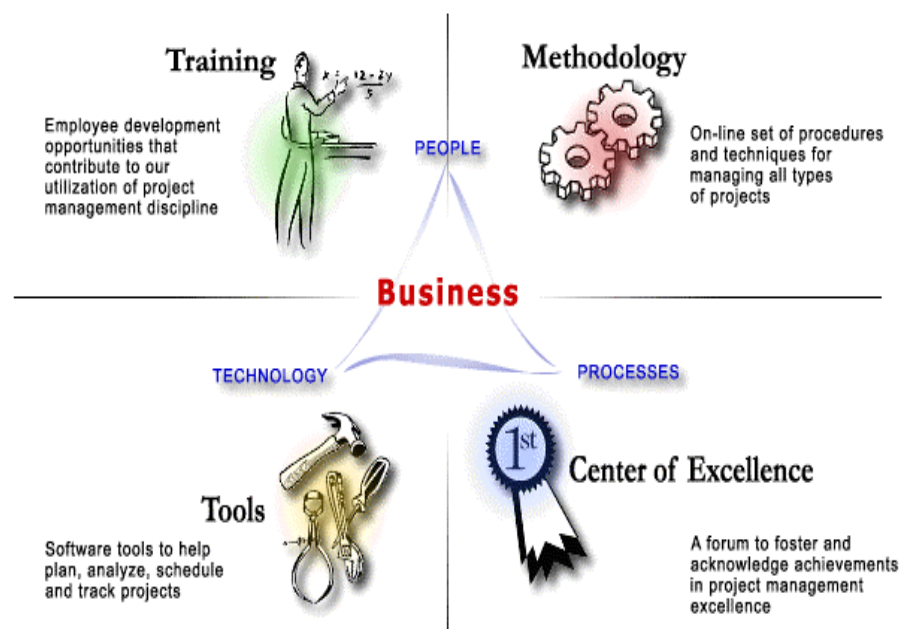


STATE OF MICHIGAN

PROJECT MANAGEMENT METHODOLOGY



Project Management Resource Center
Michigan Department of Information Technology
www.michigan.gov/projectmanagement

December 2004

Project Management Methodology

Purpose

This methodology was created to assist the State of Michigan's government agencies to manage and monitor their Information Technology projects by establishing formal project management practices. The methodology is generic enough to be applied to all projects within the state. It is transferable from project to project but is not intended to be the sole source of information on project management.

Why This Methodology Should Be Used

Project Management is a process that, like anything else, improves with practice and repetition. This guide is a basis for a standard suite of processes and associated documents that will facilitate the implementation and control of project management phases at all levels of state government.

Update Process and Cycle of this Guide

This edition of the Project Management Methodology (December 2004) is its third release. This methodology is updated on a regular basis as requested by the State's Project Management Methodology Advisory Group (made up of agency representatives). The Methodology Advisory Group meets on a periodic basis to discuss content changes.

Changes and improvements to this methodology will be a product of input from the user. If changes or additions need to be made, please contact your agency representative to the Methodology Advisory Group, or contact the DIT Project Management Resource Center, and discuss it with them. The representative will have the opportunity to take the idea to the next Methodology Advisory Group meeting and recommend the addition or change in the next version release.

Changes in this Third (December 2004) Release of the PMM

This third release of the State of Michigan Project Management Methodology came about from experiences and lessons learned in using the PMM since the second release in May 2001.

Changes include:

- The addition of the Lessons Learned Template, to be used at any time throughout your project to record winning strategies utilized, as well as new techniques that need to go back to the drawing board. (Overview Section)
- The addition of the PMM Feedback template, to send PM Methodology best practices, and areas that need improvement, back to the Project Management Resource Center, so the PMM can be continually improved! (Overview Section)
- Consolidated sections, making the PMM more streamlined and easier to follow. This includes the elimination of the Project Feasibility template (incorporating the critical info into the Project Concept template); combining the Scope Statement template and the Critical Success Factors templates into the Project Plan template; the elimination of the Cost Benefit Analysis template; incorporating the CBA section into the Work Breakdown Structure section; and the elimination of the Procurement Planning template.
- Replacement of the Configuration Management subsection with an updated Change Management subsection. (Planning Section)

- Inclusion of a Methodology Usage Guidelines subsection, explaining what is minimally needed for management of all projects; what is needed for small projects (Level 1); what is needed for medium to large projects (Level 2); and what is needed for very large projects (Level 3). (Overview Section)
- An updated “Procurement Planning” subsection, emphasizing State of Michigan and DIT processes. (Planning Section)
- Updated all PMM Templates for consistency, and
- Updates to several diagrams and other minor wording changes.

Audience

The Project Management Methodology is intended for top-level managers, experienced and non-experienced project managers, project mentors and coaches, project management instructors, project team members, technology-oriented project participants, project management offices, and any interested individual desiring to gain an overview insight into conducting project management activities and recording the necessary documentation for the project. This methodology document is considered an in-depth guide that describes how to initiate project documentation by stepping through the phases of a project and providing the necessary outlay of documents needed to support a particular project phase.

This Project Management Methodology Desk Reference, a high-level version of this document, can be of significant benefit to improve one-on-one project management training conducted by a project mentor or coach. The Desk Reference can also be used as a reference for developing train-the-mentor experiences for the classroom.

Points of Contact

Please forward any comments or questions to the Project Management Resource Center within the Department of Information Technology. The Project Management Resource Center can be reached at dit-projectmanagement@michigan.gov, or visit their web site at <http://www.michigan.gov/projectmanagement>.

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STATE OF MICHIGAN – DMB, OFFICE OF PROJECT MANAGEMENT STATE OF CALIFORNIA – DEPARTMENT OF INFORMATION TECHNOLOGY PROJECT MANAGEMENT INSTITUTE’S PROJECT MANAGEMENT BODY OF KNOWLEDGE

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Key Terms and Acronyms

Appendix B: Project Management Methodology Templates

<u>Template Name</u>	<u>File Name</u>
Project Concept Document	(PMM01_Concept_Document_04)
Project Charter	(PMM02_Project_Charter_04)
Project Plan	(PMM03_Project_Plan_Document_04)
Work Breakdown Structure	(PMM04_Work_Breakdown_Structure_04)
Resource Plan	(PMM05_Resource_Plan_04)
Risk Management Plan	(PMM06_Risk_Management_Plan_04)
Quality Plan	(PMM07_Quality_Plan_04)
Communications Plan	(PMM08_Communications_Plan_04)
Change Management Plan	(PMM09_Change_Management_Plan_04)
Project Budget Estimate	(PMM10_Project_Budget_Estimate_04)
IT Project Budget Estimate	(PMM11_IT_Project_Budget_Estimate_04)
Project Planning Transition Checklist	(PMM12_Planning_Transition_Checklist_04)
Project Status Report	(PMM13_Project_Status_Report_04)
Change Control Request	(PMM14_Change_Control_Request_04)
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Post Implementation Evaluation Report	(PMM16_Post_Implementation_Eval_Report_04) Active
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PMM Lessons Learned Document	(PMM18_Lessons_Learned_Document_04)
PMM Feedback Document	(PMM19_Feedback_Document_04)

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PROJECT MANAGEMENT METHODOLOGY

SECTION 1 – OVERVIEW

Section 1: Project Management Overview

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Section 1: Project Management Overview

Introduction

Project Management Methodology

Prior to discussing the various phases and methodologies involved in project management, it helps to understand what project management is and the roles of the people involved. The following subsections set the groundwork for understanding the methodology.

Methodology Usage Guidelines

The Methodology Usage Guidelines subsection provides guidance on what areas, including templates, of the PMM should be used for the particular size and complexity of the project at hand.

Project Definition

The Project Definition subsection provides a definition for the term “project.” The definition is important in order to understand how and when the methodology should be applied.

Project Management Roles and Responsibilities

The Project Management Roles and Responsibilities subsection provides the groundwork for identifying the basic roles and responsibilities of those parties who will contribute to the success of a project.

Project Management Organizational Structure

Project management organizational structure has a lot to do with the effectiveness of a project and its staff. The three most well-known organizational structures are the functional, projectized, and matrix hierarchies.

Active Project Transition Process

The Active Project Transition Process was added in the May 2001 release of the State's Project Management Methodology (PMM). Originally introduced by the Michigan State Police's Project Office, this template was designed to help projects that are already into the Planning or Execution phase, to begin using the State's Project Management Methodology's formal processes and templates.

Capturing Project Lessons Learned

This subsection specifies a process and associated template to use that allows the State to take advantage of lessons learned and best practices that have been encountered on other State projects.

PMM Feedback Process

This subsection details a process and an associated template to gather feedback on the PMM in a timely manner.

Information Technology Components for Project Overview

The last subsection in this section, and in all the project phase sections, will provide guides to assist the reader in deciding on what project management concepts must be applied during development of technology-oriented products. It is not the intent of these sections to specify details for undertaking Systems Development Life Cycle types of projects, and it is certainly not intended to supercede any procedures already in place within the agencies.

Section 1: Project Management Overview

Project Management Methodology

Project Management Methodology

This subsection provides the overview, description, and purpose of a State of Michigan methodology for project management.

According to the Project Management Institute's (PMI®) Project Management Body of Knowledge (PMBOK®), "Project Management is the application of knowledge, skills, tools and techniques to project activities to meet the project's requirements."

The objective of this State of Michigan PMM is to provide standard methods and guidelines to ensure that projects are conducted in a disciplined, well-managed, and consistent manner that promotes the delivery of quality products that meet the customer's needs and results in projects that are completed on time and within budget. The concept of this methodology, and how it fits in the overall project life cycle methodology, is shown in Figure 1.1.

