

PROJECT MANAGEMENT GUIDELINE

SECTION 1 - PROJECT MANAGEMENT OVERVIEW

Section 1: Project Management Overview

Table of Contents

Introduction.....	3
Project Management Guideline Objective	3
Project Management an Iterative Process	3
Tailoring of the Guideline.....	4
Definitions.....	5
Project Definition.....	5
Temporary Endeavor	5
Delivery of a Unique Product or Service.....	5
Commonwealth Projects	6
Project Management Environment	6
Commonwealth Project Management.....	6
Roles and Responsibilities	7
Explanation of Roles and Responsibilities	7
Project Stakeholders.....	7
Project Management Organization.....	9
Project Management Organizational Structure.....	9
Projectized (Pure Project) Organization	9
Functional Organization.....	9
Matrix Organization.....	10
Mixed Organization	11
Information Technology Project Management.....	12
Information Technology Project Definition.....	12
Applying Project Management to Information Technology	12
Problems with Managing Information Technology Projects	14
IT Project Management within the Project Management Life Cycle	15

Section 1: Project Management Overview

Introduction

Project Management Guideline Objective

The primary objective of the Commonwealth Project Management Guideline is to define a methodology for the management of projects by executive branch agencies in the Commonwealth of Virginia. The guideline is consistent with “best practices” established by the Project Management Institute (PMI) and documented in the Project Management Body of Knowledge (PMBOK). Information provided in the guideline also serves as a common reference point and language for the discussion and implementation of project management in the Commonwealth.

Project Management an Iterative Process

Commonwealth Project Management is comprised of project management knowledge areas, a project lifecycle, and general management activities. See Figure 1.1.

The outer circle of Figure 1.1 identifies the Project Management Knowledge Areas described in PMBOK. PMI has organized the contents of PMBOK around nine knowledge areas. A knowledge area is a collection of project management knowledge and practices for a particular management process such as “Project Scope Management.” This guideline applies the knowledge and practices derived from Project Management Knowledge Areas to tasks performed in the lifecycle of a project.

The Commonwealth Technology Management Policy, COV ITRM Policy GOV 2002-02.1, identifies six phases in the lifecycle of a technology investment. The six phases, shown in the inner circle of Figure 1.1, are Selection, Initiation, Planning, Execution and Control, Closeout, and Operations and Support. The Project Lifecycle begins at Initiation, and proceeds through the phases of Planning, Execution and Control, and Closeout. The “Selection” of technology investments, which is normally part of the agency strategic planning process, defines those technology investments that will be managed as projects. Once a project is completed or “Closed Out,” the resulting technology investment is managed as a part of normal agency “Operations and Support.”

Project management is an iterative process because each phase in a project lifecycle builds on the previous phase. An example of the iterative nature of project management is that the planning phase is, in part, a refinement of the initiation phase. There may be overlap between phases and in some cases, a phase may be repeated due to changes within a project. During each phase, project managers perform three important general management activities. The activities are planning, execution, and control. These activities are shown in the center of Figure 1.1 as a triangle. The activities are repetitive and may occur in order or in some instances simultaneously. A project manager, for example, will plan the execution of tasks for the initiation phase and then execute and control the planned tasks for that phase.

