivity Influencing Factor (PPIF)

A number of additional factors can also have significant impact on the productivity of team members. Each factor is evaluated using a scale from 1 to 1.5:

- Team Size
- Team Locations
- Tool Stability
- Vendor Support
- Project Duration
- Number of Nemeses
- Turnover Rate
- Customer Locations
- Team Synergy
- Team-Client Synergy

Team Size: The value of 1 is used for teams of seven individuals. In the case of a larger team size, use a value greater than 1.

Team Locations: The value for this attribute is 1 if the team is limited to one location. Use a value of greater than one for more than one location due to travel, telephone tag, time zone differences, and other similar time consuming problems.

Tool Stability: The value is 1 when a tool has been in stable and consistent use by the team for at least three months. A tool in place for less than three months or that is still unstable would invariably require additional effort. Remember the last update of the operating system, the new version of the database, or that new equipment?

After the update, did it cause any hitches, or did everything go as smoothly as the vendor representative assured you? A value greater than 1 means that the tool is getting in the way of the team.

Vendor Support: The value for this factor is 1 when the vendor provides a quick (less than four hour turn around) response by a knowledgeable person who can actually *solve* the problem or *resolve* the issue. Poor vendor service and support would mean a value greater than 1. A value of 1.5 would mean that significant concerns must be addressed immediately.

Project Duration - The PPIF value is 1 when the project is six to seven months. If a project is longer than this range, e.g., nine months, the net effort to complete the project will be proportionately higher. This would mean a PPIF value of greater than 1.

Number of High Issue Stakeholders: Use the value 1 for up to three High Issue stakeholders with the belief that any astute Project Manager should be able to manage this level of problem. For more than three high issue stakeholders, use a value higher than 1.

Turnover Rate: We consider a staff turnover rate of 10 percent as normal. Any turnover greater than 10 percent can result in lost productivity by the team and would mean a value of greater than 1. A value of 1.5 would mean a turnover rate of 30 percent or more. What if the staff turnover rate exceeds 30 percent? This level of turnover indicates intrinsic, deep-rooted problems with the organization and any estimates you develop are going to be inaccurate because of a high inflow and outflow of people.

Customer Locations: The value for this attribute is 1 if the customer is limited to one location. Use a value of greater than one for more than one location due to travel, telephone tag, time zone differences, and other similar time consuming problems

Team Synergy: It is common knowledge that a well formed team with clear objectives, strong leadership, and high motivation will get much more work done in a shorter period of time. Conversely, a team with no clear leadership and conflicting objectives will certainly take longer to finish its assigned work. Therefore, it is important that you keep this factor in mind when developing estimates. The value of 1 is used for a team that works well together. A value of 1.5 for this factor would mean that the team is in a chaotic mode – members do not work well together and have lost their focus and drive.

Team-Client Synergy: This attribute is quite similar to the Team Synergy attribute. We know that some customers can be difficult to work with. A weak relationship with the customer would garner a value greater than 1.

Project Productivity Influencing Factors

Project Productivity Influencing Factors	Range: 1 to 1.5
Team Size	
Team Location	
Tool Stability	
Vendor Support	
Project Duration	
Number of Nemeses	
Turnover Rate	
Team Synergy	
Team-Client Synergy	
PPIF =	

3.1.9.8 Schedule the Work

Once the activity duration estimates are complete, the next step is to schedule the work. To develop a schedule, plot the resource-based estimates on a calendar. The steps required to create a viable schedule are:

- Define Cross-Project Dependencies.
- Build Organization Calendar.
- Specify Team Member Information.
- Specify Team Member Calendars.
- Specify Lags.
- Build Project Schedule.

3.1.9.9 Define Cross-Project Dependencies

Before building the project schedule, you must have a clear understanding of the cross-project dependencies that exist for the project. The project may be dependent on timely completion of certain deliverables by other project teams. Similarly, other teams may be dependent on completion of certain deliverables of the project being scheduled. It is important to identify all such dependencies and incorporate those dependencies into the project schedule.

3.1.9.10 Build Organization Calendar

This calendar defines the working and non-working dates and times at the organization level. When setting up the organizational calendar for the project, be sure to indicate such information as:

- Official Holidays
- Weekends
- Pre-planned Business Events
- Default Working Hours

3.1.9.11 Specify Team Member Calendars

The calendar for individual team members mimics the same format and structure as the organizational calendar. It is modified for each team member to account for such non-work periods as vacations, sick leave, off site-training, and travel--as well as for their working hours per day. Most software packages use 8-12 and 1-5 as the default working hours. You can adjust the default time for different team members if needed.

Although the organization's calendar stays fairly stable throughout the year, individual calendars for IT/Business professionals are seldom stable for more than three months at a time. This assumption is especially true for people who are assigned less than fulltime to the project. Therefore, it is important that both the individual team members and the Project Manager keep a close eye on these calendars.

3.1.9.12 Build Task List

At this point, enter the detailed task list (phases, deliverables, and tasks) and their dependencies, predecessor, and successor relationships into the software package.

Remember that the task network developed using the *Post-it® notes* to plan the project is the source of the dependencies for various tasks. Entering task dependency relationships into a software package can be time consuming and tedious work because the project often entails a long list of tasks.

Most of the project management software packages typically employ more than one method to specify task dependency relationships. Since this step is quite error prone, make sure that you and/or your team understand the intricacies of the different methods and use them correctly. Asking someone to verify the assigned dependencies is important because any errors in the dependency relationship will produce an incorrect schedule with errors that will require correction.

3.1.9.13 Specify Task Assignments, Effort, and Duration

This step involves assigning individual team members to the various tasks in the project plan as well as specifying the effort and duration of each task (these are the estimates

developed in the Activity Duration Estimating Worksheet). Any given software package may offer more than one method of entering the task effort and duration information. Make sure that everyone on the team understands the various methods and their implications and uses them correctly.

3.1.9.14 Specify Lags

When tasks are entered into a software package, the default dependency between any two tasks is Finish-To-Start with no lag. Some examples of lags are:

- **Consider two consecutive tasks:** Order Workstations and Install Workstations. Typically, a certain amount of lag exists between the task of ordering and the task of installing–the wait time for the hardware to arrive. This wait time will typically be added as a Finish-To-Start dependency with a lag value of a certain number of days or weeks.

- **Consider a situation where a specific team member is needed to complete certain work:** Using Internet security testing as an example, the Project Manager discovers that the software development group will be finished by March 15, but the individual needed to conduct security testing will not be available for seven more days (after March 15). This delay in availability needs to be entered as a lag.

3.1.9.15 Build Project Schedule

Once the basic information needed for the project management software to build the project schedule has been entered, initiate the schedule build in one of two ways:

- Specify project start date.
- Specify project end date.

3.1.9.16 Specify Project Start Date

It is extremely important to make sure that the planned start date of the project is realistic; i.e., the appropriate resources *will* start work on their assigned tasks.

3.1.9.17 Specify Project End Date

Most project management software packages have a feature that allows the entry of the desired finish date of the project after loading the detailed task list, dependencies, and estimated durations. At this point, the system performs a set of calculations and computes the start date of the project; this is often referred to as *backward scheduling*.

If the computed start date is in the future, it marks the latest date you must start the project in order to finish it by the desired end date. If the computed date is in the past, the project is already behind schedule. The variance between the software computed start date and the planned start date is the number of days you will need to compress in order to finish the project by the desired end date.

3.1.10 Procurement Management Plan

The Procurement Management Plan involves “determining which project needs can best be met by purchasing or acquiring products, services, or results outside the project organization, and which project needs can be accomplished by the project team during project execution” (PMBOK®). It is in this process that “make or buy” decisions are made. It includes the following:

- A determination of what is required to meet the needs.
- A review of the associated risks.
- Whether or not it should be purchased.
- Consideration of potential sellers.
- How much is required.
- When it needs to be acquired.
- What type of contract is best suited?