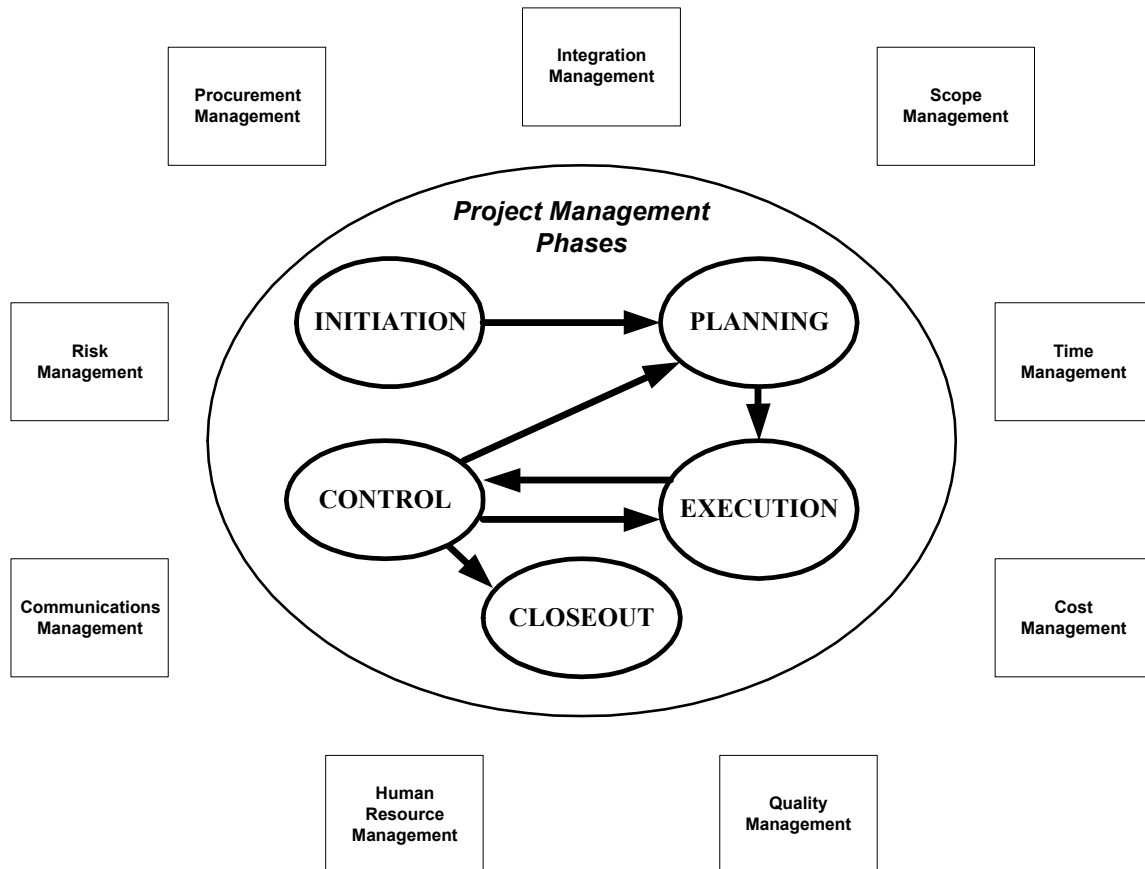


Figure 1.1
State of Michigan Project Management Knowledge Areas and Phases

Section 1: Project Management Overview

Project Management Methodology

Characteristics of the Project Life Cycle

All projects are unique. As such, each project takes on a different form and presents many degrees of uncertainty. Therefore, managing these projects requires that organizations usually divide these projects into more manageable pieces called phases. These phases allow the project team to provide better management and control in order to provide efficient and productive efforts throughout the life of the project. Collectively these phases are sometimes called the project life cycle.

Although these project phases have been established to complement the project teams' involvement with the tasks, these phases are not stand alone as may be indicated in the 'phases' portion depicted in figure 1.1. These phases overlap and can typically resemble something as portrayed in figure 1.2.

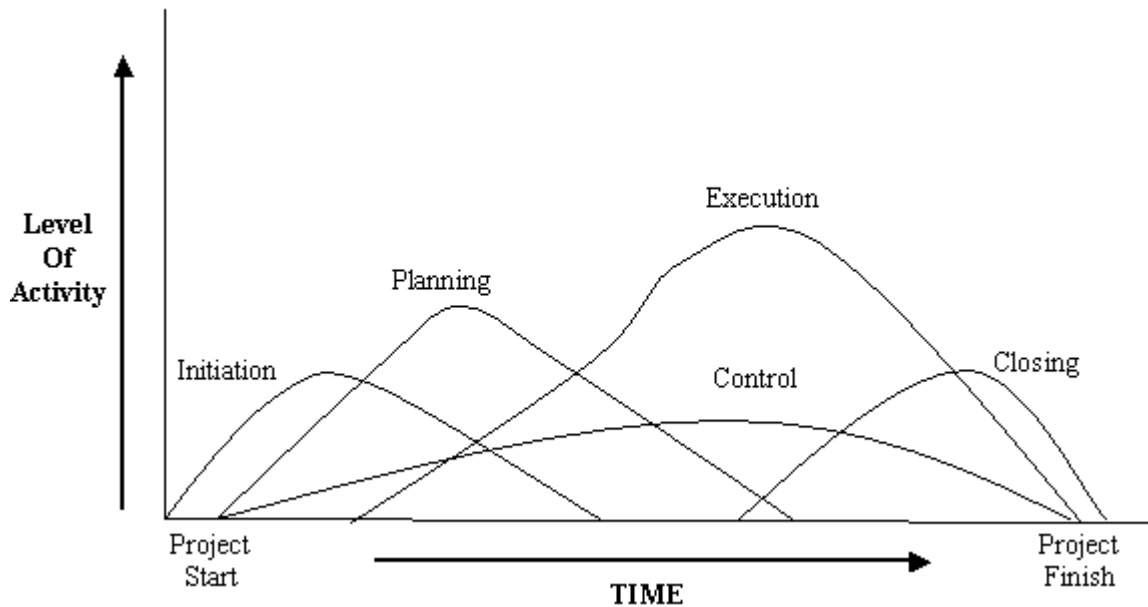


Figure 1.2
Life Cycle Project Phase Overlap

Project Management is an Iterative Process

Project management is an iterative process. For example, the planning phase is, in part, a refinement of the initiation phase. In some instances, phases may be repeated because of changes within the project. Also, project phases may be performed simultaneously as well as sequentially. For instance, the planning, execution, and control phases may be performed in parallel as changes are made to the project baseline. This interaction is shown in Figure 1.1 by the continuous feedback loop from planning to execution to control and back through planning.

Other activities, such as oversight, quality control, and executive review, which are described later, are ongoing and affect each and every phase of the project.

This methodology represents the coordinating mechanism for the State of Michigan and its agencies. The methodology addresses the *management* of the project as well as the specific phase of a project development effort.

Section 1: Project Management Overview

Project Management Methodology

Applicability of the Methodology

The project management methodology has a general applicability to the management of projects in the State of Michigan. The degree to which State agencies should apply the methodology is based on project management policies defined in the State's policies, the policy guidelines of the agencies involved, the magnitude of the project, and the project risks. This methodology identifies responsibilities and activities that are assigned and performed on projects.

For smaller, less-complex projects, refer to the *PMM Express* methodology. *PMM Express* streamlines and consolidates many of the methodology steps required to manage a small project. Refer to the Methodology Usage subsection within the Overview section for more help on when to use PMM and when to use *PMM Express*.

Tailoring of the Methodology

The methodology design is adaptable to meet the unique requirements of the wide variety of non- IT and IT projects the State of Michigan desires to conduct. (See the Information Technology Components subsection to this section.)

The flexibility of the methodology and associated processes acknowledges that large, complex projects require a more rigorous application of management processes than small, well-defined projects with readily achievable goals.

The project manager assesses the project characteristics and determines how to tailor the methodology and what project management processes are required. That tailoring is then reflected in the Project Plan and associated documentation.

PMM Implementation Procedures

The methodology is the foundation for building and identifying the types of procedures needed. Depending on the basic processes that a State agency currently has in place to support project management, some changes may be required to successfully implement the methodology. Most of the materials contained herein, however, are guidelines, and State agencies are encouraged to tailor and add to the processes to best suit their business environment.

Continual Process Improvements

This methodology must not become stagnant or obsolete. Processes will be established to improve the methodology over time. Process improvement is cyclical and requires mechanisms to continually evaluate and refine improvements until a process is fully optimized for an organization.

The State of Michigan and its agencies are responsible for continually adapting and readapting the methodology and associated policies, using support from project management steering committees and advisory boards, for both input and evaluation. The agencies are also responsible for ensuring that project management policies are implemented. The state agencies and their project staffs have the following responsibilities:

Section 1: Project Management Overview

Project Management Methodology

- To provide continual input for improvement of the policies and the methodology.
- To identify areas that require modification and adaptation.
- To ensure that project management policies are implemented within their organizations.

Business Process Review

As systems-oriented organizations direct more and more efforts and resources toward introducing suggested technology improvements (e.g., client-server, intranet, extranet, data warehousing, and other applications), it cannot be assumed that the business processes in place are compatible with the projects being introduced. A review of current business processes is needed to ensure compatibility between suggested technology improvements and the current way of doing business.

Like any system over time, business processes can result in an outdated business environment. Consequently, more work may be handled informally outside of the established business processes. As a result, any current or planned replacement technology linked to the outdated business processes may also be handled outside of established business processes.

Investigating the state of the business processes before initial work toward the integration of new technology is of paramount importance. It would be wise to include an analysis of the business processes as part of the Project Concept Document (see Section 2: Project Initiation Phase) and also as part of the Critical Success Factors (see Section 3: Project Planning Phase) in order to design for a successful project completion.

In summary, the business processes should be driving the technology, not the technology driving, or greatly influencing, the business processes.

Section 1: Project Management Overview

Methodology Usage – Guidelines

PMM Usage

The State of Michigan Project Management Methodology was developed for large and complex projects. A need exists to offer guidance regarding the level of project management, as recommended in the PMM, to apply on a wide range of projects (in terms of size and complexity). This sub-section will aid in determining what PMM templates and other PMM attributes are recommended for use for a particular size project.

This sub-section is designed to allow the PMM to be utilized for projects that may or may not require the highest level of project management, based on project size and complexity.

The following narration, accompanied by the Methodology Usage Matrix, will help the project manager decide which portions of the PMM or PMM Express are appropriate for their project. These suggestions are guidelines, and the circumstances of an individual project may dictate the use of additional PMM elements.

As the methodology is “template driven”, the project manager should first determine which of the various PMM templates are applicable to their project. It is expected that the project manager will work with the project sponsor(s) and key project team personnel to make this determination.

If only a small portion of a particular template is applicable to the project, the project manager may choose to add that part of the template to another template to simplify project documentation. An example of this would be if there is a need to procure hardware and software that is routinely purchased (e.g. procuring 10 additional desktop computers needed as a result of the project), the project manager may choose to include a section in the Project Plan template detailing the specifics of that purchase.

Needs for All Projects

All projects need a minimum amount of project management to ensure project success.

Every project needs a Project Charter to describe what the project entails and to authorize the use of resources (people, dollars, equipment, office space, office supplies, etc.).

Organizations that have projects that are similar in nature (such as installing servers) may have a set of standard templates in place that have been customized to meet the specific project needs of that functional area. It is recommended that the project manager use those standard templates, unless their current project is significantly different from that area’s typical projects.

The degree of documentation required for the application of each phase, process and template is likely to be different from project to project. The objective is to use the templates to collect and document meaningful data, not just to accumulate volumes of information. The ultimate goal is to help complete the project deliverables successfully.

The guiding principles in using the templates should include, at a minimum:

- Keep the documentation as simple and streamlined as possible, without compromising the ability to properly manage the project

Section 1: Project Management Overview

Methodology Usage – Guidelines

- Address only those areas of the PMM that are needed (areas that need to explicitly detail an aspect of the project or deliverable)
- Use the templates to reach a common understanding among project stakeholders/participants

The Project Planning Phase templates may be modified by agreement between the project manager and sponsor(s). The project manager and sponsor(s) should evaluate the use of these planning phase templates based on:

- The need to address each project planning area (e.g., Is there a need for a formal procurement plan if purchasing is a relatively minor part of the project?)
- The need for documentation, based on:
 - o Size and complexity of the project (e.g., scope, number of project stakeholders, project budget, project duration)
 - o Project risk, both internal and external
 - o Familiarity of the project participants with each other (e.g., Have they worked together before; What is the level of trust?)
 - o Legal requirements that need to be followed as part of the project or the ensuing deliverables
 - o Other relevant factors

The project manager and key project team members should agree on the appropriate level of documentation for the project, and then document only to that level.