Section 1: Project Management Overview

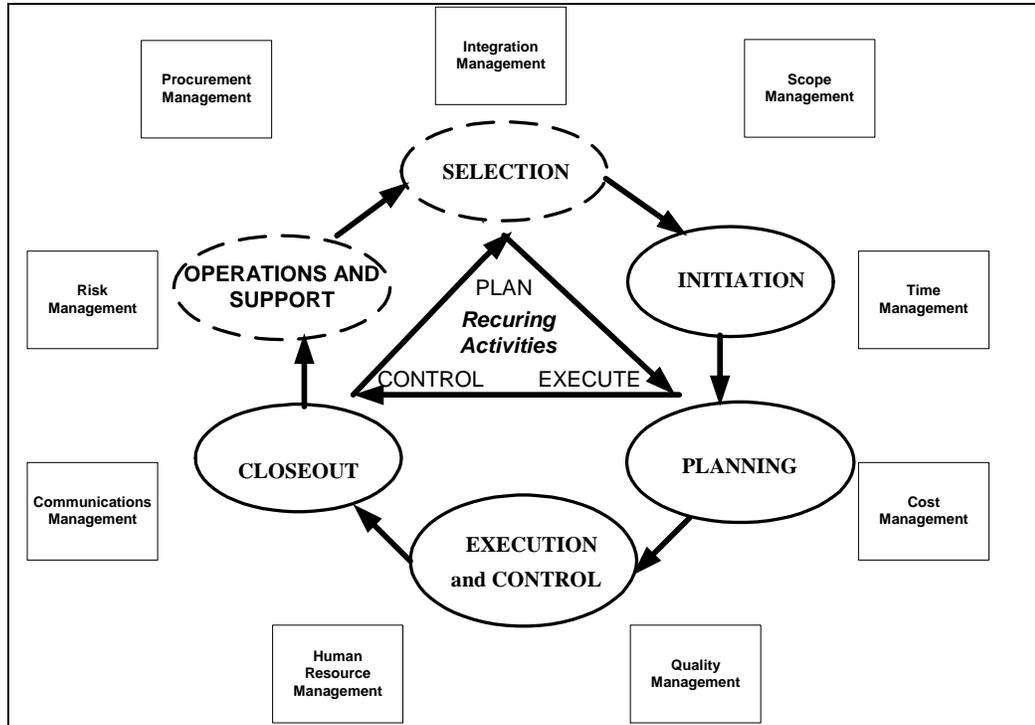


Figure 1.1
Project Management Knowledge Areas, Lifecycle, and Recurring Activities

Tailoring of the Guideline

Project managers may tailor the implementation of this guideline to meet the unique requirements for management of projects within their agencies. Because the guideline is largely based on commonly accepted project management best practices, agencies should approach tailoring of the guideline, project by project, through a deliberate decision-making process that clearly establishes the necessity and value of the contemplated changes or tailoring decisions. Project managers must assess individual project characteristics and determine how best to apply the guideline and implement associated processes.

Section 1: Project Management Overview

Definitions

Project Definition

Throughout this guideline, a project is defined as:

A temporary endeavor undertaken to deliver a unique product or service.

Typically, the lifecycle of a project begins when a person or organization recognizes a business need or problem requiring a solution. Projects are not just a set of tasks to perform. A project is a process that produces a unique product or service, which allows the organization to achieve a desired business goal.

Temporary Endeavor

A project is a temporary endeavor. The project is closed once the unique product or service is delivered. For this reason, the “end” of a project, or final business objective, should be defined at the very beginning of the project to ensure a focus on successful completion and delivery of business value. The reason some projects never end is that the criteria for successful completion are undefined. The basic question for defining success is, “What is the business reason for this project?” Criteria for project success must be quantifiable, measurable, and expressed in terms of business value.

Delivery of a Unique Product or Service

Projects deliver tangible and unique products or services. To deliver value, projects must be based on defined business objectives. The products or services delivered must satisfy a critical need that supports the business. Without well-defined business objectives, as well as clearly identified needs, a project will fail because it lacks purpose and focus.

A business critical need is derived by identifying a change in current capability that is necessary for an agency to attain a specific business objective. Defining the need requires considerable care. A thorough analysis of business need, making the “business case,” initiates the project lifecycle by focusing on the “right product or service” that best meets the business need.

Section 1: Project Management Overview

Commonwealth Projects

Commonwealth Projects differ in definition from generic projects because of Commonwealth law, executive orders, policies, standards, and guidelines, which establish the environment within which projects are managed. In the Commonwealth of Virginia, Commonwealth Projects are defined as:

A temporary endeavor, undertaken by a Commonwealth executive branch agency (or agencies), to deliver a unique product or service. Commonwealth Projects are expected to follow project management best practices and comply with project management requirements identified in the Code of Virginia, Governor's Executive Orders, and COV ITRM policies, standards, and guidelines.