3.1.10.1 The Procurement Management Plan includes Components

- Process to hire vendors
- Acquisition Plan
- Category – Hardware, Software, Other
- Item – the item being purchased
- Approximate cost of the item being purchased
- The type of solicitation instrument being used
- The type of procurement being used (CMAS, MSA, etc.)
- A space to stipulate a procurement type other than those listed in the drop down menu.
- The reasoning behind the choice of procurement type
- A list of any known vendors who can provide the goods or services
- The WBS ID# for the item being purchased
- The date by which procurement approval must be received

Project Name:

OCIO Project #:
Department:
Revision Date:

Procurement Management Plan

Describe the process that will be used to hire vendors.

The process that will be used to hire vendors is

Acquisition

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Category	Item	Approximate Cost	Solicitation Type	Procurement Type	Other Type	Rationale for Procurement Type	Known Prospective Vendors	WBS ID#	Approval Needed by

3.1.10.2 Protecting the State's Investment

Protecting the State's Investment involves these elements:

- The term of the contract
- How the vendor will be evaluated
- A cap for the number of billable hours allowable
- A process for negotiating the billing rate for vendor personnel who may be substituted for the personnel who were initially assigned to the project
- Payment protections for the State that ensure that the State is getting what it is paying for

Protecting the State's Investment

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Item	Approximate Cost	Term of Proposed Contract	Cap for Billing Hours	Process to Negotiate Billing Rates for Substitute Personnel	Planned Payment Protections

3.1.11 Contract Management Plan

The Contract Management Plan "[documents] the products, services, and results requirements," (PMBOK®) needed to meet a project's objectives.

3.1.11.1 The Contract Management Plan Components

- Introduction
  - Where is the repository located at for all project-specific contract documentation?
  - Describe the process to be used to monitor contractors.

Project Name:
OCIO Project #
Department:
Revision Date:

Contract Management Plan

Introduction

Where is the repository located at for all project-specific contract documentation?

The repository for all project contract documentation is located

Describe the process that will be used to monitor the contracts.

The process used to monitor contracts is

3.1.11.2 Participant Roles & Responsibilities

- Number
- Name
- Item
- Department Roles
- External Roles
- Notification of Contract Award
- Conflict of Interest
- Contractor Orientation Process

Participant Roles & Responsibilities

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#	Name	Item	Department Roles	External Roles	Notification of Contract Award	Conflict of Interest	Contractor Orientation Process

3.1.11.3 Contract and Invoice Approval Authorities

- Number
- Name
- Item
- Review and Recommend – the individuals who will review the contract and make recommendations
- Primary Approval For Contract – the individual who will officially approve the contract
- Review and Recommend Regarding Deliverables – the individuals required to review and make recommendations regarding the deliverables
- Deliverable Approval – who will officially approve the deliverable
- Invoice Approval – who is authorized to approve the invoice for payment

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#	Name	Item	Review and Recommend	Primary Approval For Contract	Review and Recommend Regarding Deliverables	Deliverable Approval	Invoice Approval

3.1.11.4 Contractor Performance Management

- Number
- Name
- Item
- Performance Monitoring Process – how performance will be monitored
- Deficiencies/Disputes Management – how deficiencies will be resolved
- Status and Progress Reporting Process – how progress data will be collected and reported
- Contractor Staffing Monitoring – how vendor staff will be monitored
- Contractor Staff Replacement Process – how vendor staff will be replaced if necessary

Contractor Performance Management

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#	Name	Item	Performance Monitoring Process	Deficiencies /Disputes Management	Status and Progress Reporting Process	Contractor Staffing Monitoring	Contractor Staff Replacement Process

3.1.11.5 Contract Management

- Number
- Name
- Item
- Invoice Processing – how invoices will go from submittal to pay
- Invoice Metrics – the metrics that will be used to manage the contract such as age, disputed invoice value, cost per invoice line item, etc.
- Contract Amendment Process – the process used to create changes and additions to the contract.

Contract Management

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#	Name	Item	Invoice Processing	Invoice Metrics	Contract Amendment Process

3.1.11.6 Closing the Contract

- Number
- Name
- Item

- Closing Process – a description of the formal process that will be used to close the contract
- Final Work Products – a list of the final work products
- Contractor Performance Review - who and how will the final performance be reviewed
- Final Invoice Processing – who and how will the final invoice be processed
- Contract Records Archive – where is the contract to be stored upon completion of the project

Closing the Contract

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#	Name	Item	Closing Process	Final Work Products	Contractor Performance Review	Final Invoice Processing	Contract Records Archive

3.2 Organizational Change Management Plan

Projects by their very nature generate changes in an organization. A project that has been approved, even with a strong champion, does not mean there will be no resistance within the organization.

Here are some possible sources of resistance:

- People have developed certain competencies and a level of comfort with the current process; they have invested extensive energy and time in learning and mastering it.

- The more senior and experienced people consider their current level of expertise as their professional asset. Their level of expertise sets them apart from the more junior and new colleagues. With the deployment of the new system, they will have to give up the old and embrace the new, thereby reducing many of them to novice level. Their future professional performance will be judged on their ability to quickly master the new processes and interfaces.

- If users are asked to describe their view of the current system, some of the terms will certainly be: familiar, knowledgeable, expert, predictable, and know how to work around problems. In reference to the new system, most of them are sure to use terms like: unfamiliar, unproven, start at the bottom, apprehension, fearful, and feelings of inadequacy.

The Organizational Change Management Plan dovetails with the Communication Management Plan and stakeholder analysis. Identified stakeholders are assessed in terms of their awareness of the project, the influence they can exert, determination of any resistance or concerns they may have, identification of optimum communication, and a summary of actions to be taken. Stakeholder training is also detailed in the plan.

Time spent proactively understanding how various stakeholders will be impacted by the change being introduced will significantly reduce risks. Stakeholders with little resistance to the change may be good change agent candidates. These stakeholders can act as communication allies by helping the project team socialize the benefits of the change being introduced and function as sympathetic ears to those who might be adversely affected by the change.

Resistors of change must be prioritized. Every effort must be made to understand the sources of their resistance. Articulating a strategy and identifying best channels of communication for resistors is at the heart of the Organizational Change Management.

The Organizational Change Management Plan includes the following components:

- Action Planning
  - Stakeholder – the individual or entity that will be impacted
  - Awareness – the level of awareness the stakeholder has regarding the upcoming changes
  - Influence – the level of influence the stakeholder has in the organization
  - Responsiveness – the degree to which the stakeholder is responding to requests for participation in the project
  - Known Concerns – the concerns the stakeholder has regarding the upcoming changes
  - Optimum Communication Channel – the best way to communicate with the stakeholder
  - Proposed Actions – the actions that will prepare the stakeholder for the upcoming changes

Project Name:

OCIO Project #:

Department:

Revision Date:

Organizational Change Management Plan

Action Planning

Stakeholder	Awareness	Influence	Responsiveness	Known Concerns	Optimum Communication Channel	Proposed Actions

3.2.1 Stakeholder Training Plan

Change often requires well coordinated communication, learning, and training. These need to be identified at the front end of the project. This allows the project team to optimize the best performance strategy for each stakeholder. One stakeholder may benefit from traditional training while another may only need a job aid. There is not a one size fits all training strategy.

The Stakeholder Training Plan includes the following pieces of information:

- Stakeholder
- Training Required
- Type of Training Required
- When
- Provider
- Action Required

Stakeholder Training Plan

Stakeholder	Training Required	Type of Training Required	When	Provider	Action Required

3.3 Maintenance and Operations (M&O) Transition Plan

Projects must include a plan for how they will be transitioned to the operational team that will own the new system. Projects enter maintenance and operations when the new system is implemented. Until that time, there needs to be a bridge built between the team executing development, the transition team, and the operations team. Throughout the life cycle all change management activities need to be mapped to either existing change management processes or, if they are going to follow any unique procedures at any given point in the life cycles, these need to be documented and justified in this plan.

3.3.1 Prepare the Operations Group

The project team needs to define the procedures to be followed by the operations group for day-to-day operation of the project's end product. Most often, the operation group's steps are quite repeatable, but still need to be defined, reviewed, approved, and put into place. It is recommended that Project Managers use SMEs from the operations group to help them through these steps.