Needs For Smaller (Level 1) Projects

Level 1 projects are generally those projects that are under \$1 million and for a single agency.

PMM Express, developed in early 2003, is designed specifically for smaller, less complex projects. PMM Express utilizes the following six templates:

- Project Charter (modified from PMM)
- Project Plan (modified from PMM)
- Project Status Report
- Project Issue Document/Log
- Project Change Control Request
- Post Implementation Evaluation Report (modified from PMM)

As with any project, the level of documentation should be commensurate with the size and complexity of the project. The project manager, in conjunction with the project sponsor(s) and the project team, shall decide the amount (level of detail) of documentation and level of management required for the project.

All Level 1 projects should minimally track to deliverable-based milestones.

As shown on the Methodology Usage Matrix (Figure 1.3), Level 1 projects are further broken down into small (less than \$25,000), average (between \$25,000 and \$250,000), and large (between \$250,000 and \$1 million) projects. This is due to the varied complexity of Level 1 projects.

Section 1: Project Management Overview

Methodology Usage – Guidelines

***Needs For Mid-Sized
(Level 2) Projects***

In order for a project to be classified as a Level 2 Project, one or more of the following must be true:

- Multi-agency project
- Greater than \$1 million IT budget
- Non-standard technology
- DIT is on the project’s Executive Steering Committee

Projects that involve more funds, more staff, cross agency lines, or use cutting-edge technologies tend to be more complex. This complexity can make the management of such projects more difficult. With larger projects, one can expect more complex communication channels, more staffing issues, a higher potential for project risk, higher demands for quality deliverables, the need for resource procurement, etc. This will require the use of additional PMM templates.

***Needs For Large
(Level 3) Projects***

In order for a project to be classified as a Level 3 Project, one or more of the following must be true:

- Greater than \$5 million IT budget
- Executive Interest/Order
- Media Involvement

Large-sized projects have the highest need for methodology components, thus the use of all PMM templates need to be considered.

Figure 1.3 Methodology Usage Matrix

Project Type	Level 1 Project			Level 2 Project	Level 3 Project (Enterprise Top IT Projects)
	Small	Average	Large		
Estimated Project Cost	< \$25K	\$25K to \$250K	\$250K to \$1M	N/A	N/A
PMM Templates					
Initiation:					
Concept Document	Optional	Optional	Recommended	Required	Required
Business Case**	Optional	Recommended	Recommended	Required	Required
Project Charter	PMM Express Charter	PMM Express Charter	Required	Required	Required
Planning:					
Resource Plan	PMM Express Project Plan	PMM Express Project Plan	Required	Required	Required
Risk Management Plan	PMM Express Project Plan	PMM Express Project Plan	Required	Required	Required
Procurement Plan	Optional, If Procuring Goods/Services	If Procuring Goods/Services	If Procuring Goods/Services	If Procuring Goods/Services	If Procuring Goods/Services

Section 1: Project Management Overview

Methodology Usage – Guidelines

Project Type	Level 1 Project			Level 2 Project	Level 3 Project (Enterprise Top IT Projects)
	Small	Average	Large		
Estimated Project Cost	< \$25K	\$25K to \$250K	\$250K to \$1M	N/A	N/A
Quality Plan	PMM Express Project Plan	PMM Express Project Plan	Required	Required	Required
Communications Plan	PMM Express Project Plan	PMM Express Project Plan	Required	Required	Required
Change Control Management Plan	Recommended	Required	Required	Required	Required
Project Budget Estimate	PMM Express Project Plan	PMM Express Project Plan	Required	Required	Required
Execution/Control:					
Project Status Document	Required	Required	Required	Required	Required
Change Control Request	As Required - for significant deviations	As Required	As Required	As Required	As Required
Issues Log	Required	Required	Required	Required	Required
Closeout:					
PIER Document	PMM Express PIER	PMM Express PIER	Required	Required	Required
Non-Template Items					
Work Breakdown Structure	Required - Follow PMM Express guidelines	Required - Follow PMM Express guidelines for non-complex projects	Required	Required	Required
Project Schedule	Minimally track major milestones	Required	Required	Required	Required
Team Status Meetings	Required	Required	Required	Required	Required
Sponsor Meetings / Presentations	As Needed	As needed, depending on complexity of project decisions	Required	Required	Required
Change Control Process	Required	Required	Required	Required	Required

***Note:** These \$\$ breakdowns are relative, and are subject to change, based on agency size and complexity

****Note:** The Business Case Template is currently separate from the PMM, but is required for Project Board review

Section 1: Project Management Overview

Project Definition

Project Definition

Defining what a project is helps in understanding the project management methodology and its effectiveness for project management. Organizations have differing views on project definition. Throughout this methodology, a *project* will be defined as follows:

*A project is a temporary endeavor undertaken
to create a unique product, service, or result.
PMBOK[®], 2004*

The project management techniques defined in this methodology require that a project exist. Typically, a project is initiated by a person or organization that recognizes a business need or a specific problem needing resolution. When the business need or problem is defined, an initial concept is developed around potential solutions. A true project is not just a set of tasks to be performed. By viewing the project in terms of a process that will achieve a desired end goal, the project manager breaks down the effort into a series of tasks. The completion of the tasks leads to the final solution (the product) of the project.

Temporary Process

A project includes a set of temporary processes because once the end goal is achieved and the product is delivered, the project is completed. For this reason, the end point of a project or objective needs to be defined at the very beginning of the project to ensure successful completion. The reason some projects never end is because no one ever defines what constitutes *complete!*

The basic question for defining success criteria is, "Why are we doing this project?" Criteria for project success are quantifiable, measurable, and expressed in terms of business value metrics. They include having a customer; a project with a purpose or objective, a scope, deliverables, start and end dates; a sponsor; a project manager; and identified resources.

Well-defined Goals

Projects require well-defined goals to determine completion. Without well-defined goals and objectives, a project lacks purpose.

The problem definition needs to be carefully crafted and well thought out. This will determine the project objective, focus, and approaches for resolution. The focus is generated in terms of milestones, deliverables, and requirements. Without a clearly defined focus and a stated objective, the project may stray off course (not solving the problem for which it was intended), or it may incur cost and time overruns and ultimately is unsuccessful.

Project Constraints

All projects have constraints, and these need to be defined from the outset. Projects have resource limits in terms of people, money, time, and equipment. While these may be adjusted up or down, they are considered fixed resources by the project manager. These constraints form the basis for managing the project and are discussed later in the methodology.

Section 1: Project Management Overview

Project Definition

Project Assumptions

Similarly, certain criteria relevant to a project are assumed to be essential. For instance, it is assumed that an agency will have the foresight to make the necessary budget appropriations to fund internal projects. Project assumptions need to be defined before any project activities take place so that time is not indiscreetly utilized on conceptualizing and initiating a project that has no basis for funding.

Project Management Definition

Defining projects allows State agencies to categorize and execute projects. All of the processes associated with defining, planning, executing, controlling, and closing out the project are considered part of project management.

What is Project Management?

Project Management is the application of knowledge, skills, tools, and techniques to project activities to meet the project requirements.
PMBOK® , 2004

Infrastructure Requirements

Successful project management requires that certain infrastructure elements be in place. Among these are basic skills in people management, established processes for organizational planning and communication, availability of tools that support management processes, and a culture that values cooperation, teamwork, and planning.

Project management requires general management knowledge. The principles, practices, concepts, techniques, tools, and skills of general management are the foundation for project management. Within the general skills are the abilities to work well with people, to take responsibility, to lead a group, and to make decisions.

This methodology provides guidelines for many of the principles, tools, and techniques for project managers.

Section 1: Project Management Overview

Project Management Roles and Responsibilities

Explanation of Roles and Responsibilities

A successful project requires that the project team participate (at some level) in the planning process, buy in to the project plan, and be responsible for completion of assignments.

It is important to have a defined formal structure for the project and for the project staff. This provides each individual with a clear understanding of the authority given and responsibility necessary for the successful accomplishment of project activities. Project team members need to be accountable for the effective performance of their assignments.

Project Organizational Structures come in many forms. They are discussed at the end of this section. However, their impact can be seen throughout the project. For example:

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

The Project Team and Stakeholders

Note: It is difficult to manage the expectations of stakeholders because often they have conflicting goals and expectations.

The project team includes a diverse mix of people and skills. It goes beyond just the project member performing specific tasks. The required mix for any project team will include, but not be limited to, the following people:

- People specifically charged with execution of the project solution. Regardless of how a project is organized, there are roles and responsibilities that should be considered for every project. These could include the following:
 - Requirements development staff
 - Business rule specifications staff
 - Project management staff
 - Subject matter experts (SMEs)
 - Documentation (user and technical) staff
 - Training staff
 - Technical staff
 - Leaders/decision makers
- Customers/Clients (both internal and external) of the product or service created.
- Project sponsor.
- Stakeholders.

Stakeholders are individuals and organizations that have a vested interest in the success of the project. The identification and input of stakeholders help to define, clarify, drive, change, and contribute to the scope and, ultimately, the success of the project.

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

Section 1: Project Management Overview

Project Management Roles and Responsibilities

Stakeholders on every project include the following people and groups:

- The project manager, who has ultimate responsibility for ensuring project success.
- The project sponsor, who takes the lead in getting the need for the project recognized as well as possibly providing financial resources.
- The State agency management, who define the business needs of the project.
- The project team members, who are responsible for performing the work on the project.
- The configuration management entities within the boundaries of the project.
- The quality assurance teams who verify the ability of the product or process to meet the stated necessary requirements.
- The agency/state procurement personnel who assist in procuring project resources assigned to State government.
- The customer or client, who is the person(s) or organization(s) using the product of the project.
- The State of Michigan's citizens and visitors, who are interested in the success of all projects.

The following pages describe, in some detail, the responsibilities of the stakeholders across the various phases of a project. These lists are not an exhaustive enumeration of the activities of the responsible parties. The project management phase activities are discussed at length in other sections of the State of Michigan Project Management Methodology.

Section 1: Project Management Overview

Project Management Roles and Responsibilities

Project Manager

The project manager has total responsibility for the overall project and its successful completion. To succeed in this responsibility, the project manager must work closely with the sponsor to ensure that adequate resources are applied. The project manager also has responsibility for planning and ensuring that the project is successfully completed on time, within budget, and at an acceptable level of quality. The project manager must be assigned during the Project Initiation Phase so the plan will be owned by the person responsible for its execution.

Project Manager Roles and Responsibilities

GENERAL FUNCTIONS

- Implement project policies and procedures.
- Acquire resources required to perform work.
- Maintain staff technical proficiency and productivity, and provide training where required.
- Establish and maintain quality in the project.
- Identify and procure tools to be used on the project.

PROJECT INITIATION

- Develop draft Project Concept Document and Project Charter.
- Define project success criteria.
- Document project constraints.
- Document project assumptions.
- Conduct cost-benefit analyses.