Project Management Environment

Successful project management is predicated on an environment where sound management practices are in place. The principles, concepts, techniques, tools, and skills of general management are the foundation for successful project management. Critical among these are basic people skills and financial management skills, established processes for organizational planning and communication, availability of tools that support management processes and a culture that values cooperation and teamwork.

Commonwealth Project Management

Commonwealth Project Management (CPM) differs from generic project management because of Commonwealth laws, executive orders, policies, standards, and guidelines, which establish the project management environment. In the Commonwealth of Virginia, Commonwealth Project Management is defined as:

The application of knowledge, skills, tools, and techniques to meet or exceed stakeholder needs and expectations from a Commonwealth Project.

Section 1: Project Management Overview

Roles and Responsibilities

Explanation of Roles and Responsibilities

Clearly defined project stakeholder roles and responsibilities provide each individual, associated with the project, with a clear understanding of the authority granted and responsibility exacted for the successful accomplishment of project activities. Project stakeholders must be accountable for the effective performance of their assignments.

- On a large project, individual role assignments may require full-time attention to a particular function.
- On smaller projects, role assignments may be performed part-time, with stakeholders sharing in the execution of multiple functions.

The identification of specific stakeholder tasks is addressed in the Organizational Breakdown Structure (OBS), in Section 3 (Project Planning) of the Guideline.

Project Stakeholders

Stakeholders include all individuals and organizations having a vested interest in the success of a project. Stakeholder participation helps to define, clarify, drive, change, and, ultimately, ensure the success of the project.

To ensure project success, the project management team must identify stakeholders early in the project, determine their needs and expectations, and manage and influence those expectations over the course of the project.

Key project stakeholders include (but are not limited to) the:

- **Project Manager** - The project manager is an individual appointed and given responsibility for management of the project. The project manager must ensure that the project is successfully executed, completed on time, within budget, and at an acceptable level of quality.
- **Project Sponsor** - The project sponsor is an individual, usually part of the agency management team, who makes the business case for the project. This individual usually has the authority to define project goals, secure resources, and resolve organizational and priority conflicts.
- **Agency Management** - Agency management includes those individuals responsible for the core business activities of the agency. Within the context of the agency strategic

Section 1: Project Management Overview

plan, agency management identifies the need for a project, assess project risk, and request approval of the project from the appropriate investment management authority.

- Program Manager – When established by business leaders, program managers are responsible for oversight, coordination, and integration of a group of related projects. Program managers manage resources across projects within a program and review projects for compliance with established standards. Additionally, the program manager provides guidance and supports the development of an enhanced project management capability.
- Oversight Committee – The Oversight Committee provides recommendations to business leaders regarding project initiation or continuance, management, baselines (performance, cost, schedule), periodic reviews, and any additional follow-up actions required to ensure the success of the project.
- Project Team (Staff) - The project team includes those individuals that report, either part time or full time, to the project manager and are responsible for the completion of project tasks. The project team includes subject matter experts responsible for executing the project plan.
- Customers - Customers are the ultimate users of the product or service the project will deliver. They could be, for example, state employees, businesses, or citizens.

Additional information on technology management roles and responsibilities is in COV ITRM Policy GOV 2002-02.1, Technology Management.

Section 1: Project Management Overview

Project Management Organization

Project Management Organizational Structure

Project management organizational structure can have a significant impact on the success of any project. A clear description of the project management organization, coupled with well-defined stakeholder roles and responsibilities, is a prerequisite for project success. The most well known organizational structures are projectized, functional, matrix, and mixed.

Projectized (Pure Project) Organization

The projectized organization typically includes dedicated, full time team members with different skill sets that stay together, as a cohesive unit, for the life of the project. The project manager has the most authority in the projectized organization.