The first step to a successful transition is to identify the key stakeholders related to project implementation and its continuing operations. Review the list of possible stakeholders presented below and create a list that is reflective of the project:

- Data Center Operations
- Database Administration and Support
- Hardware and Software
- Help Desk
- Network and Desktop Support
- Production Control
- Quality Assurance
- Security
- Technical Support
- Telecommunications (Voice) Support
- Vendor Support Groups

The following list includes typical deliverables/steps that need to be considered to move the project from the development mode into operations mode:

- Change Management Policies and Procedures
- Database Performance Monitoring, Tuning, and Data Archiving Plan
- Desktop Management Team Policies and Procedures
- Desktop Management Team Training Plan and Schedule
- Disaster Backup/Recovery Policies and Procedures
- Disaster Backup/Recovery Testing Plan and Schedule
- Disk/Storage Monitoring and Management Plan
- Downtime and Preventative Maintenance Plan
- Hardware/Software Vendor and License Management Plan
- Help Desk Policies and Procedures
- Help Desk Team Training Plan and Schedule
- Network Monitoring, Management, and Performance Tuning Plan
- Network Management Team Training Plan & Schedule
- Parallel Test Plan and Schedule

- Production Readiness Certification
- Production Rollout Communication Plan
- Production Rollout Schedule
- Production Turnover Documents
- Security Policies and Procedures
- Security Team Training Plan and Schedule
- System Technical Support Plan, Policies and Procedures
- System/Data Audit Policies, Procedures and Schedule

Work closely with the operations group to develop a plan to fit the needs of the project. The optimum time to talk to the operations group is during the Planning Stage and Executing Stage to preplan the work long before the project is ready for deployment.

The Maintenance & Operations Transition Plan includes the following components:

- Introduction
  - Where is the repository located for all M&O Transition documentation?
  - What tools will be used for managing M&O Transition?
- Completed
  - Disaster Recovery Plan
  - ISO Compliant
  - Business Continuity Plan
  - M & O Training Plan
  - Service Level Agreements
- Participant Roles & Responsibilities
  - Department Roles (e.g., Project Sponsor, Executive Steering Committee, Project Director, Project Manager, and Project Team members.)
  - Federal Sponsor
  - Contractors
  - Counties/Local Offices
- M&O Transition Steps
  - What is the process to be followed for managing the M&O Transition?
  - What is the process to be followed for transition close out?
  - What are the metrics that will be used to document, track, and analyze trends regarding the status of M&O Transition activities?

Project Name:

OCIO Project #:
Department:
Revision Date:

Maintenance & Operations Transition Plan

Introduction

Where is the repository located for all project M & O Transition documentation?

The repository for all M & O Transition documentation is located

What tools will be used for managing M & O Transition?

Tools that will be used for managing M & O Transition include

	Completed	Access Location
Disaster Recovery Plan		
ISO Compliant		
Business Continuity Plan		
M & O Training Plan		
Service Level Agreement		

Participant Roles & Responsibilities

Department Roles

What are Department roles for M & O Transition Management?

The Department roles for M & O Transition are

Project Sponsor

What will be the role for Project Sponsor for M & O Transition Management?

The role for the Project Sponsor for M & O Transition is

Federal Sponsor

If there is Federal Partners, what will be the role for the Federal Partners for M & O Transition Management?

The role of the Federal Partners for M & O Transition is

Contractors

What will be the role for Contractors for M & O Transition Management?

The role of the Contractors for M & O Transition is

Counties/Local Offices

Will there be a role for Counties and Local Offices for M & O Transition Management?

The role of the Counties/Local Offices for M & O Transition is

M & O Transition Steps

What is the process to be followed for managing the M&O Transition?

The process that will be followed for M & O Transition is

What is the process to be followed for transition close out?

The people affected by the work involved motivational level is

What are the metrics that will be used to document track and analyze for trends regarding the status of M&O transition

The metrics for the status of the M & O transition are:

CA-PMM

Executing Stage

CA - Project Management Methodology

Execution

Project Name: _____

OCIO Project #: _____

Department: _____

Click on the section that you would like to complete.

Deliverable Acceptance Criteria

Status Report

Sponsorship Commitment Survey

Team Effectiveness (Disposition) Survey

Benefit Validation

4.0 Executing Stage

4.1 Purpose

The purpose of the Executing Stage is to "complete the work defined in the Project Charter and to distribute information to the stakeholders. The project team must consider each of the processes and determine which are required for successful completion of the project.

During the Executing Stage, the team begins to work to produce project deliverables, and the Project Manager oversees the team's progress to the planned end of the project.

Monitoring and Controlling Processes occur simultaneously during Executing, as during the other stages. As a result, variances in activity durations, resource availability or productivity, or unanticipated risks may be discovered. This could trigger change requests that may require re-planning and changes to the project management plan.

The Executing Stage is made up of the following components:

- Deliverable Acceptance Criteria
- Status Report
    - Vital Signs
    - Team Effectiveness (Disposition) Survey
    - Sponsorship Commitment Survey
- Project Management Plan Updates
- Benefit Validations
- Customer Acceptance
- Product Implementation

4.2 Deliverable Acceptance Criteria

Every deliverable of a project needs to be monitored. Project Managers need to negotiate the acceptance criteria of each deliverable with appropriate stakeholders. Where applicable, stakeholders should help define acceptance criteria for deliverables. This eliminates confusion and gives stakeholders a sense of ownership and control. All of this translates into reduction of risk and an increase in value.

Every deliverable is evaluated against the criteria and must include a signoff. For deliverables failing to meet a criteria further action is defined during Customer Acceptance.

The Deliverable Acceptance Criteria Form includes the following information:

1. Number – the unique identification number given to the deliverable either from the Work Breakdown Structure or from the project schedule.

2. Deliverables – the items that must be produced that make up the product of the project and the elements of the process used to complete the project. Some will be populated from earlier worksheets.
3. Acceptance Criteria – the specific conditions that must be in place that signal the completion of the deliverable.
4. Signoff Authority – the individual in the receiving organization that will officially accept the deliverable as complete.
5. Meets Yes/No – indicates whether or not the deliverable meets the acceptance criteria as submitted.
6. Action Required – if the deliverable does not meet the acceptance criteria describe the actions that must be taken.
7. Sign-off Date – the date that acceptance actually occurs.

Project Name:

OCIO Project #:
Department:
Revision Date:

Deliverable Acceptance Criteria

Indicate deliverables which require formal acceptance:

Add Row | Delete Row | Lock Header | Unlock Header

No.	Deliverables	Acceptance Criteria	Sign-off Authority	Meets Yes/No	Action Required	Sign-off Date

4.3 Status Report

To enable the project team to distribute timely information to stakeholders, regularly scheduled project status reports are developed. A Project Manager needs to focus not only on the current status but also what will take place in the near future. Knowing where a project is supposed to be is a tough question to answer, but essential in assessing how to proceed. Progress reviews often focus on what people *have* been busy doing instead of focusing on where they are, and what *remains* to be done. Project Managers *must* look ahead if they expect to avoid obstacles in their path. Looking ahead is the essence of successful project progress assessment and control.