PROJECT PLANNING

- Develop detailed Project Plan with the assistance of the project team, tailoring methodology to reflect project needs.
- Create a Work Breakdown Structure with the assistance of the project team.
- Develop, or assist in the development of, a Scope Statement, Project Schedule, Communications Plan, Risk Management Plan (which includes a Contingency Plan), Cost Benefit Analysis, Procurement Plan, Change Management Plan, Project Budget Estimate, and a Project Transition Checklist.
- Ensure that management, users, affected State agencies, and contractors agree to project commitments.
- Ensure that the Project Plan is approved and baselined.
- Assign resources to project and assign work packages (Resource Plan).
- Approve Project Quality and Change Management Plans.

PROJECT EXECUTION

- Manage day-to-day tasks and provide direction to team members performing work on the project.
- Regularly review project status, comparing budgeted to actual values.
- Regularly review project networks, comparing baseline schedules to actual work completed.
- Ensure that Project Plan is updated and signed off as needed.

Section 1: Project Management Overview

Project Management Roles and Responsibilities

PROJECT CONTROL

- Make changes to budgets and schedules and make recommendations as needed.
- Review the results of quality assurance reviews.
- Participate in change control board to approve product/project changes.
- Review project risks and establish mitigation procedures.

PROJECT CLOSEOUT

- Develop an action plan for any product that does not pass acceptance test.
- Obtain customer and management approval of completed product.
- Close out open action items.
- Develop post-implementation report.
- Conduct lessons-learned session.
- Close out any financial accounts or charge codes.
- Archive all project data.
- Assist as needed with any post-project delivery audits.
- Assist purchasing contract administrator(s) in contract closeout.
- Celebrate success with stakeholders and the project team.

Note:

Project Manager Skill Sets: Assigning a skilled project manager is of paramount importance to project success. Project requirements necessitate that the qualifications of the project manager be commensurate with the complexity of the project. Accordingly, the following skill sets are thought to play a major role in the assigning of a project manager (Archibald 1992).

- Integrative Skills—Holistic philosophy, systems approach thinking, flexibility, and cultural awareness.
- Project Management Skills—Planning, organizing, controlling, and monitoring.
- People Skills—Leadership, communication, facilitation, motivation, and team building.
- Technical Skills—Engineering and scientific ability, mathematical competence, specialized expertise.
- Business and Management Skills—Organizational operations insight, general business management, and fundamentals of planning, budgeting, and finance.

A more detailed discussion of selecting a project manager with appropriate qualifications is provided in the Project Initiation Phase section of this methodology.

Section 1: Project Management Overview

Project Management Roles and Responsibilities

Project Sponsor

The project sponsor is usually a member of the agency's management team, which will ultimately be the recipient of the project's end result. A good project sponsor is a prerequisite for a great project manager. The sponsor is usually head of a program area and not normally a day-to-day staff person. This is the person who makes the business argument for the project to exist. This individual usually controls the overall funding of the project.

The project sponsor may or may not be part of the agency management.

Sponsor Roles and Responsibilities

GENERAL FUNCTIONS

- Articulate program or State agency requirements.
- Ensure that requirements are met.
- Provide necessary funding and resources as appropriate.
- Champion the project to provide exposure and buy-in from State government and officials.
- Communicate the sponsor's views on project progress and success factors to the project team and other stakeholders.

PROJECT INITIATION

- Provide strategic plans and guidance to correctly identify the relevance and value of the project both today and in the future.
- Define sponsor needs.
- Obtain funding for project when necessary.
- Assign sponsorship personnel as points of contact.

PROJECT PLANNING

- Review and approve Project Plan.
- Participate in planning sessions.

PROJECT EXECUTION

- Attend executive requirement reviews.
- Help resolve requirements problems.
- Provide written agreement to requirements and qualifying criteria.

PROJECT CONTROL

- Attend and participate as needed at Project Status Reviews and steering meetings.

PROJECT CLOSEOUT

- Provide representatives to attend lessons-learned meeting.
- Sign off on project completion.

Section 1: Project Management Overview

Project Management Roles and Responsibilities

State Agency Management

State agency management identifies the agency's need for projects, assesses project risk, and approves project commitments. It is also responsible for establishing the agency's strategic plans and for ensuring that projects are consistent with agency and overall State IT plans, if the project is IT Based. It is also responsible for developing the procedures to ensure that policies are followed.

State Agency Management Roles and Responsibilities

GENERAL FUNCTIONS

- Prioritize State agency business needs and include in State agency strategic plan.
- Ensure that sufficient resources are available to conduct projects.
- Review/approve commitments to external entities (e.g., vendors, other agencies).
- Ensure that State agency staff is properly trained.
- Evaluate and recommend adoption of automated tools.

PROJECT INITIATION

- Select project manager and assist in staffing effort.
- Review/validate Risk Analysis.
- Ensure that funding is available.

PROJECT PLANNING

- Review/approve project plan and budget and establish management reserves.
- Ensure that team leaders assist in estimation.
- Ensure project staff availability.

PROJECT EXECUTION

- Regularly conduct executive management reviews.
- Approve changes to the Project Plan.
- Review risk mitigation plans.
- Review/approve changes in contract commitments.

PROJECT CLOSEOUT

- Contribute to lessons-learned sessions.
- Ensure customer and sponsor acceptance.
- Ensure closing of accounting/financial files.

Section 1: Project Management Overview

Project Management Roles and Responsibilities

Project Team

The project team has responsibility for conducting project activities. Project team members, as necessary, assist the project manager in planning the development effort and help construct commitments to complete the project within established schedule and budget constraints. The project team may include the subject matter experts responsible for implementing the project solution. Customers and/or stakeholders should interact with the project team to ensure that requirements are properly understood and implemented.

Project Team Roles and Responsibilities

GENERAL FUNCTIONS

- Identify technical solution alternatives.
- Implement solution within budgeted cost and schedule.
- Coordinate with quality assurance organization.
- Support project planning and tracking.

PROJECT INITIATION

- Provide estimates for developing products.
- Ensure that requirements are feasible and appropriate for available resources.
- Analyze requirements for completeness, consistency, and clarity.
- Conduct feasibility studies.

PROJECT PLANNING

- Develop technical approach.
- Partition and assign development tasks.
- Assist in development of estimates and schedules.
- Assist in development of a quality management and change management plan.
- Identify tools needed for the project.
- Ensure that all members of the project team understand the Project Plan.
- Identify staff training needs.
- Ensure that project execution staff fully understands requirements.

PROJECT EXECUTION

- Create product and process solutions.
- Track the project execution effort and submit status reports.
- Conduct internal and external reviews and walk-throughs.
- Create baseline and change request documents.
- Create testing plan and coordinate test activities.
- Execute assigned project tasks.

PROJECT CONTROL

- Identify problems and schedule fixes.
- Coordinate with quality assurance, review quality assurance results, and correct any deviations.
- Identify and react to risks as they are found.
- Participate in change reviews.

Section 1: Project Management Overview

Project Management Roles and Responsibilities

PROJECT CLOSEOUT

- Participate in lessons-learned sessions.
- Identify ways to improve project processes.
- Turn over all project-related documentation to the project manager for archiving.

Section 1: Project Management Overview

Project Management Roles and Responsibilities

Quality Assurance

The quality assurance (QA) function incorporates a process of evaluating overall project performance on a regular basis to provide confidence that the project will satisfy the relevant quality standards. Ideally, quality assurance is a part of each team function, with team members responsible for quality as a key component of each job assignment. Quality assurance is discussed in greater detail in the Project Planning Phase section of this methodology.

Quality Assurance Roles and Responsibilities

GENERAL FUNCTIONS

- Review and verify that the State agency has management and technical QA processes that are followed.
- Maintain project library and repository of project metrics.

PROJECT INITIATION

- Ensure that requirements are identified.

PROJECT PLANNING

- Verify that plans are reviewed by all affected groups.
- Review process used for estimating and planning.
- Prepare a project QA plan that identifies quality activities and resource requirements.
- Assist in developing QA estimates.
- Verify that requirements are clear, verifiable, and testable.
- Ensure that risks are properly identified and tracked.
- Provide orientation to project staff and managers on the role of quality assurance.
- Coordinate the assignment of external Independent Verification & Validation auditing contractors, if necessary.

PROJECT EXECUTION

- Collect and analyze project metric data.
- Maintain noncompliance issues list under Configuration Management control.
- Observe testing and inspect test reports as needed.
- Verify deliverables for conformance to standards.

PROJECT CONTROL

- Coordinate formal reviews and audits and participate in informal reviews.
- Verify that State agency and project policies are followed.

PROJECT CLOSEOUT

- Archive project metric data.
- Certify readiness of products.
- Assess project quality process.
- Participate in lessons-learned session.

Section 1: Project Management Overview

Project Management Roles and Responsibilities

Customer/Client

Customers are responsible for ensuring that their needs are expressed and for verifying that a completed project meets those expressed needs. These are also the people who may need to be trained in the new process or product created as a result of the project.

Customer/Client Roles and Responsibilities

GENERAL FUNCTIONS

- Articulate customer requirements.
- Ensure that requirements are met.
- Ensure that staff are trained and “ready to accept” the new product.
- Be proponents of the new product to other business area staff.

PROJECT INITIATION

- Clearly define customer needs and requirements to the project manager and project team.

PROJECT PLANNING

- Review and approve Project Plan.
- Review project status reports.
- Assign customer personnel as project points of contact.
- Provide written agreement on requirements and qualifying criteria.
- Identify personnel who will need to be trained.

PROJECT EXECUTION

- Attend training sessions.
- Assist in product testing, if needed.
- Approve delivery and installation procedures.
- Review current business practice and the impact the new product will have on it.
- Develop procedures, policies, and systems to support the new product.

PROJECT CONTROL

- Attend requirements reviews.
- Review designs as needed.
- Assist in resolving requirements problems.

PROJECT CLOSEOUT

- Provide representatives to attend lessons-learned meeting.

Section 1: Project Management Overview

Project Management Roles and Responsibilities

Project Management Resource Center (DIT only)

The DIT Project Management Resource Center (PMRC) is responsible for defining statewide project policies and for ensuring that these policies are followed by all DIT functional areas. The PRRC is also responsible for reviewing and approving the feasibility of project plans and for providing oversight on high-risk or high-cost projects.

The PMRC review function includes reviewing project plans, contracts, and other project commitments to assess risk and, when necessary, to recommend corrective action for a troubled project. The PMRC performs these general functions in addition to the specific functions summarized below.

PMRC Roles and Responsibilities

GENERAL FUNCTIONS

- Define, review, and update Michigan's Project Management Methodology and policies.
- Provide leadership and resources to improve project management.
- Review/approve waivers and deviations from policies.

PROJECT INITIATION (APPLICABLE FOR HIGH-RISK OR HIGH-COST PROJECTS)

- Review project concept for large-scale projects.

PROJECT PLANNING (APPLICABLE FOR HIGH-RISK OR HIGH-COST PROJECTS)

- Review and help identify project risks.
- Verify that project goals are defined.
- Assign QA oversight as indicated by the State risk analysis and review of the project plan and initiation documents.
- Approve Project Plan.
- Ensure that the Project Plan is signed-off and baselined.