Advantages of the Projectized Organization

- Clear lines of authority, the project manager has full authority
- Response to customer and stakeholder issues is faster and clearer
- Skilled project team can support several successive projects of the same type
- Timely decision-making
- Organizational structure is simple, flexible, and easy to understand.
- Project is managed holistically

Disadvantages of the Projectized Organization

- Expensive approach because of the duplication of personnel
- Equipment and personnel may be hoarded to ensure access to those resources
- Team members lose access to a repository of functional or technical expertise
- Policies and procedures are often applied inconsistently
- Team members may be anxious about post-project work

Functional Organization

The functional organization is a hierarchal organizational structure where project team members are grouped by specialty (i.e. marketing, accounting, etc.); have a clear line of authority; and, have one superior within their functional organization.

In a functional organization, the line of authority normally goes from the project manager, through a functional manager, to the project team member. The project manager's direct authority over the project team is limited.

Section 1: Project Management Overview

Advantages of the Functional Organization

- Flexibility in the use of staff
- Subject Matter Experts (SME) available to work on multiple projects
- Knowledge and experience readily shared between functional specialists
- Technical continuity exists within the organization
- Clearly defined professional growth and career paths for the staff

Disadvantages of the Functional Organization

- Project customer is not the only focus
- Organization does not focus on solving project business issues
- Project does not have a single individual responsible for all aspects of the project
- Response to customer needs is slow and difficult
- Project issues are not all given the same level of attention
- Project is not managed holistically

Matrix Organization

Matrix organizations are a combination of projectized and functional organizations. It is an organization in which project team members are “borrowed” from their functional organizations to work on a specific project and then returned once their part of the project has been completed or their skills are no longer needed. There are three different types of matrix organizations:

- **Weak Matrix:** Similar to functional hierarchies in which a project manager borrows an employee from a functional discipline to do work on a project. The project manager’s responsibilities are more coordination and expedition than actual management.
- **Balanced Matrix:** A combination of weak and strong matrix organizations. In a balanced matrix, the project manager borrows staff from a functional organization on an as needed basis. The borrowed staff works directly for the project manager until their project tasks are completed. In this model, the project manager has authoritative power over management of the project effort.
- **Strong Matrix:** Similar to projectized organizations. In the strong matrix organization, a project manager has a full time staff borrowed from functional disciplines for the duration of the project. In this model, the project manager has full authoritative power over management of the project effort and the people assigned to the project.

Section 1: Project Management Overview

Advantages of the Matrix Organization

- Central focus is the project
- Project managers have access to a large reservoir of technically skilled people
- Project team members have less anxiety about the future
- Customer issues are responded to quickly.
- Administrative personnel are not duplicated in each project team
- Resource balancing between projects is simpler and more efficient
- Project team organization is more flexible

Disadvantages of the Matrix Organization

- Person with decision making power is not always clearly identified
- Resource balancing between projects can lead to friction
- Project closeout tasks are often difficult in strong matrix organizations
- Division of authority and responsibility is complex

Mixed Organization

Mixed organizations are a combination of projectized (pure project) and functional organizations. Mixed organizations usually result when small projects are started in functional organizations. As a project reaches the size and level of maturity, which allows the project to operate autonomously, it moves out of the parent, functional organization and operates as a project does in the projectized organization. The project can evolve into a long-term program within the organization or into a unique organization within the enterprise.

The advantages and disadvantages of the mixed organization are the same as those for both the projectized and functional organizations. The advantages and disadvantages that exist in a functional organization apply to projects when they are within those organizations. When a project moves from the functional organization, the advantages and disadvantages of the projectized organization apply.

Section 1: Project Management Overview

Information Technology Project Management

Information Technology Project Definition

Information Technology (IT) projects are the same as non-IT projects in many respects. Like all other projects, IT projects are temporary in nature, have a clear start and end date, a defined set of deliverables, and a limited budget. The goal of an IT project is to develop a unique IT product or service, which allows the organization to achieve a desired business goal.

The IT sub-sections within this guideline provide guidance on specific and unique IT project management requirements. The guidance is intended to assist project managers in deciding how best to apply general project management concepts to IT projects.

The Systems Development Life Cycle (SDLC) and other development processes for IT fit within the project management framework presented in this guideline. Normally, the project work breakdown structure (or task list) will be based on a standard development process, e.g. SDLC or the Rational Unified Process. For IT projects, product and service delivery is a result of the execution of a selected IT development process within the overall project management framework established by this guideline.