Project teams need a simple, streamlined method of communicating status reports to various stakeholders throughout the life of a project. Status reports capture four snapshots to facilitate communication and document all project progress:

1. Team Member to Project Manager
2. Project Manager to Sponsor (submitted to OCIO)
3. Sponsor to Steering Committee (submitted to OCIO)
4. Monitoring Vital Signs Scorecard

1. Team Member to Project Manager

This report is used on a weekly basis by team members to document their activities and identify any outstanding issues that require the team's attention. The form includes the following information:

- Task or Deliverable – the name of the task or deliverable that is being reported on.
- Scheduled Completion Date – the originally scheduled completion date.
- Actual Completion Date – the date the task or deliverable is actually completed.
- Issues – describe any open issues regarding this task or deliverable (unanswered questions, differences of opinion, etc.).
- Accomplished This Week – describe any significant work or pieces of work that were done.
- Planned/Scheduled Completion in Next Two Weeks – describe the tasks or deliverables that are schedule to be completed in the next two weeks.
- Status Summary – provide a yes or no response and an explanation for all "no" responses.
    - Will all assigned tasks be accomplished by their due date?
    - Are there any planned tasks that won't be completed?
    - Are there problems which affect your ability to accomplish assigned tasks?
    - Do you plan to take time off that is not currently scheduled?
- Status of Assigned Issues

- Issue Number – unique identification number from the Issue Log
- Description – provide a brief description of the issue
- Due Date – provide the date that resolution needs to be in place
- Status – describe what has been done to resolve the issue thus

Progress Report -- Team Member to Project Manager

Current Task Summary

Task or Deliverable	Scheduled Completion	Actual Completion	Issues?

Accomplished this week

Planned/Scheduled Completion in Next Two Weeks

Status Summary	Yes/No	Explanation
Will all assigned tasks be accomplished by their due date?		
Are there any planned tasks that won't be completed?		
Are there problems which affect your ability to accomplish assigned tasks?		
Do you plan to take time off that is not currently scheduled?		

Status of Assigned Issues

Issue Number	Description	Due Date	Status

2. Project Manager to Sponsor

Project Managers must keep project Sponsors up to date. The Communication Plan may detail other forms and methods of communicating. At a minimum, Project Managers need to document status updates for Sponsors on a regular basis. The Project Manager to Sponsor report must be submitted to the Office of the State Chief Information Officer (see SIMM Section 05A.)

The status report is broken into five areas (Current Status Report, Look Ahead View, Current Status and Accomplishments, Project Milestones and Variances). Any element of the project can be classified as being:

- Green – small variance that can be managed by the project team

- Yellow – moderate variance that will require consultation with the Sponsor
- Red – significant variance that will require adjustments to scope, schedule, budget, or quality expectations

The actual numerical value associated with green, yellow, and red must be established during the Planning Stage of the project for each of the individual elements that will be measured.

The six dimensions for measuring variance are:

1. Schedule
2. Milestones
3. Deliverables
4. Resources
5. Time Cost
6. Continuing Cost

Information for each area of the report has the following parts:

- Current Status Report
    - Were recent milestones completed on schedule?
    - Were any key milestones or deliverables rescheduled?
    - Was work done that was not planned?
    - Were there any changes to scope?
    - Were tasks added that were not originally estimated?
    - Were any tasks or milestones removed?
    - Were any scheduled tasks not started?
    - Are there any major new issues?
    - Are there any staffing problems?

Status Report – Project Manager to Sponsor

Current Status Report

Questions	Yes/No	Description	Impact	Action Required
1. Were recent milestones completed on schedule?				
2. Were any key milestones or deliverables rescheduled?				
3. Was work done that was not planned?				
4. Were there any changes to scope?				
5. Were tasks added that were not originally estimated?				
6. Were any tasks or milestones removed?				
7. Were any scheduled tasks not started?				
8. Are there any major new issues?				
9. Are there any staffing problems?				

- Look Ahead View
  - Will upcoming critical path milestones or deliverables be completed on schedule?
  - Do any key milestones or deliverables need to be rescheduled?
  - Is there any unplanned work that needs to be done?
  - Are there any expected or recommended changes to scope?
  - Are there any tasks not originally estimated that will need to be added?
  - Are there any tasks or milestones that should be removed from the plan?
  - Are there any scheduled tasks whose start will likely be delayed?
  - Are there any staffing problems anticipated?
  - Current Status and Accomplishments

Look Ahead View

Questions	Yes/No	Impact	Action Required
1. Will upcoming critical path milestones or deliverables be completed on schedule?			
2. Do any key milestones or deliverables need to be rescheduled?			
3. Is there any unplanned work that needs to be done?			
4. Are there any expected or recommended changes to scope?			
5. Are there any tasks not originally estimated that will need to be added?			
6. Are there any tasks or milestones that should be removed from the plan?			
7. Are there any scheduled tasks whose start will likely be delayed?			
8. Are any major new issues foreseeable?			
9. Are any staffing problems anticipated?			

Current Status and Accomplishments:
Describe deliverables completed and milestones met during ***this reporting period.***

- Project Milestones – report on the milestones that were planned for that reporting period
- Variances – report variances against schedule, milestones, deliverable completion, resource availability, time cost and continuing costs

Project Milestones:
List key milestones and their dates from the project schedule.

Milestone	Target Date	Forecast Date	Status	Cause & Impact to Implementation Date	Date Completed

Variances
Check the appropriate box for each project element listed below. Please describe the actions you plan to take for those items marked "Caution" or "Significant Variance".

	On Plan <5%	Caution 5-10%	Significant Variance >10%	Action Required
Schedule				
Milestones				
Deliverables				
Resources				
OneTime Cost				
Continuing Cost				

3. Sponsor to Steering Committee

The Sponsor provides a Status Report for a project's Steering Committee. This is a high-level snapshot of the project. Steering Committees are most concerned with quickly looking at how milestones are being achieved and any area of a project that is in either the yellow or red. This report is a subset of the data that the Project Manager provides the Sponsor. Specifically, it is a report of the Project Milestones and the Variances. The Sponsor to Steering Committee report must be submitted to the Office of the State Chief Information Officer (see SIMM Section 05A.)

Status Reports – Sponsor to Steering Committee

Summary Milestones and Highlights

Project Milestones:
List key milestones and their dates from the project schedule. Explain in issues section if a milestone's status is behind.

Milestone	Target Date	Forecast Date	Status	If Delayed, Impact to Implementation Date	Date Completed

Variances
Check the appropriate box for each project element listed below. Please describe the actions you plan to take for those items marked "Caution" or "Significant Variance".
* *Priority of schedule, scope, budget, and quality from Final Ranking established in the Priority Analysis*

	On Plan <5%	Caution 5-10%	Significant Variance >10%	Action Required
Schedule				
Milestones				
Deliverables				
Resources				
One Time Cost				
Continuing Cost				

➲Note: This template is automatically populated from the Project Manager to Sponsor Status Report.

4.4 Monitoring Vital Signs

Project vital signs are aggregate indicators of the overall health of the project and must be monitored frequently. This will allow the Project Manager early identification of risks. There are fifteen vital signs of a project to monitor.

1. Customer Buy-In
2. Technology Viability
3. Status of the Critical Path (delay)
4. Cost-to-Date vs. Estimated Cost-to-Date (higher)
5. High-Probability, High-Impact Risks
6. Unresolved Issues (on time resolution)
7. Sponsorship Commitment
8. Strategy Alignment
9. Value-to-Business
10. Vendor Viability
11. Milestone Hit Rate (rate of achievement as planned)
12. Deliverable Hit Rate (rate of production as planned)
13. Actual vs. Planned Resources
14. Overtime Utilization (% of effort that is overtime)
15. Team Effectiveness

The Sponsor and the Project Manager jointly decide which signs to use and specify the respective thresholds. The best approach to track and report a project's health using the vital signs is a three-step process:

- Define the thresholds for Green, Yellow, and Red conditions for each vital sign.
- Assign a numeric (weight) value to the Green, Yellow, and Red conditions of each vital sign.
- Define the threshold values for Green, Yellow, and Red status for the project as a whole.

Strategic: Vital Signs 1 – 6. These vital signs focus on why we are doing the project and whether it is the right project. Abnormal variance in any of these vital signs calls for a serious re-evaluation of the project and needs to be discussed with the Sponsor without delay.

Tactical: Vital Signs 7 – 13. These vital signs focus on how well we are accomplishing the goals of the project. Although abnormal variances in this area can also have a high degree of negative impact on the project, it is much easier to recover from the resulting problems.

Environmental: Vital Signs 14 – 15. These vital signs relate to the work environment. These factors are difficult to institute and measure as they relate to the management style of a particular organization, but nevertheless are important to everyone involved.