PROJECT EXECUTION (APPLICABLE FOR HIGH-RISK OR HIGH-COST PROJECTS)

- Ensure project oversight is performed.
- Review project status.

PROJECT CONTROL (APPLICABLE FOR HIGH-RISK OR HIGH-COST PROJECTS)

- Review project status.
- Advise on resolution of serious project problems.
- Suspend or terminate poor-performing projects.

PROJECT CLOSEOUT (UPON REQUEST)

- Collect and archive project database.
- Review and archive post-implementation evaluation report.
- Participate in lessons-learned meetings.

Section 1: Project Management Overview

Project Management Organizational Structure

Project Management Organizational Structure

Project management organizational structure has a lot to do with the effectiveness of a project and its staff. The three most well-known organizational structures are the functional, projectized, and matrix hierarchies.

The functional organization is a hierarchy in which project staff members are grouped by specialty (e.g., marketing, accounting, etc.), have a clear line of authority, and have one superior within their functional organization. In this organization, the line of authority normally goes from the project manager, through a functional manager, to the project staff member, and back. Therefore, the project manager's authority over the project staff is limited.

The projectized organization typically includes collocated team members with different skill sets who stay together as cohesive units for extended periods of time and over several project engagements. Project manager authority is greatest in the projectized organization.

Matrix organizations are a combination of functional and projectized hierarchies. Matrices use a system in which project staff 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 skill sets 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 certain functional discipline to do work on a project, but the project manager's responsibilities are to do more coordination and expedition than actual management.
- Strong Matrix: Similar to projectized hierarchies in which a project manager has a full-time staff borrowed from functional disciplines. The project manager exerts full authority over the staff and has a full-time project administrative staff.
- Balanced Matrix: A combination of weak and strong matrices whereby the project manager borrows staff as needed for the project from a functional organization. The project manager has legitimate authoritative power over the project efforts and management.

Matrix organizations can be very beneficial for all parties involved for several reasons:

- The functional manager and staff have exposure to different project efforts for limited engagements.
- The staff gets exposure to other employees within other functional divisions on a recurring basis.
- Project teams are not "pigeonholed" into particular types of projects based on skill sets.
- The replacement of project team members or rollover to other functional experts is smoother.
- Project managers can deal with day-to-day project issues with limited concern for staff administrative issues.

Section 1: Project Management Overview

Project Management Organizational Structure

Projects arise out of needs. And the entire project management process begins when someone declares a need. The project, then, takes on many different forms depending on the stated needs. Figure 1.4, below, depicts a generally accepted process flow of managing the steps in the project.

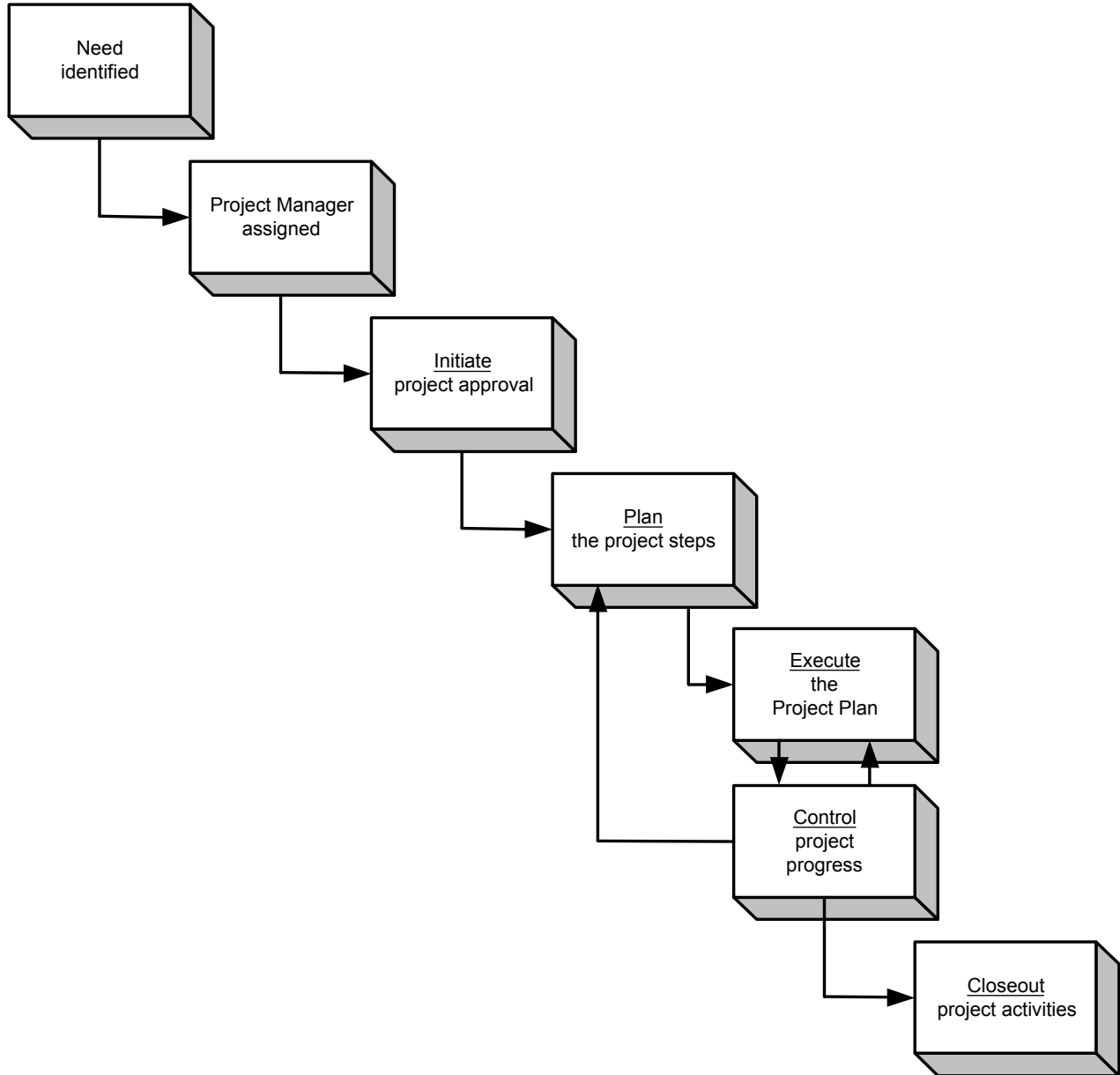


Figure 1.4
Process Flow of Project Management Phases

Section 1: Project Management Overview

Active Project Transition Process

Active Project Transition Process

The Active Project Transition Process was designed to help projects that are already into the Planning or Execution phase, to begin using the State's Project Management Methodology's formal processes and templates.

The assigned project manager should complete the Active Project Transition Document. The project manager will be instrumental in garnering the necessary approvals/signatures for this document. Information should be gathered from existing project documentation, as well as information from project team members.

Usage Criteria

The Active Project Transition Process may be utilized if the project is currently under way. The project being transitioned to the PMM is typically in its mid to late planning stages, or early execution. It is advised that projects in the early to late initiation stage or in the early planning stage should use the full PMM including the use of the Project Concept Document and Project Charter.

Projects in mid to late execution stages may be better off staying with the current methods and processes in use on those projects. This decision needs to be made by the project manager, the project sponsor, and other project stakeholders.

Eligible Projects

The following circumstances may precipitate the use of the Active Project Transition Process:

- A project that has been ongoing and active prior to the agency's adoption of the PMM
- A project that has been transferred from an area that has not implemented the PMM to an area where the PMM is in use on all projects
- An effort has grown from a "task" or an "activity" to a full scale project without project participants realizing it

Keep in mind that other projects may be eligible for the Active Project Transition Process as well, and need to be evaluated on a case by case basis.

Expectations for Projects Transitioned to the PMM

After the project manager has utilized the Active Project Transition Process using the provided template, it is assumed that the PMM will be followed from that point on, through project completion. The project manager needs to ensure that the remaining processes and templates in the remaining project phases be followed, including:

- Remaining Project Planning activities/processes
- Remaining Project Execution and Control activities/processes
- Closeout activities/processes

Description of the Active Project Transition Template

The template is broken into 13 main areas, as follows:

- A. General Information
- B. Purpose
- C. Business Problem
- D. Project Goals

Section 1: Project Management Overview

Active Project Transition Process

- E. Critical Success Factors
- F. Project Scope
- G. Project Impact
- H. High Level Project Plan
- I. Deliverables
- J. Resources
- K. Financial Information
- L. Schedule Information
- M. Current Status
- N. Risk
- O. Approval Signatures

The user of this template may make alterations based on the progress of the project being transitioned.

The template has been designed to be self-explanatory. A template for creating the Active Project Transition Document can be found on the following page and in Appendix B.

Section 1: Project Management Overview

Active Project Transition Template

State of Michigan (Insert Project Name Here) Active Project Transition Document

A. General Information

Information to be provided in this section gives a specific name to the project as well as pertinent information about the personnel involved.

Project Id: _____ **Date:** _____
Controlling Agency: _____ **Modification Date:** _____
Prepared by: _____ **Authorized by:** _____

B. Purpose

Information in this section discusses the reasons that the Active Project Transition Document has been created and provides an overview of the project. Note, documentation that addresses any of the information requested in any of the following sections can be reference or attached.

C. Business Problem

Describe the business problem or issue that required resolution and the impact of the business problem or issue on the agency. Identify any negative consequences to the agency that would have occurred if the project had not been implemented.

D. Project Goals

Identify the expected outcomes of the project.

E. Critical Success Factors

Identify the critical success factors (metrics or measures) of the project that define project success.

F. Project Scope

Define the scope of the project that includes identification of what is to be included in the project and what is not to be included in the project. If different from the initial project scope, please explain.

Section 1: Project Management Overview

Active Project Transition Template

G. Project Impact

Identify the organizational areas, information systems and other projects impacted by this project.

H. High Level Project Plan

Identify the high-level activities that were identified to complete the project. Indicate whether each activity has not started, has started, or has been completed. If an activity has been started but not completed, indicate the percent complete.

I. Deliverables

Identify the deliverables of the project. Indicate whether each deliverable has been completed and accepted. If a deliverable has not been completed and accepted, indicate the percent complete.

J. Resources

Identify the internal and external resources that are currently, or planned to be, utilized during the project. Include effort hours by time period for each identified resource.

Personnel Category	Resource Name	J	F	M	A	M	J	J	A	S	O	N	D
Project Manager													
Project Coordinator													
Programmers													
Senior													
Junior													
Technicians													
Senior													
Junior													
Quality Assurance													
Other													
Other													

Section 1: Project Management Overview

Active Project Transition Template

For external resources, identify the name of the external resource (vendor). For each external resource (contract) being used, define the scope of services to be provided. Also, outline the terms and conditions of the contract such as the amount of the contract, the contract effective period, payment terms, etc.

K. Financial Information

Identify the budget for each of the milestones included in the acquisition or development, implementation and ongoing maintenance of the project. For each of these milestones, identify the funding status (not currently funded, fully funded or partially funded). Also identify the funding source (general fund, grant funding, etc.). If funded with a combination of funds, identify the percent allocation.