Applying Project Management to Information Technology

The project management framework is broken down into four phases: Initiation, Planning, Execution and Control, and Closeout. IT projects can be broken down into the same phases; however, within those phases, several development processes will occur (e.g., feasibility study, requirements definition, specifications design, development, testing, implementation).

A project manager's responsibility is to maintain a high-level perspective of the technical development within the project and ensure that sound project management practices are being appropriately applied. It is very easy for an IT project manager to become wrapped up in the technical development of the IT system, and forget the overall responsibilities for managing all aspects of the project. IT project management includes preparation of the documents and plans that are described throughout this guideline. While there will be times on small projects when project managers will be personally and directly involved in the technical development, the most important responsibility of the project manager is to ensure that the project is effectively and efficiently managed to the satisfaction of all project stakeholders.

System development methodologies and project management methodologies are distinct yet related processes. It may be difficult for the project manager to distinguish between the two and discern his or her role within each process. The intent of this section of the guideline is to integrate the requirements for project management with the process of system development. For example, in the SDLC, much of the preparatory work for development of an IT product or service takes place within the requirements and design phases. However, from a project

Section 1: Project Management Overview

management perspective, requirements definition and design can be considered planning phase activities. Clarifying and separating the project management roles and responsibilities from those of technical development of the product or service ensures that project management concepts are initiated and performed.

Figure 1.2, compares the level of management effort versus IT development effort against a backdrop of project management phases. The solid line, labeled “Management Effort,” depicts the level of effort for project management activities. The dashed line, labeled “Technical Effort,” depicts the level of technical development effort. The two efforts are not exclusive but require effective integration to deliver the IT product or service required. Figure 1.2, also gives some indication of where the project team focuses its efforts during the project lifecycle. Initially the team focuses heavily on the management processes of project initiation and project planning. The level of technical effort builds in parallel with the project management level of effort. The two efforts compliment each other. As project planning transitions to project execution system, development becomes the central focus of the project team. The project management effort does not stop in the planning phase, but continues through project execution in a supporting role by providing change, communication, quality, risk, and other management processes that keep the technical effort in scope, on schedule and within budget.