The Project Manager then monitors the selected vital signs, each of which can have the following status:

- Green: All is well (score of 0-8)
- Yellow: Caution, trouble ahead (score of 9 – 19)
- Red: Danger, measurable negative impact on the project (score of 20+)

Green: For a given vital sign, a green flag means the variance between planned and actual, if any, is within an acceptable range. For example, in the case of the critical path, a variance (delay) of up to 10 percent may be defined as being normal and acceptable, as the team members have the ability to close the gap between planned and actual.

Yellow: For a given vital sign, a yellow flag indicates the point at which a breach in the performance of that vital sign will begin to negatively impact the project progress; it is usually beyond the team's own ability to recover from the problem. For example, in the case of the critical path of a project, a variance (delay) between 10 to 20 percent is defined as a Yellow condition. If a vital sign reaches this state, the Project Manager needs to meet with the appropriate team members, and at times with their functional managers, and put a plan into action to bring the vital sign back into the Green status.

Red: For a given vital sign, a red flag indicates the point at which a breach in the performance of that vital sign is beyond the Project Manager's ability to recover from the problem and the project's success is in jeopardy. For example, in the case of the critical path, a variance (delay) of greater than 20 percent is defined as a Red condition. Once a given vital sign reaches the Red condition, the Project Manager needs to meet with the functional managers of the appropriate team members and devise a plan of recovery.

Monitoring Vital Signs Scorecard

Vital Sign	Variance	Value	Your Score
1. Customer Buy-In	High Degree of Buy-In	0	
	Medium Degree of Buy-In	1	
	Low Degree of Buy-In	2	
2. Technology Viability	Strong Viability	0	
	Medium Viability	1	
	Weak Viability	2	
3. Status of the Critical Path (delay)	<5%	0	
	5% to 10%	1	
	>10%	2	
4. Cost-to-Date vs. Estimated Cost-to-Date (higher)	<5%	0	
	5% to 10%	1	
	>10%	2	
5. High-Probability, High-Impact Risks	0 to 3	0	
	4 to 6	1	
	>6	2	
6. Unresolved Issues (on time resolution)	On time	0	
	Late with no impact	1	
	Late impacting the critical path	2	
7. Sponsorship Commitment	Fully engaged	0	
	Partially engaged	1	
	Inadequate enagement	2	
8. Strategy Alignment	Strong alignment Partial alignment	0 1	
	Weak or no alignment	2	
9. Value-to-Business	Strong	0	
	Medium	1	
	Weak	2	
10. Vendor Viability	Strong	0	
	Medium	1	
	Weak	2	
11. Milestone Hit Rate (rate of achievement as planned)	>90% on time	0	
	80-90% on time	1	
	<80% on time	2	
12. Deliverable Hit Rate (rate of production as planned)	>90% on time	0	
	80-90% on time	1	
	<80% on time	2	
13. Actual vs. Planned Resources	>90% assigned and available	0	
	80-90% assigned and available	1	
	<80% assigned and available	2	
14. Overtime Utilization (% of effort that is overtime)	<15%	0	
	15-25%	1	
	>25%	2	
15. Team Effectiveness	Highly Effective	0	
	Moderately Effective	1	
	Ineffective	2	
		Total	0

Green = 0 - 8
Yellow = 9 - 19
Red = 20+

4.4.1 Customer Buy-In

This vital sign is designed to assess the degree of ongoing buy-in to the project by key implementation-level stakeholders. It is not uncommon for a team to continue working on a project while there is widespread dissatisfaction among the key customers. Buy-in, like the other strategic vital signs, is difficult to measure because inherently it is a qualitative assessment. This vital sign is best assessed through discussion and observation. The status of this vital sign can be interpreted as follows:

- High Degree of Buy-In: Green
- Medium Degree of Buy-In: Yellow
- Low Degree of Buy-In: Red

4.4.2 Technology Viability

This vital sign is designed to assess the viability of the technology infrastructure being used to develop and deploy the project. Key questions to ask are:

- Is the enabling technology available and viable for project development?
  There is the need to monitor scope growth because it invariably results in putting additional pressure on the performance capabilities of the system. A key purpose of this vital sign is to make sure that the technology remains viable as any new scope is incorporated into the system.
- Will the technology escalate easily to meet the project's operational requirements?
- Can it be supported by the IT organization?
- Will the customers be able to adopt it?

The status of this vital sign can be interpreted as follows:

- High Degree of Viability: Green
- Medium Degree of Viability: Yellow
- Low Degree of Viability: Red

4.4.3 Status of the Critical Path

This vital sign is used to track the progress of the project along its critical path and to answer the question, “Is the project on schedule?” The status of the critical path is a specific metric, and it clearly communicates to the Sponsor whether the project is on schedule, ahead of schedule, or behind schedule.

The status of the Critical Path vital sign can be interpreted as follows:

- Breach of < 5%: Green
- Breach of 6% to 10%: Yellow
- Breach of > 10%: Red

4.4.4 Cost-to-Date

As the project proceeds down its development path, it is imperative that the actual cost-to-date be compared to the estimated cost-to-date, and that the Project Manager carefully monitors any breach, i.e., overspending. The status of this vital sign can be interpreted as follows:

- Breach of < 5%: Green
- Breach of 6% to 10%: Yellow
- Breach of > 10%: Red

4.4.5 High Probability, High Impact Risk Events

This vital sign measures the number of high level risks that have been identified for the project. The status of this vital sign can be interpreted as follows:

- 1 to 3 Risks: Green
- 4 to 5 Risks: Yellow
- 6 to 7 Risks: Red

4.4.6 Unresolved Issues

An issue can be anything from an unanswered question to a difference of opinion. Unresolved issues are like potholes; if left open they will grow and impact the performance of the team and the quality of the end product. In most cases, an issue remains unresolved because of inadequate communication and direction or because the team is not a unified body.

The Project Manager has the responsibility to discover why an acknowledged issue remains unresolved and to apply all necessary skills to make the team of one mind. In some cases, the Sponsor, or a subject matter expert, may need to direct the team members to put their differences aside and agree to disagree.

In an effort to monitor the resolution of issues in an orderly manner, the Project Manager assigns a specific date by which an issue must be resolved, and the Sponsor reviews the aging history of unresolved issues. Issue resolution is measured in terms of impact to the critical path. Ideally, issues will be resolved on time according to the issue resolution plan. Issues that are resolved past the due date signal a problem developing and issues resolved late resulting in a negative impact to the critical path raise a red flag.

The status of this vital sign can be interpreted as follows:

- On time: Green
- Late with no impact: Yellow
- Late impacting the critical path: Red

4.4.7 Strategy Alignment

Determine whether the project continues to fit with the currently stated organizational strategy. It is recommended that the Project Manager and the sponsor specifically discuss the project's alignment with the current organizational strategy during their monthly project update meeting. The status of this vital sign can be interpreted as follows

- Full aligned: Green
- Somewhat aligned: Yellow
- No alignment: Red

4.4.8 Value-To-Business

A reasonable assumption is that the Project Charter for any given project is approved only if it shows sufficient value to the organization. However, as a project progresses along its life cycle, certain assumptions and realities can change and the project's value can be compromised. The necessary information regarding this vital sign needs to be collected and provided by the appropriate *business* representative(s). The status of this vital sign can be interpreted as follows:

- High Value-To-Business: Green
- Medium Value-To-Business: Yellow
- Low Value-To-Business: Red

4.4.9 Vendor Viability

For projects that are outsourced or have a considerable number of vendor-supplied consultants/contractors on the project team, this vital sign is particularly important. The Project Manager collects the background information for this vital sign with help from the Sponsor, senior team members, procurement (purchasing) department, and other Project Managers. The status of this vital sign can be interpreted as follows:

- High Viability: Green
- Medium Viability: Yellow
- Poor Viability: Red

➲Note: The Vendor Viability Rating must be accompanied by a narrative that explains the rationale that supports the rating.