Milestone	Budget	Funding Status	Funding Source
Milestone 1			
Milestone 2			
Milestone 3			
Milestone 4			
Milestone 5			
Milestone 6			
Total Project			

Document any assumptions made while developing the project budget and current status.

L. Schedule Information

Identify the schedule for each of the milestones included in the acquisition or development, implementation and ongoing maintenance of the project.

Milestone	Duration	Est. Start Date	Est. Completion Date
Milestone 1			
Milestone 2			
Milestone 3			
Milestone 4			
Milestone 5			
Milestone 6			
Total Project			

Document any assumptions made while developing the project schedule and current status.

M. Current Status

Provide an update regarding the current status of the project, which includes a description of significant accomplishments to date. Also, include the current status of the budget (estimated versus actual costs) and schedule (estimated versus actual duration of each milestone).

Section 1: Project Management Overview

Active Project Transition Template

N. Risk

Describe any potential risks that may occur and the impact (positive or negative) on the project if the risk occurs. For each potential risk, identify the probability (likelihood of occurring, expressed in a percentage) of occurrence and, if quantifiable, the impact or potential cost if the risk occurs.

Risk	Probability of Occurrence	Impact

Describe actions that can be taken to prevent the risks identified above from occurring and any associated costs of the prevention strategies.

--

Document any comments or concerns pertaining to the project.

--

O. Signatures

Signing below indicates that the respective organizational areas agree with the project as outlined above. Signatures should be obtained from the Project Manager; business areas impacted by the project in that they are responsible for providing resources for the successful completion of the project; and Sponsor(s).

Name/Title	Signature	Date

Section 1: Project Management Overview

Project Screening and Selection

The Assessment Process

Every project starts with an idea. That idea may be the result of a unique thought or design, it may respond to a regulatory mandate, it may answer a call for operational maintenance, or it may be as simple as providing scheduled updates. In essence, projects are generated for many different reasons; however, projects warrant special consideration for uniqueness, importance, cost, priority, and duration of effort. Accordingly, potential projects, so as not to underestimate their value-add and timing, need to be subjected to an assessment process that will allow the sponsor, stakeholders, project team, and other interested parties to validate the potential project benefits and timing.

Because many teams are initiated without regard for need and feasibility, an assessment process that includes valuation criteria should be pursued in order to ascertain the merit of the project itself. Major component phases of the assessment process may include, but may not be limited to, the following:

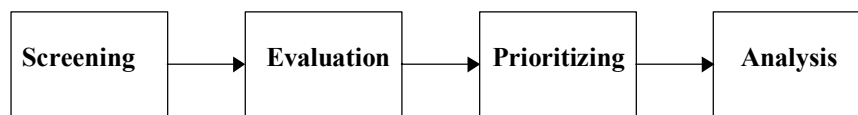


Figure 1.5
Project Assessment Phases

Screening

Typically, the screening phase consists of collecting data for determining whether the project belongs to a particular agency or organization and for preparing inputs for the Evaluation Phase. The perceived urgency of implementing ideas as a project will determine the timing in preparing data for review. This phase of the effort should be a quick and inexpensive exercise.

Evaluation

The Evaluation Phase builds on information gathered in the Screening Phase and provides, in greater detail, potential project information that will be used for evaluation. This information is then used to make such determinations as whether the idea warrants a project effort, whether the idea integrates into the agency strategy, whether the idea fits within current budget constraints, and whether the idea conflicts with ongoing projects. It will help detail the protracted benefits of the project.

This phase may require the input of outside experts or the utilization of computational analysis, or it may include the use of technological forecasting. The results of the Evaluation Phase may indicate that the idea can be considered a project. This would lead to prioritizing the implementation of this project with regard to the current agency workload.

Section 1: Project Management Overview

Project Screening and Selection

Prioritizing

In the Prioritizing Phase, each idea (if there is more than one idea or if there is a comparison with ongoing projects) is weighted and appraised in terms of its relative strengths and weaknesses. This weighting would not only determine its individual merit as a project to pursue, but it would indicate a relative strength compared to ongoing projects. In order to determine whether to pursue this project, a number of various techniques may be used. A few of the more generally accepted procedures are listed:

- **Checklist/Scoring Models** – a spreadsheet-type analysis weighting various projects.
- **Cost Benefit Analysis** – a comparison of benefits from completing the project versus the outcomes of not instituting the project (this must be carefully considered when the benefits are difficult to measure; e.g., conducting a training seminar vs. installing a telefile system).
- **Risk Analysis** – an analysis of issues created while the potential project is being conceived. The intent in Risk Analysis is to try to quantify concerns that could possibly impede project progress and deter outcome. (A most popular and useful technique used in analysis of a system is the Failure Modes and Effects Analysis—FMEA.)
- **Decision Trees (flow networks)** – a method for depicting and facilitating the analysis of problems that involves sequential decisions and variable outcomes over time.

It is hoped that any, or all of these, techniques will be useful in determining the relative merit of projects. Summarily, the results of this Prioritizing Phase will lead to an initial allocation of resources (human, capital, financial) in beginning the efforts of the project.

Analysis

Analysis of enterprise considerations defines the final phase of project assessment selection. If the results of the Evaluation Phase indicate that the project should replace an ongoing project, then it will be necessary to analyze how to re-allocate resources to the new project while an ongoing project is temporarily put on hold or perhaps terminated. The process of going through an Analysis Phase will be used, of course, only if projects are competing for the same resources.

An Assessment Matrix

An Assessment Matrix, as referenced in the Prioritization Phase, provides a method for making decisions among alternatives based on their key components and benefits. When a senior executive must choose between two or more options, an assessment aid will provide straightforward, quantitative information that can be easily and quickly used to support decisions. Figure 1.6 displays an example of a filled-in weighting, assessment method that may be used in conjunction with agency-generated criteria (see Figure 1.7 as an example) in determining relative merits of projects.

Section 1: Project Management Overview

Project Screening and Selection

Project	Resources	Duration	Risk	Cost	Rating
Project New	3	3	5	3	14
Project 1	1	1	1	3	6
Project 2	3	1	3	3	10
Project 3	5	3	3	3	14
Project 4	3	5	2*	5	15

Arbitrary decision

Figure 1.6
Assessment Matrix

Project Size	Resources	Duration	Risk	Cost
Small = 1	< 5	< 3 months	No impact	< \$50K
Medium = 3	< 10	< 6 months	Impacts Divisions	< \$250K
Large = 5	> 10	> 6 months	Impacts other Agencies	> \$250K

Figure 1.7
Example Assessment Legend

Ranking

A simple Likert ranking scale (1, 3, or 5) can be easily applied to choosing how projects are prioritized and implemented. The following ranking scale applies to the example above:

- A score of 4 to 8 = a small project
- A score of 9 to 15 = a medium project
- A score of 16 and higher = a large project

Because different agencies have different internal requirements, each agency should determine the best methodology for implementing an assessment scheme for its use.

When Not to Formalize a Project Effort

The formalization of project efforts is as unique as there are numbers of projects being undertaken and agencies undertaking them. However, it is generally accepted best practice that the establishment of project activities (scope, plan, WBS, scheduling, and other project components as described in this methodology) need not be formalized for efforts with less than three people, whose duration does not exceed one month.

Essentially, an assessment approach should be kept flexible enough so that the effort and results are consistent with the size and complexity of the alternatives being evaluated, life cycle phase, and level and type of review being supported.

Section 1: Project Management Overview

Capturing Project Lessons Learned

“Lessons Learned” Defined

A “Lesson Learned” may be one of the following:

- **Problem** - an adverse work practice, experience or other problem that is captured and shared to avoid recurrence
- **Success** - a good work practice, innovative approach or other success that is captured and shared to promote repeat application.

A lesson learned might also be the knowledge acquired from a problem or success that causes a process improvement.

Successes, as well as problems on the project, need to be identified both during the life of the project and in the PIER. It is important to incorporate successful new ideas in the project at hand, and where possible, these successes should be translated into processes or procedures that can be followed by future projects.

Ongoing Documentation of Lessons Learned

Project team members should utilize the Lessons Learned Document to submit Lessons Learned to the project manager as they occur, rather than waiting until the PIER to bring them all to light, if they can be remembered at all. By conducting short, periodic end-of-phase Lessons Learned sessions, the Project Manager takes advantage of the opportunity to solicit and accumulate unsubmitted Lessons Learned closer to the timeframe in which they occur. These small meetings provide the project team with a structured way to review feedback from project staff on key project execution areas within a project phase, and the ability to apply any appropriate Lessons Learned to future project phases. The agenda for these sessions should include the following items:

- Summary of the project phase, project state and/or key milestones related to the phase
- Identification and discussion of problem-related lessons learned during the phase
- Identification and discussion of success-related lessons learned during the phase
- Identification and discussion of any lessons learned from previous phases that have only recently come to light or lessons learned that were submitted confidentially
- Summary of any action items resulting from the discussion

The project manager should also encourage Lessons Learned documents to be submitted outside of a periodic review. This allows Lessons Learned to also be submitted confidentially.

Using the Lessons Learned Template

The Lessons Learned template is used to submit Lessons Learned to the project manager in an ongoing manner. The template captures the project phase, process/deliverable, description, analysis and recommendation for action pertaining to Lessons Learned.

The **Category** will be used for indexing a planned online database of Lessons Learned. Please select a Category that best fits your Lesson Learned. Examples for “Other” might be mentoring or interns.

The **Project Phase** should be the Project Management Methodology

Section 1: Project Management Overview

Capturing Project Lessons Learned

(PMM) phase or the Systems Development Life Cycle (SDLC) methodology phase that the success or problem occurred in.

The **Process/Deliverable** should be the methodology process that was followed or deliverable that was being developed during the identified project phase.

In the **Description** section, the submitter provides details of the problem or success sufficient to illustrate the incident or activity.

The **Analysis** section provides for a review of the incident or activity to determine the root cause, to identify contributing factors, and to prevent further concerns. It is also in the analysis section that good work practices can be identified. A good work practice is a positive lesson or action that has the potential to be the basis of significant improvements, cost savings, or to promote repeat application.

The **Recommendation** section (if applicable) allows for the submitter to provide their input on any specific activities taken as a result of a lesson learned. Actions may include:

- Corrective Actions (actions taken as a result of the analysis of an actual experience)
- Preventive Actions (actions taken to prevent a negative situation from occurring)
- Improvement Actions (actions taken to improve the efficiency or safety based on good work practices or an innovative approach).

Lessons Learned as Part of the PIER

One purpose of the PIER is to collate and document the lessons learned on a project. This means that problems and successes encountered by the project team are openly presented. Problem and success identification on completed projects provides a method to discuss problematic project issues encountered in hopes of either eliminating their occurrence in future endeavors or to capture and share successes to promote their repeated application. It is important, however, that when dealing with problems that these discussions do not merely point a finger at some target other than the project team; responsibility and ownership for problem areas are critical for developing useful recommendations for future processes.

It is advisable to have a mechanism during the PIER to communicate the closure of a project in writing; a group review process. Such an end-of-project Lessons Learned session is a valuable closure and release mechanism for team members, regardless of the project's success level.