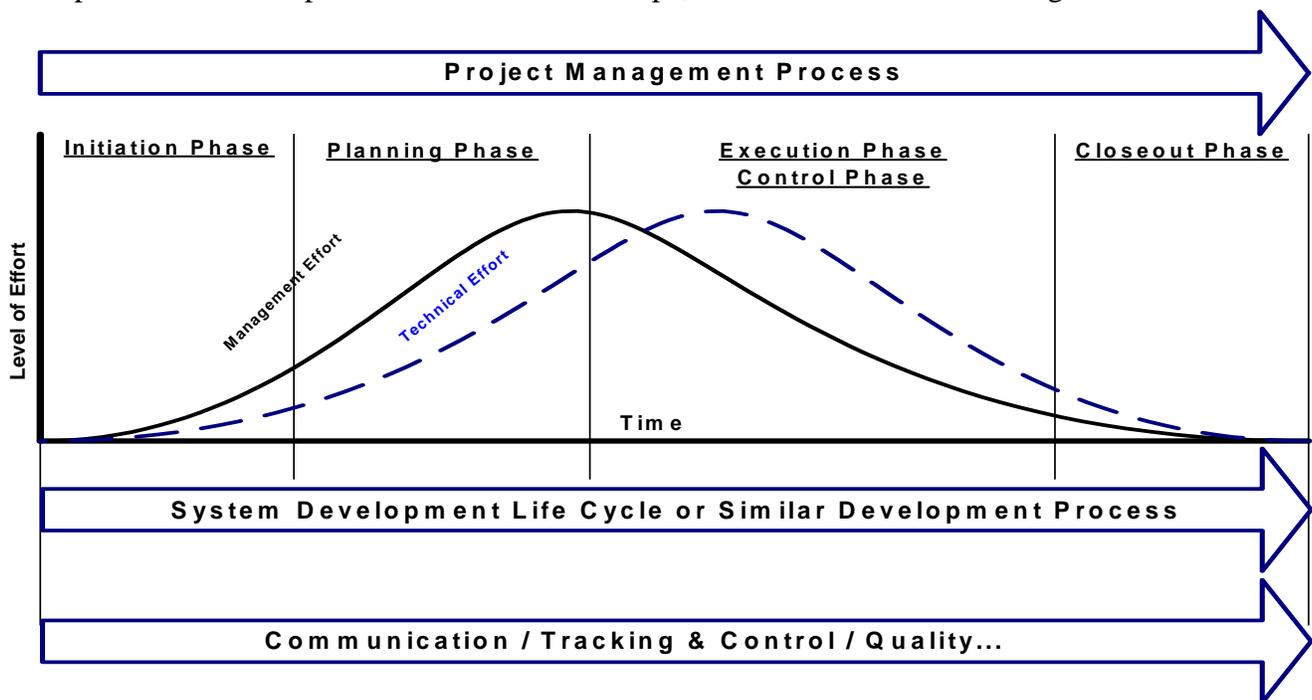


Figure 1.2
Management Effort Compared to Technical Effort During the Project Lifecycle

Section 1: Project Management Overview

Problems with Managing Information Technology Projects

In general, IT projects face the same management problems as other projects. There are several reasons that IT projects fail or are more difficult to manage. The four most common problems identified with IT projects include:

Poor Investment Decision

The decision to undertake an IT project is as important as any other investment decision. The most effective and dedicated project team cannot overcome the selection of the wrong investment by an organization. Chief Information Officers (CIO) or Information Technology Managers sometimes make decisions about projects without business management input. Sometimes business managers do not consider IT projects significant and view IT as just another overhead function. It is imperative that organizations (agencies) apply the same investment management processes to IT projects that they apply to other investment decisions. When IT projects are treated as business investments, they are more likely to deliver the right solutions on time and within budget.

Management Sponsorship and Stakeholder Involvement

Every project needs a management champion or sponsor. A spokesperson in management must articulate the value of a project to the business and ensure appropriate recognition and support for the effort by the organization. If an IT project originates in the Information Technology Office without management sponsorship, appropriate management support for the project may not be forthcoming. Technology projects require the involvement of many stakeholders outside the project team. Stakeholders must be involved throughout the life-cycle of the project, from requirement definition through acceptance. When project teams communicate and consult with stakeholders, projects are more likely to deliver a product that matches the business requirement and is acceptable to its users.

Application of Immature or Inappropriate Technologies

One of the major problems IT projects must overcome is related to the selection of a technology solution. Management must weigh the high risk of failure associated with choosing new or “leading edge” technology solutions that are often untried and unproven. Some organizations desire “leading edge” solutions because it offers the opportunity to gain an overwhelming competitive business advantage. Old, proven technologies, used in a new way, can also become untried and unproven technologies. Implementing untried and unproven technologies results in the creation of a “brittle” technology environment that can shatter when new or changed requirements are introduced. Projects that successfully apply new technologies or old technologies in a new way must have sound risk management plans, strict change management controls, and the unqualified support of management.

Section 1: Project Management Overview

Use of Project Management Methodology

Organizations that use a project management methodology have a significantly higher probability of successfully delivering a project solution. The success resulting from the use of a project management methodology applies equally to technology projects. Technology projects that implement a project management methodology are effectively planned; have appropriate change control processes in place; and, deliver the right product or service, on time, and within budget. Many IT project managers have extensive experience in network or software engineering and, as a result, possess superbly developed technical skills. However, the most successful IT project managers have received training in project management or use a proven project management methodology.

IT Project Management within the Project Management Life Cycle

As you review each of the four project phases presented in the guideline you should note that there is a subsection in each phase named “Information Technology Components.” Project managers will not be able to effectively manage an IT project simply by relying on the information presented in this single subsection on IT projects. IT project managers must understand and apply the processes and associated best practices described throughout the guideline.