4.4.10 Milestone Hit Rate

A milestone is a point of considerable progress in the project such as the completion of significant deliverables, as well as the start and/or end of selected tasks. The milestone hit-rate indicates the number of milestones the team was planning to hit and the number of milestones they actually hit during a specific reporting period. The status of this vital sign can be interpreted as follows:

- Breach of < 10%: Green
- Breach of 10% to 20%: Yellow
- Breach of > 20%: Red

4.4.11 Deliverable Hit Rate

Whereas milestones measure the speed at which the team is moving toward its goal, the deliverables tell us about the team's accomplishments. It is important that the Project Manager and the Sponsor monitor the team's accomplishments in terms of deliverables planned for completion versus the number of deliverables actually completed. The failure of the team to maintain a consistent deliverable hit rate suggests that there are deep-rooted issues that need to be resolved.

The status of this vital sign can be interpreted as follows:

- Breach of < 10%: Green
- Breach of 10% to 20%: Yellow
- Breach of > 20%: Red

4.4.12 Actual Resources vs. Planned Resources

This vital sign measures the gap between the number of resources that were assumed for planning and estimating and the actual number of resources that are actually assigned to work on the project. The status of this vital sign can be interpreted as follows:

- Breach of < 10%: Green
- Breach of 10% to 20%: Yellow
- Breach of > 20%: Red

4.4.13 Overtime Utilization

This vital sign measures the amount of project effort that is accomplished outside of the normal workday or work week. Sustained use of overtime for hourly employees drives up the cost of the project, and sustained use of overtime for exempt employees tends to have a negative impact on the quality of the end product. The status of this vital sign can be interpreted as follows:

- Overtime < 15%: Green
- Overtime Between 15% – 25%: Yellow
- Overtime >25%: Red

4.4.14 Sponsorship Commitment Survey

One of the major reasons for project failing is lack of a strong Sponsor. This applies not to just the front end of a project but throughout the project life cycle. Using a standardized tool to asses the level of sponsorship that is being given to the project is one way of staying in touch with this issue. This tool is not required to be submitted to the OCIO, however, its use is encouraged to enable discussions between the project team and the Sponsor to seek out appropriate support from the Sponsor.

The survey includes the following ten issues pertaining to the Sponsor's commitment:

1. Champions the project.
2. Approves the project plan, schedule, and budget in a timely manner when required.
3. Ensures sustained buy-in at executive level.
4. Ensures timely availability of human resources when needed.
5. Resolves major policy and/or political issues.
6. Guarantees sustained adherence to schedule commitments.
7. Demonstrates support toward resolving cross-functional issues.
8. Remains informed about the status of the project.
9. Provides regular feedback to the Project Manager and team on performance.
10. Works well with other executive level stakeholders of the project.

Project Name:

OCIO Project #:
Department:
Revision Date:

Sponsorship Commitment Survey

Performance Checklist	Rating			
Ratings: 1 = Rarely 2 = Sometimes 3 = Most of the time 4 = always				
1. Champions the project.	◉ 1	○ 2	○ 3	○ 4
2. Approves the project plan, schedule, and budget in a timely manner when required.	○ 1	○ 2	○ 3	○ 4
3. Ensures sustained buy-in at executive level.	○ 1	○ 2	○ 3	○ 4
4. Ensures timely availability of human resources when needed.	○ 1	○ 2	○ 3	○ 4
5. Resolves major policy and/or political issues.	○ 1	○ 2	○ 3	○ 4
6. Guarantees sustained adherence to schedule commitments.	○ 1	○ 2	○ 3	○ 4
7. Demonstrates support toward resolving cross-functional issues.	○ 1	○ 2	○ 3	○ 4
8. Remains informed about the status of the project.	○ 1	○ 2	○ 3	○ 4
9. Provides regular feedback to the project manager and team on performance.	○ 1	○ 2	○ 3	○ 4
10. Works well with other executive level stakeholders of the project.	○ 1	○ 2	○ 3	◉ 4

If you are able to rate all items at 3 or above, you are probably in good shape. If, however, you have rated a number of items below three, it would be a good idea to talk to your sponsor about what you need from him/her.

Scoring: All items rated 3 or above = 0 points
1 -2 items rated < 3 = 1 point
3 or more items rated < 3 = 2 points

4.4.15 Team Effectiveness Survey

The disposition of the project team is often the most neglected vital sign. The general disposition of the team is a reflection of the personal time and interest of the Sponsor and the leadership skills of the Project Manager. A team that is overworked, feels unappreciated, and has little support from the Sponsor, Project Manager, or key stakeholders, will not perform to the best of its ability and the project will definitely suffer.

To monitor the general disposition of the team, have each team member complete the assessment periodically. For example have the team complete the survey every quarter or at the conclusion of each phase. When items are rated 3 or below, the Project Manager must work with the team to determine the cause of the low rating and take appropriate corrective action if possible.

The status of this vital sign can be interpreted as follows:

- All items rated 3 or above: Green
- One to two items rated < 3: Yellow
- Three or more items rated < 3: Red

Using a scale from one to five, seven areas are measured:

1. Goals – the objectives and goals of the project
2. Participation – the degree to which each individual team member is engaged in project discussions and decisions
3. Feelings – the degree to which team member's feelings are expressed and respected
4. Leadership – the degree to which leadership is distributed amongst the team based on need, ability, and expertise
5. Decision Making –the health and effectiveness of the decision making process
6. Trust – the degree to which the team trusts its team members and Project Manager
7. Creativity and Growth – the degree to which creativity and growth are encouraged and supported

Project Name:

OCIO Project #:

Department:

Revision Date:

Team Effectiveness Survey

ıstructions: Provide a rating 1 (low) - 5 (high) for each attribute.

Lock Header | Unlock Header

1	2	3	4	5	Rating
Confused, diverse, conflicting; indifferent, little interest		**Goals**		Clear to all; shared by all; all care about the goals; feel involved	
Few dominate, some passive, some not listened to; several talk at once or interrupt		**Participation**		All are involved; all are listened to	
Unappreciated ignored or criticized		**Feelings**		Carefully considered; empathetic responses	
Jump directly to remedial proposals; treat symptoms rather than basic causes		**Problem Solving**		When problems surface the situation is carefully diagnosed before action is proposed; remedies attack basic cause	
Group's need for leadership not met; group depends on single person or a few persons		**Leadership**		As needs for leadership arise various members meet them; "distributed leadership", anyone feels free to volunteer as he or she sees a group need	
Needed decisions don't get made; decisions made by part of group others uncommitted		**Decision Making**		Consensus sought and tested; various points of view appreciated and used to improve decisions. Decisions when made are fully supported	
Members distrust one another; are polite, careful, closed, guarded, they listen superficially but inwardly reject what others say; are afraid to criticize or to be criticized		**Trust**		Members trust each other; they reveal to the group what they would be reluctant to expose to others; they respect and use the responses they get; they freely express negative reactions without fear of reprisal	
Members and group in a rut; operate routinely; persons stereotyped and rigid in their roles; no progress		**Creativity and Growth**		Group flexible, seeks new and better ways; individuals changing; growing, creative, individually supported	

4.5 Project Management Plan Updates

As the project moves through the Executing Stage, it may become necessary to update the Project Management Plan. Typical updates include (but are not limited to):

- Newly discovered risks that must be documented in the Risk Management Plan.
- Approved scope changes that must be included in the updated Scope Management Plan.
- Budget updates that must be included in the Cost Management Plan.
- Changes in resources that must be reflected in the Human Resources Management Plan.

The Project Management Plan is a dynamic document that must always reflect the current project conditions. There is a template in the CA-PMM Toolkit to record official updates to the Project Management Plan.

Project Name:

OCIO Project #:
Department:
Revision Date:

CA - PMM Workbook Updates

Updates

PM PLAN Version	Date:		Revision (what and why)	By Whom:	
Plan Revision 1	Date:		By Whom:		
Plan Revision 2	Date:		By Whom:		
Plan Revision 3	Date:		By Whom:		
etc.					

nation | Plan Updates | Template Inventory | Main Menu

4.6 Benefit Validation

During the Concept and Initiating Stages, benefits of a project are stated. As a project progresses these benefits are reviewed and assessed to determine whether or not they can be realized. When this assessment is done, it is important to communicate the results to the Sponsor to determine the next steps.