Executing a final Lessons Learned Review enables the Project Manager to gather, prioritize, and analyze feedback from project team members in order to more effectively plan for future projects. The Lessons Learned PIER Review:

- Provides a structured way to review all key project areas by soliciting new and reviewing previously submitted feedback from project staff for a given project.
- Enables the Project Manager to identify the most important activities that were viewed as successes by the Project Team to

Section 1: Project Management Overview

Capturing Project Lessons Learned

ensure that they are sustained in the future.

- Enables the Project Manager to identify the most important activities that were viewed as problems or improvement opportunities by the Project Team to ensure that action is taken to address these items and that they are not repeated in the future (to the extent possible).
- Enables the Project Manager to identify things that occurred during the life of the project that were unplanned for and had some impact on project scope or schedule that should be considered when doing planning for similar projects in the future.
- Provides a vehicle for collecting information to provide to managers of new, similar projects (or the next phases of existing projects) in order to proactively address issues that are likely to be encountered.

The PIER Lessons Learned session is typically a large meeting that includes the following, however, the project manager should also encourage Lessons Learned documents to be submitted outside of the PIER review session. This allows Lessons Learned to also be submitted confidentially.

- Project team
- Stakeholder representation – including external project oversight
- Executive management
- Maintenance and operation staff

The agenda for the PIER lessons learned session should include the following items:

- Introduction of participants
- Explanation of the goals of the session and the responsibilities of the participants
- Summary of the project, project state and/or key milestones
- Identification and discussion of problem-related lessons learned
- Identification and discussion of success-related lessons learned
- Identification and discussion of any lessons learned from previous phases that have only recently come to light or lessons learned that were submitted confidentially.
- Summary of any action items resulting from the discussion

Documenting Lessons Learned During the PIER

The project manager typically has the responsibility for preparing the Lessons Learned section of the PIER report. The problems and successes encountered are prioritized for the PIER with focus on the top five problems and the top five successes out of all those submitted. The individual problems and successes that occurred throughout the course of the project should have been presented and documented when they occurred, then addressed and handled as warranted. While it is not necessary to document every small event, all legitimate problems and issues should have been discussed as requested by customers or management. The lessons learned documented in the PIER are generally for upper management's review and action, as well as for future project managers/teams to review and use to prevent the same thing (bad) from

Section 1: Project Management Overview

Capturing Project Lessons Learned

Phases and Deliverables Pick List

happening again, or to make the same thing (good) happen again.

When problems or sensitive issues are discussed in the PIER document, it is helpful to have all contributors included in a review of the material prior to formally submitting the document. It is useful to have this review in an interactive forum where all parties can discuss their recommendations for improvement. The PIER can then present a comprehensive view of the lessons learned on a project.

- I. Initiation Phase**
 - a. Project Concept Document
 - b. Project Charter
 - c. Define project success factors
 - d. Project Description Statement
 - e. Project Feasibility Document
 - f. Other: Team frustration, obtaining management commitment, customer indecision, scarcity of resources, lack of coordinated leadership, lack of consensus on objectives, lack of management sponsor
- II. Planning Phase**
 - a. Objectives and Scope Definitions
 - b. Work Breakdown Structure
 - c. Organizational Breakdown Structure
 - d. Activity Definition and Sequencing
 - e. Cost Benefit Analysis
 - f. Resource Planning
 - g. Project Schedule
 - h. Budget Plan
 - i. Communications Plan
 - j. Risk Analysis and Planning
 - k. Change Management Plan
 - l. Procurement Plan
 - m. Quality Plan
 - n. Contingency Plan
 - o. Project Planning Transition Checklist
 - p. Project Plan
 - q. SDLC as applicable: Requirements Document, Specifications Document, Design Documents, Implementation Plan
- III. Execution Phase**
 - a. Project Plan Execution
 - b. Status Reports
 - c. Quality Assurance
 - d. Project Administration
 - e. Performance Monitoring
 - f. Risk Monitoring
 - g. Information Distribution
 - h. SDLC as applicable: Development, Testing, Implementation, Documentation
- IV. Control Phase**
 - a. Review of Metrics and Status Reports
 - b. Change Control

Section 1: Project Management Overview

Capturing Project Lessons Learned

- c. Scope Control
- d. Schedule Control
- e. Risk Control
- f. Quality Control
- g. Cost Control
- h. Contract Administration
- i. SDLC as applicable: Development, Testing, Implementation, Documentation

V. Closeout Phase

- a. Administrative Closure
- b. Developing Post Implementation Evaluation Report (PIER)
- c. Financial Closure
- d. Archiving
- e. Financial Audit
- f. Project Sign-off
- g. Personnel and Facilities
- h. Lessons Learned
- i. SDLC as applicable: Maintenance, Service level Agreement

Lessons Learned Template

The State of Michigan PMM Lessons Learned template can be found on the following pages as well as separately in Appendix B of this methodology.

This template may be tailored to meet the needs of the particular lessons learned endeavor.

Section 1: Project Management Overview

Capturing Project Lessons Learned

State of Michigan (Insert Project Name Here) Project Lessons Learned

A. General Information

Information to be provided in this section is general in nature and provides the necessary information about the organization of the proposed project and project participants.

Project Id: _____	Date: _____
Controlling Agency: _____	Project Manager: _____
Prepared By: _____	_____

B. Instructions

For each comment block completed, please provide the following information. Refer to the Phases and Deliverables listing for guidance in providing the phase and process/deliverable information.

- *For purposes of future online database indexing, please select a **Category** that best fits your Lesson Learned. Examples for "Other" might be training, mentoring, interns, etc.*
- **Project Phase** – *Project Management or Systems Development Life Cycle phase that the problem or success occurred in.*
- **Process/Deliverable** – *PM methodology process that was followed or deliverable that was being developed during the phase.*
- **Description** *of the problem or success*
- **Analysis** *of the root causes of the problem or success and the key factors that influenced the results*
- **Recommendation for Action** *(if applicable)*
 - *Corrective Actions (actions taken as a result of the analysis of an actual experience)*
 - *Preventative Actions (actions taken to prevent a negative situation from happening)*
 - *Improvement Actions (actions taken to improve efficiency or safety based on good work practice innovation)*

CATEGORY:	<input type="checkbox"/> Budget	<input type="checkbox"/> Client	<input type="checkbox"/> Communications	<input type="checkbox"/> IT Components
	<input type="checkbox"/> Procurement	<input type="checkbox"/> Project Plan	<input type="checkbox"/> Project Schedule	<input type="checkbox"/> Quality
	<input type="checkbox"/> Resources	<input type="checkbox"/> Risk	<input type="checkbox"/> Scope	<input type="checkbox"/> Change Management
	<input type="checkbox"/> Training	<input type="checkbox"/> Other:		
PROJECT PHASE:		PROCESS / DELIVERABLE:		
<input type="checkbox"/> Success		<input type="checkbox"/> Problem / Improvement Opportunity	<input type="checkbox"/> Other Please Explain:	
Description:				
Analysis:				

Section 1: Project Management Overview

Capturing Project Lessons Learned

Recommendation:				
CATEGORY:	<input type="checkbox"/> Budget	<input type="checkbox"/> Client	<input type="checkbox"/> Communications	<input type="checkbox"/> IT Components
	<input type="checkbox"/> Procurement	<input type="checkbox"/> Project Plan	<input type="checkbox"/> Project Schedule	<input type="checkbox"/> Quality
	<input type="checkbox"/> Resources	<input type="checkbox"/> Risk	<input type="checkbox"/> Scope	<input type="checkbox"/> Change Management
	<input type="checkbox"/> Training	<input type="checkbox"/> Other:		
PROJECT PHASE:	PROCESS / DELIVERABLE:			
<input type="checkbox"/> Success	<input type="checkbox"/> Problem / Improvement Opportunity	<input type="checkbox"/> Other Please Explain:		
Description:				
Analysis:				
Recommendation:				

Copy to DIT Project Management Resource Center

Section 1: Project Management Overview

PMM Feedback Process

Need for PMM Feedback

“Champions know that success is inevitable; that there is no such thing as failure, only feedback.” – Michael J. Gelb.

Using the Feedback Document

The feedback is structured so that you can easily provide information on the area of concern, and then add constructive comments as to how you believe the area can be strengthened or otherwise improved.

Benefits of Feedback

Feedback provides information that can be used for improvement. Providing constructive feedback not only helps to solve problems, but can also work to prevent potential problems from growing to the point where they have a negative impact on the project, on others and on the organization. Some of the benefits of providing feedback are:

- Assessment of competence
- Confirmation of strengths
- Focus for development
- Improve teamwork and performance
- Cost effective use of resources
- Clear focus on development area

Characteristics of Good Feedback

Feedback that can help us improve our project management processes has the following characteristics:

- It is descriptive rather than evaluative in tone. Avoiding evaluative language reduces the need for anyone to take a defensive posture.
- It takes into account both the needs of the submitter and those of the receiver. Feedback can be destructive when it serves the submitter at the expense of the receiver.
- It is structured around those shortcomings the receiver can do something to correct. Frustration is increased when one is reminded of weaknesses over which he/she has no control.
- It is specific rather than general. To say that something is "not working" is not as useful as to have a specific situation recreated.
- It appears to be solicited rather than imposed. It is very important that we share in determining the things to be observed and that your feedback is often a response to questions about certain aspects of the PM process.
- It is given at the earliest opportunity after the observation.
- It answers these questions:
 - Did the work go as well as you had planned?
 - Did the strategies you planned work?
 - If you could do it again, what would you do differently?
 - What would you have changed? How?

In instances when it is necessary to give negative feedback, consider these questions:

Section 1: Project Management Overview

PMM Feedback Process

PMM Feedback Template

- Are you emotionally distanced enough to provide valid feedback comments?
- How many times have you presented this same feedback?
- Can you or the PMO do anything about the issue / concern?
- What specific suggestions can be made for improvement?
- How can expectations be clearly given (i.e. timelines for specific improvements)?
- Identify when you have addressed an issue or concern or have successfully applied the suggested improvement strategies.

The State of Michigan PMM Feedback template can be found on the following page as well as separately in Appendix B of this methodology.

The feedback is structured so that you can easily provide information on the area of concern, and then add constructive comments as to how you believe the area of the PMM that can be strengthened or otherwise improved.

Section 1: Project Management Overview

PMM Feedback Process

State of Michigan Project Management Methodology PMM Feedback

A. General Information

Information to be provided in this section is general in nature and provides the necessary information about the organization of the proposed project and project participants.

Project Name: _____ **Date:** _____
Controlling Agency: _____ **Prepared by:** _____

Your feedback is very important to us. It is your chance to tell it like it is. Please use this template to provide your comments and suggestions on your PM Methodology experiences so we may continue to improve the process. We want to hear it all - problems you've had, areas in need of improvement, suggestions, and last, but certainly not least, things that worked well, positive experiences, etc. Remember, if we all work together, the process can be improved!

B. Instructions:

For each phase block completed, please provide the following information:

- Description of the situation.
- Comments on whether the work went as well as you had planned? Did the strategies you planned work? If you could do it again, what would you do differently? What would you have changed? How?
- In instances when it is necessary to give negative feedback, consider these questions:
 - Are you emotionally distanced enough to provide valid feedback comments?
 - Can you or the PMO actually do anything about the issue / concern?
 - What specific suggestions can be made for improvement?
 - Provide expectations in a clear manner, such as timelines for specific improvements.
 - Identify when you have addressed an issue or concern or have successfully applied the suggested improvement strategies.