- Stated Benefit – the benefits that are expected.
- Achievement – the likelihood that the benefits will be realized.
- Explanation – an explanation for the assessment of the likelihood of achievement.
- Action Required – the steps that need to be taken to either make achievement more probable or to reassess the continued investment in the project.

OCIO Project #:
Agency:
Revision Date:

Benefit Validation

Stated Benefit	Achievement	Explanation	Action Required

4.7 Customer Acceptance

Earlier in the Executing Stage, acceptance criteria are documented for the product deliverables. Once those deliverables are completed the appropriate individual in the receiving organization must sign off on those deliverables. A signature means that the deliverable has met the acceptance criteria. If the deliverable does not meet the acceptance criteria, it is critical to reach an agreement as to what action must be taken to complete the deliverable. Once those actions have taken place, the deliverable is reviewed again and, if it meets the acceptance criteria, a sign off date is recorded. If not, additional actions are identified until the deliverable is deemed acceptable by the receiving organization.

Project Name:

OCIO Project #:

Agency:

Revision Date:

Deliverable Acceptance Criteria

Indicate deliverables which require formal acceptance:

No.	Deliverables	Acceptance Criteria	Sign-off Authority	Meets Yes/No	Action Required	Sign-off Date

4.8 Product Implementation

The final key task in the Executing Stage is the implementation of the product of the project. During Executing, the deliverables that comprise the product have been accepted; however, the formal acceptance of the product is not done until the customer has had the opportunity to observe the product run through the agreed upon cycles.

CA-PMM

Closing Stage

CA - Project Management Methodology
Closing

Project Name: _____
OCIO Project #: _____
Department: _____

Click on the section that you would like to complete.

- Formal Product Acceptance
- Project Closure Cecklist
- Post Implementation Evaluation Report
- PIER Costs - Last Approved
- PIER Costs - Actual
- PIER Costs - Comparison
- Final Lessons Learned

5.0 Closing Stage

5.1 Purpose

The purpose of the Closing Stage is to "formally terminate all activities of a project, transfer the complete project to others, or close a cancelled project" (PMBOK®). It includes finalizing all activities across all stages, and transfers the completed or cancelled project, as appropriate. It also establishes the procedures to coordinate activities needed to verify and document the project deliverables, to formalize acceptance of those deliverables by the Sponsor and/or customer, and to document the reasons for terminating a project.

Administrative tasks include:

- Documenting lessons learned, such as what worked well, what didn't work well, and opportunities for improvement.

- Completing a Post Implementation Evaluation Report (PIER) to document metrics on how well the project was managed (e.g., schedule, budget, requirements), overall success, and quality of product, service, or results delivered.

The Closing Stage includes the following key tasks:

- Formal Product Acceptance
- Operations Metrics
- Transition to Maintenance and Operations
- Contract(s) Closure
- Administrative Closure
- Project Closure Checklist
- Post Implementation Evaluation Report (PIER)
    - PIER-Last Approved Costs
    - PIER-Actual Costs
    - PIER-Comparison Costs
- Final Lessons Learned

5.2 Formal Product Acceptance

A signed form is used to document that all major stakeholders accept and approve the final product.

Project Name: _____

OCIO Project #: _____
Agency: _____
Revision Date: _____

Formal Product Acceptance

Statement of Formal Acceptance:

The undersigned formally accept as complete the above-identified project, and do hereby state that this project, project phase, or major deliverable meets or exceeds agreed-upon performance standards for scope, quality, schedule, and cost, and state that we have seen documentation that all relevant security, legal and regulatory requirements have been met or exceeded.

Additional Remarks

Accepted by:

Name of client, sponsor, or other official: _____ Date: _____

Name of client, sponsor, or other official: _____ Date: _____

Name of client, sponsor, or other official: _____ Date: _____

Signed form distributed to:

Stakeholder name: _____ Date: _____

5.3 Operations Metrics[2]

5.3.1 Metrics Track Development Efforts

If you hail from a development background, you're probably familiar with a variety of metrics used to gauge the performance of a development effort. These metrics are the standards by which the development effort is tracked. Common examples are lines of code, size of source files, or number of defects. These development metrics are tracked by a variety of methods, and many organizations consider them the basis for gauging the effectiveness of a development effort. What must be given equal importance is the development of metrics that will measure the performance and effectiveness of the system under development. In addition to assisting with the development of these metrics, you must organize the development of the software that allows you to gather the metrics and report them so that they can supply valuable feedback to your organization.

5.3.2 Consider Operations First

Development of your metrics list can start with the operations group that will have to support the system once it is released from development. The operations group will need timely data to measure the system and monitor the performance of the day-to-day operation of your software. If you take a few moments to consider the system you are developing, you can easily come up with an initial list of metrics that can benefit the operations personnel. For instance, in a data collection system you might measure the performance of the system by measuring items similar to the list in the following table:

Connections Completed	Count of connections that successfully completed their transfer and confirmation.
Bytes Received	Total number of bytes received since the system started.
Messages Received	Total number of messages received by the system.
Bytes Sent	Total number of bytes sent out to connections.
Commands Sent	Count of commands sent.
Active Receiving Connections	A count of the currently active connections that are open and sending information.
Connections in Queue	Number of connections currently waiting in the queue to be processed.
Connections Failed	Number of connections that have failed to complete successfully.

[2] From an article written by Kevin Brown published on TechRepublic.com

5.3.3 Measuring System Performance

Examine similar programs that may have only one thing in common with the system being built in order to formulate a good list of metrics for operations. By looking at various examples, a great list of potential operation metrics will emerge.

Operational metrics are the types of measurements familiar to computer professionals. Less obvious are strategic metrics. Strategic metrics are those measurements that relate directly to the goals and vision of the organization. The difficulty with strategic metrics is that they are not always directly measured by the system under development, but may get data from that system. The challenge is to recognize those items that the organization will require and build metrics into the system to help support the organizational goals. To help figure out these strategic metrics, consider financial, customer, and internal process issues. Take a look at the sample list in the following table using the data collection example.

Connections per customer	Number of connections per customer to trck customer use of the system. Ideally compared to prior methods of customer interaction or perhaps against those methods if they still exist.
Service level agreement	Using connection data and system running time one can supply metrics to support your organization's service level agreement (i.e. measure uptime, number of failed customer queries).
Cost per byte	Measure the throughput of the system to determine the best model. If bandwidth is leased, the amount of bytes used is directly charged depending on the plan used to pay for bandwidth. If not leased, bandwidth must still be optimized.
Memory footprint per connection	Measure the amount of memory required for managing a connection session. This helps with internal processes for managing machine resources.
Response speed	How does this system save time compared to previous methods of performing the work or fulfilling the requests?
Accuracy	How accurate is this system compared to the prior system?

These metrics may not be directly read from the system, but consider these factors and make sure that the data collected in the new system can support the organization's strategic goals.

5.4 Transition to Maintenance and Operations

A critical element of the Closing Stage is to execute the Maintenance and Operations Transition Plan that was developed as part of the Planning Stage.

5.5 Contract Closure

According to the PMBOK Guide®, Fourth Edition, Contract closure (Close Procurements) is the process of completing each procurement since it involves verification that all work and deliverables were acceptable. This process also involves administrative activities such as finalizing open claims, updating records to reflect final results and archiving this information for future use….the contract terms and condition can prescribe specific procedures for contract closure.

5.6 Administrative Closure

Administrative closure is the generating, gathering, and disseminating information to formalize project completion. Use the Project Closure Checklist to ensure that all closure activities have been completed.

5.7 Project Closure Checklist

Project Managers use a checklist to ensure that all major closeout activities are followed.

The eighteen major activities are:

1. Finalize project documentation.
2. Dispose of data and/or return master media.
3. According to the agreed upon data retention policy, back up all files and databases related to the project.
4. According to the agreed upon data retention policy, securely erase (wipe) all temporary media and or network files that are not part of the promised deliverables or work files.
5. Cancel utilities (phone, power, water, etc.) and/or other project team facility shut down activities.
6. Meet with the Maintenance and Operations Team.
7. Finalize team time and expense reports.
8. Process final invoice and accounting and have both reviewed according to policy.
9. Retrieve badges and other security articles.
10. Close system access.
11. Complete Internal Team Post Project Review.
12. Complete Stakeholder Post Project Review.

13. Complete Sponsor Post Project Review.
14. Consolidate final work paper set and submit to the appropriate entity.
15. Schedule the targeted date for PIER submission.
16. Identify the individual responsible to develop the PIER.
17. Archive all documents in the appropriate location.
18. Generate Lessons Learned.

Project Name:

OCIO Project #:
Department:
Revision Date:

Project Closure Checklist

Work Completion Target Date	
Project Closure Target Date	

Actual Completion Date	
Actual Closure Date	

ID	Description	Deliverable(s)	Deliver To	Owner	Due Date	Complete (Y/N)	Actual Completion Date
1	Finalize project documentation						
2	Dispose of data and/or return master media						
3	According to the agreed data retention policy, back up all files and databases related to the project.						
4	According to the agreed data retention policy, securely erase (wipe) all temporary media and or network files that are not part of the promised deliverables or work files.						
5	Cancel utilities (phone, power, water, etc.)						
6	Meet with M & O Team						
7	Finalize team time and expense reports						
8	Process final invoice and accounting and have both reviewed according to policy.						
9	Retrieve badges and other security articles						
10	Close system access						
11	Internal Team Post Project Review						
12	Stakeholder Post Project Review						
13	Sponsor Post Project Review						
14	Consolidate final work paper set and submit to the appropriate entity.						
15	Schedule the date for PIER submission.						
16	Identify individual responsible to develop the PIER.						
17	Archive all project documents in the appropriate location.						
18	Generate Lessons Learned						

5.4 Post Implementation Evaluation Report (PIER)

After a project has been implemented a report is prepared that contains the following parts:

- Background and Summary of Results
  - Project History
  - Project Objectives
  - Project Results
- Product/System Use Review
- Attainment of Objectives
- Lessons Learned
- Milestone Schedule
- Executive Summary

5.4.1 Background and Summary of Results

A summary of the project answers the following questions:

- How well did the project progress?
- What were the key problems encountered and how they were overcome?
- What are the objectives of the project?
- How well do the end users accept the product? Why?
- How well does management accept the product? Why?
- How does the product fit into the agency's overall management and operations strategy?

Background and Summary of Results

Project History

How was the project initiated?

The project was initiated

How did the project progress?

The project progressed

Describe key problems and how they were overcome.

The key problems and how we overcame them were

Project Results

How well do the end users accept the product? Why?

The end user accepted the product

How well does management accept the product? Why?

Management accepted the product

5.4.2 Product/System Use Review

The purpose of the Product/System Use Review is to assess the degree to which end users are using the product or system as it was designed to be used. This is a critical element in evaluating Benefit Realization. If end users are not using the product/system as designed, the benefits may be compromised; and if so, further action must be taken to understand the reasons why and to correct the deficiencies.

Product/System Use Review

Product	Observer	Date Observed	Product being used as designed	If not, why not	Impact	Action Required and Due Date

5.4.3 Attainment of Objectives

The PIER provides a summary of baseline objectives and how well these have been achieved.

Attainment of Objectives

Objective	Outcome	Benefit Captured	Corrective Actions (if needed)

5.4.4 Milestone Schedule & Executive Summary

The PIER concludes with a list of milestones and their dates as well as an Executive Summary of the Project.

Milestone Schedule

Provide a Milestone Schedule showing targeted and actual completion dates for major accomplishments during the project.

Milestone	Targeted Completion	Actual Completion	Reason for Variance

Executive Summary

The PIER must contain a comparison of the projected costs contained in the last approved FSR or SPR and the actual costs of implementing and maintaining the completed IT project. Additionally, a comparison of the proposed cost savings must be measured against the actual cost savings.

The PIER EAW spreadsheet package provides the cost sheets required to document the necessary cost information. The worksheets are intended to compare the costs projected in the last approved project documents with the actual costs experienced during the implementation and maintenance of the IT project. The PIER EAW Worksheet package is available for download from SIMM Section 50, Item C.

5.5 PIER Costs

The PIER Report includes supporting budgets that reflect two points in time and a comparison of multiple years for projects spanning multiple fiscal years.

1. Last Approved Costs
2. Actual Costs
3. Comparison

Date Prepared:

All Costs Should be shown in whole (unrounded) dollars.

	FY	2002/03	FY	2003/04	FY	2004/05	FY	2005/06	FY	2006/07	FY	2007/08	TOTAL	
One-Time IT Project Costs	**PYs**	**Amts**	**PYs**	**Amts**	**PYs**	**Amts**	**PYs**	**Amts**	**PYs**	**Amts**	**PYs**	**Amts**	**PYs**	**Amts**
Staff (Salaries & Benefits)	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Hardware Purchase		0		0		0		0		0		0		0
Software Purchase/License		0		0		0		0		0		0		0
Telecommunications		0		0		0		0		0		0		0
Contract Services														
Software Customization		0		0		0		0		0		0		0
Project Management		0		0		0		0		0		0		0
Project Oversight		0		0		0		0		0		0		0
IV&V Services		0		0		0		0		0		0		0
Other Contract Services		0		0		0		0		0		0		0
TOTAL Contract Services		0		0		0		0		0		0		0
Data Center Services		0		0		0		0		0		0		0
Agency Facilities		0		0		0		0		0		0		0
Other		0		0		0		0		0		0		0
Total One-time IT Costs	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Continuing IT Project Costs														
Staff (Salaries & Benefits)	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Hardware Lease/Maintenance		0		0		0		0		0		0		0
Software Maintenance/Licenses		0		0		0		0		0		0		0
Telecommunications		0		0		0		0		0		0		0
Contract Services		0		0		0		0		0		0		0
Data Center Services		0		0		0		0		0		0		0
Agency Facilities		0		0		0		0		0		0		0
Other		0		0		0		0		0		0		0
Total Continuing IT Costs	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Total Project Costs	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Continuing Existing Costs														
Information Technology Staff	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Other IT Costs		0		0		0		0		0		0		0
Total Continuing Existing IT Costs	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Program Staff	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Other Program Costs		0		0		0		0		0		0		0
Total Continuing Existing Program Costs	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Total Continuing Existing Costs	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
TOTAL ALTERNATIVE COSTS	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
INCREASED REVENUES		0		0		0		0		0		0		0
ESTIMATED COST SAVINGS (From Last Approved Project Funding Plan, line 21)		0		0		0		0		0		0		0

➲Note: A full set of the PIER Report Worksheets are included in the CA-PMM Toolkit.

5.6 Final Lessons Learned

It is a good idea to periodically assess the effectiveness of project processes during the project lifecycle to lead to adjustments that will improve the project outcome. That being said, it is imperative that final lessons learned from the project be assessed and documented. The Final Lessons Learned log is an aid to capture the lessons learned during each stage of the project management life cycle and each phase of the systems development life cycle. The log captures:

- A unique number for each lesson learned,
- A name for each lesson,
- The CA-PMM Stage that the lesson applies to,
- The SDLC Phase that the lesson applies to (if appropriate),
- The individual who recognized the lesson,
- The date the lesson was discussed,
- The level of importance of the lesson,
- A description of the lesson, and
- A recommendation of how to incorporate the lesson into future projects.

Project Name:

OCIO Project #:
Department:
Revision Date:

Final Lessons Learned

CA -PMM

No.	Lesson Learned	CA – PMM Stage	Initiator	Role	Date	Importance	Description	Recommendation

SDLC

No.	Lesson Learned	SDLC Phase	Initiator	Role	Date	Importance	Description	Recommendation

What worked particularly well on this project?

What worked well on this project was

What areas of the project did not work well?

What did not work well on this project was