PROJECT PHASE:	PROCESS / DELIVERABLE:
Description:	
Comments:	
PROJECT PHASE:	PROCESS / DELIVERABLE:
Description:	
Comments:	
PROJECT PHASE:	PROCESS / DELIVERABLE:
Description:	
Comments:	

Section 1: Project Management Overview

Information Technology Components for Project Overview

Information Technology Components for Project Overview

Information technology projects are very similar in nature to non-information technology projects in many respects. From the aspect of a project definition, IT projects are still temporary in nature and have a clear start and end date, a defined set of deliverables, and a limited budget. The goal is still to develop a new or unique product. The subtle difference lies in the steps taken to develop the IT product.

Information Technology Project Definition

IT projects consist of applying the people, process, and tools to initiate, plan, execute, control, and close out projects relating to computer-based information systems. IT deliverables are normally created using what is referred to as the System Development Life Cycle (SDLC). The SDLC is a very detailed and specific set of procedures, steps, and documents that carry a project through its technical development. The focus of the IT subsections within this methodology is not to concern the project manager with how the IT product is created within the SDLC. Rather, it is intended as a guide to assist in deciding on what project management concepts must be applied during the development of an IT product to ensure that a quality deliverable meets or exceeds customer expectations.

The System Development Life Cycle can be seen in Figure 1.8, below.

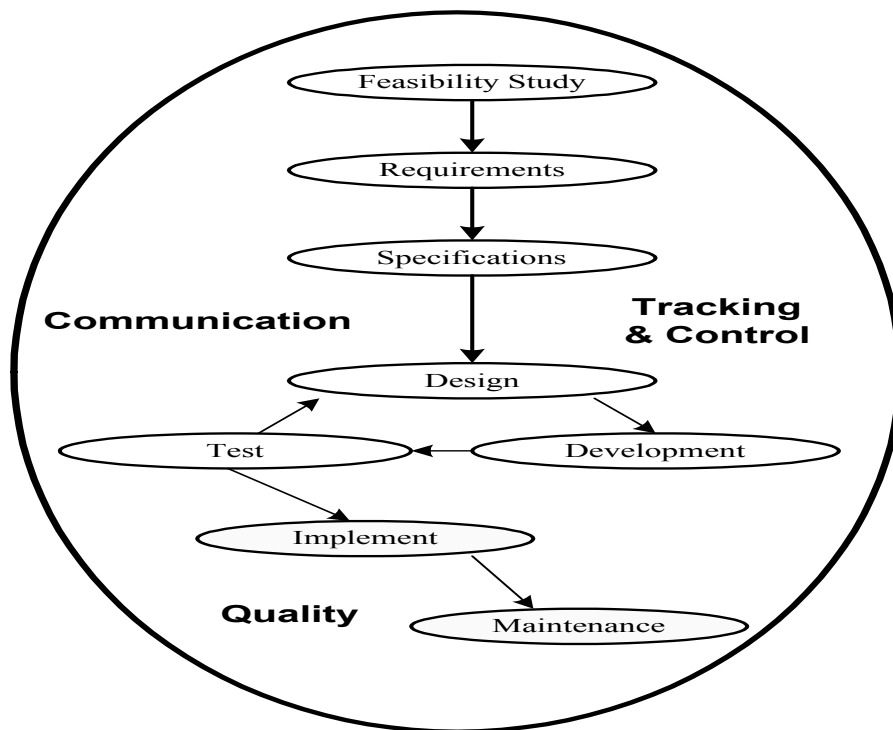


Figure 1.8
System Development Life Cycle

Section 1: Project Management Overview

Information Technology Components for Project Overview

Applying Project Management to Information Technology

Project management is broken down into five phases: Initiation, Planning, Execution, Control, and Close-out. As described in the previous paragraph, information technology projects can be broken down into the same phases; however, within those phases, several SDLC processes are performed (e.g., requirements definition, design, development, testing, operations). These processes have been created and are maintained at an agency level. However, it is very easy to get wrapped up in the technical development of the IT system itself and forget the management-level concepts and deliverables.

A project manager's responsibility is to maintain a high-level perspective of the technical development within the project and ensure that the core project management concepts are being applied to create the project framework. This includes creation of the documents and plans that are described throughout this methodology. While there will be times on small projects when project managers will be involved in the technical development of the product, the most important duty is to ensure that the project is coordinated and carried out as smoothly as possible to the satisfaction of the customer.

Considering the fact that the System Development Life Cycle and Project Management Methodology are two different 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 portion of the methodology is to integrate the need for project management with the processes performed in the System Development Life Cycle. For example, much of the preparatory work for development of an IT product takes place within the requirements and design phase of the SDLC. However, from the Project Management Methodology perspective, these activities take place during the Planning Phase of the product development. Clarifying and separating the project management roles from those of technical development of the product is of significant importance to ensure that proper project management concepts are initiated and performed.

Figure 1.9, on the next page, compares the Project Management Phases against the steps in the System Development Life Cycle over time. Note that the solid line is the level of effort on the Project Management Phases side (greater during the Planning Phase) and the dotted line is the level of effort on the System Development Life Cycle side (greater during the Execution and Control Phases).

Why is Project Management Important to Information Technology?

The reason that project management is applied on IT projects is to maximize the quality and productivity while minimizing the risks of a technology effort.

Project management is no longer something done in the executive office without any attention paid to the technical detail of the product. The technologies being used in IT projects are becoming more complex, and many projects require integrating several technologies. No one person in an organization is going to have the vast technical knowledge to understand the integration of several technology platforms on a large-scale project.

Therefore, there is a defined need to have a coordinator, such as the project manager, to ensure that necessary skills will be available when needed and to ensure smooth transition from phase to phase and technology to technology. Similarly, as agencies strive to become more matrixed in their approach to project coordination, efforts among the functional technologies will increase.

Section 1: Project Management Overview

Information Technology Components for Project Overview

Having trained and knowledgeable professionals with specific skills to perform the work will be of paramount importance to delivering exceptional projects.

Furthermore, during a time when information technology outsourcing has become increasingly more acceptable, it is important that agency information technology organizations improve their performance and abilities. It is reasonable to assume these days that contractors can be brought in, even at greater expense, to provide technical services if they have the project management skills and processes desired by executive management. Remember, the technology of the project is the same for everyone. It is the management of the processes that make the difference.

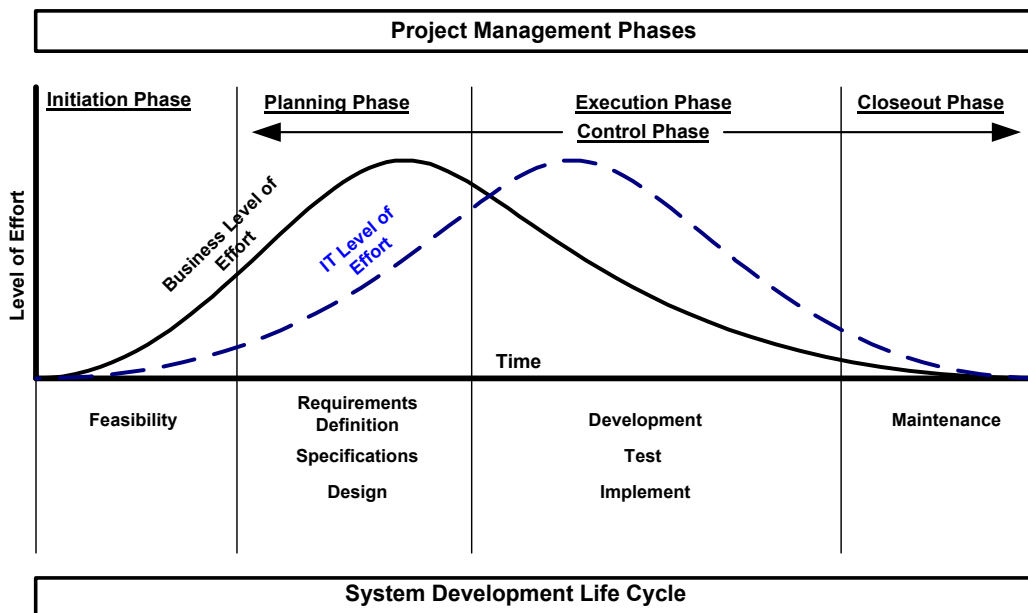


Figure 1.9
Project Management Phases Compared to the System Development Life Cycle

Section 1: Project Management Overview

Information Technology Components for Project Overview

Problems with Managing Information Technology Projects

There are several reasons that IT projects have historically been more difficult to handle than other types of projects. IT projects can be managed in the same way that other projects are managed, but managers have often had difficulty applying the project management methodologies to technical projects. Some of the more common problems identified with IT project management are listed below.

Continuity Among Management Efforts Does Not Remain Consistent

IT projects typically focus on the technical issue at hand without anyone to provide oversight from a management level. Someone within the organization needs to provide leadership and accountability for high-level planning and for the work involved to do in that planning. This is the role of the project manager.

Information Technology Projects Are Not Planned Well

Technical endeavors are normally carried out by staff expected to apply their technical skills to the project. It is rare to find technical experts who have the fundamental project management skills to carry out the high-level planning functions for anything other than technical requirements. Once again, someone with project management skills will need to step in to provide guidance and ownership for the Planning Phase and beyond.

Lack of Knowledge of Fundamental Project Management Practices

Technical project team members need to be made aware of the core project management processes and they need to develop an understanding of how their responsibilities play into the overall project process. Their input will be the basis for process as well as technical documentation during the project. Conversely, the project process documents they create will have an impact on how they will perform their jobs.

Projects Change Over Time

Technical requirements may change on a daily basis. Being able to understand and apply processes that will facilitate managing change is a part of project management that will apply to all IT development efforts. Making changes using defined project management will provide needed project management structure to IT development.

Budgets Affect All Types of Projects

The System Development Life Cycle does not have a specific area in which issues of budget are addressed. Defined and applied structure in areas such as budget and cost management are core processes that apply to IT projects but are not accounted for in their development. The same holds true for areas such as communications, risk, procurement, and others.

Problems with Information Technology Projects Are Not Necessarily Technical

There are several reasons that IT projects have historically been more difficult to handle than other types of projects. IT projects can be managed in the same way that other projects are managed, but managers have often had difficulty applying the project management methodologies to technical projects. Some of the more common problems identified with IT project management are listed in succeeding sections.

Section 1: Project Management Overview

Information Technology Components for Project Overview

***Information Technology
Project Management within
the Project Management Life
Cycle***

As you review the subsections of each of the five project phases, you will notice that there is a particular subsection in each phase named “Information Technology Components.” It is important to note that project managers will not be able to manage an IT project simply by reviewing these as standalone sections. It is imperative that project managers read, understand, and apply the skills and the processes described in the other subsections to guarantee project completion. To assist with this, the other subsections within the phases will be referenced within the IT subsection for the convenience of the reader.