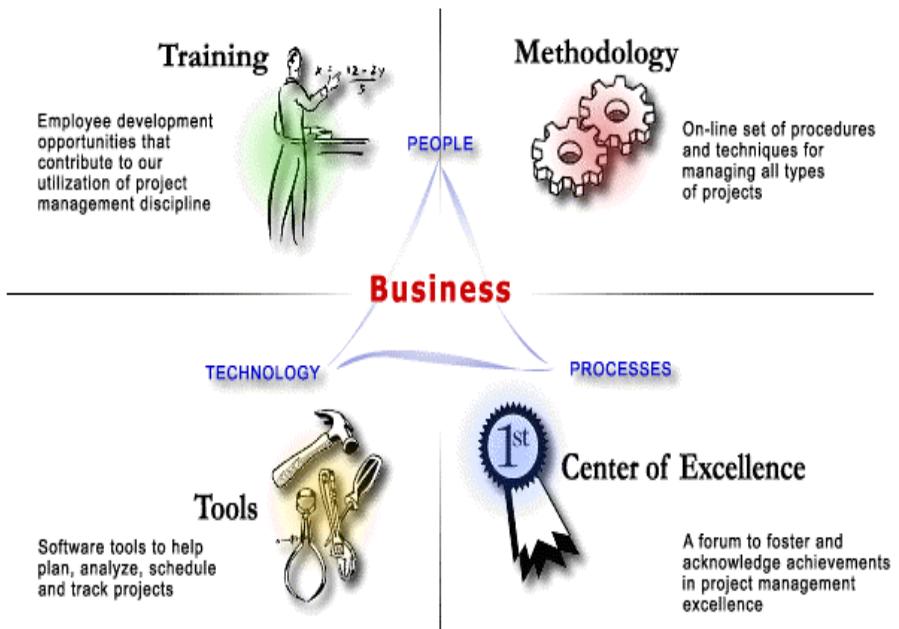




STATE OF MICHIGAN PROJECT MANAGEMENT METHODOLOGY DESK REFERENCE



MICHIGAN DEPARTMENT OF INFORMATION TECHNOLOGY
PROJECT MANAGEMENT RESOURCE CENTER
www.michigan.gov/projectmanagement

DECEMBER 2004

THIS DESK REFERENCE BELONGS TO:

AGENCY: _____

PROJECT NAME: _____

PROJECT MANAGER: _____

PROJECT START DATE: _____

PROJECT FINISH DATE: _____

PROJECT MANAGEMENT METHODOLOGY

DESK REFERENCE

PURPOSE

This guide was created to provide an easily transportable and user friendly project management methodology reference for agencies within the State of Michigan. The guide 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. For greater detail on any subject within this guide, refer to the State of Michigan Project Management Methodology.

WHY THE DESK REFERENCE 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 Desk Reference (December 2004) is its third release. This guide 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 guide will be a product of input from the user. If changes or additions need to be made, please complete a PMM Feedback Document and submit it to the Project Management Resource Center (PMRC) via email at DIT-ProjectManagement@Michigan.gov. The PMRC representative will take your idea to the next Methodology Advisory Group meeting and recommend the addition or change in the next version release or an interim sub-release.

CHANGES IN THE 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 its critical elements 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 Desk Reference 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 desk reference is considered an action 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 can be of significant benefit to improve one-on-one project management training conducted by a project mentor or coach. It can also be used as a reference for developing train-the-mentor materials 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>.

Acknowledgements

The State of Michigan would like to acknowledge the following individuals that made this version of the desk reference and the State of Michigan Project Management Methodology possible. Without their input and hard work, this would not have been achieved.

<u>THIRD RELEASE (DECEMBER 2004)</u>	
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Patty Bogard DIT, Contracts & Procurement Services	

HOW TO USE THIS DESK REFERENCE

APPLICATION OF THIS GUIDE

This desk reference provides an easy to use variety of checklists, visual cues, design features and clear language that will assist project managers and project teams throughout Michigan State Government.

This guide is a high-level representation of the State of Michigan Project Management Methodology (PMM). When more detail is needed, the user should refer to the State of Michigan Project Management Methodology, either in hard copy or electronically at <http://www.michigan.gov/projectmanagement>.

TIPS AND TECHNIQUES FOR USE

This desk reference has been broken down into seven major sections that are tabularized along the right edge of the guide. The sections are itemized in the Table of Contents on the following pages.

The Overview Section provides high-level Project Management Methodology materials and visual aids. Later in the guide, each phase, and the respective processes within that phase, is covered in greater detail.

- ☞ Look for this symbol when reading the phase areas of the methodology. Whenever this symbol is found next to a *process* or *step* it means that there are deliverables associated with this step.

- ⌘ Look for this symbol when reading the phase areas of the methodology. Whenever this symbol is found next to a *process*, it means that the action performed is simply a process and there are no deliverables.

The sample forms and templates in this booklet are not intended to be used as is. They are simply a reference to more detailed forms and templates within the Project Management Methodology. See the full version of the methodology for complete forms and templates.

– Special Project Notice –

Many business areas assume that a technology-based approach is the key to their business solution. Many project failures can be attributed to this assumption.

It is recommended that an “assessment” of the business environment take place prior to adopting a technical solution. This will ensure that the business area is ready to implement a technology-based solution.

Also, one must fully understand all project components prior to "executing the plan" so that nothing "falls through the cracks" during the Project Planning and Execution Phases.

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Project Screening and Selection

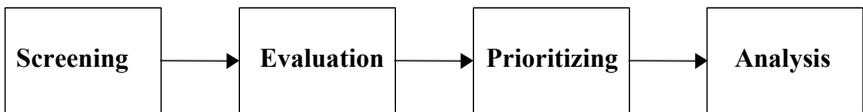
The Project Assessment Process

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 under estimate 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 can include, but may not be limited to, the items noted in Figure 1:

Figure 1

Project Assessment Phases



Screening

Typically, the screening phase consists of collecting data to determine whether or not 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 delay 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 or not the idea warrants a project effort, integrates into the agency strategy, fits within current budget constraints, and/or conflicts with ongoing projects. It will help detail the "protracted" benefits of the project. This phase may require the inputs of "outside" experts, 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 has reached an acceptable level to be considered a project. This would lead to the next step of prioritizing the implementation of this project with regard to the current agency workload.

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 determine not only its individual merit as a project to pursue, but it would indicate a relative strength compared to ongoing or competing 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:

- Checklist/Scoring Models – a "spreadsheet" type analysis weighting various projects.
- Business Case 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 versus installing a "tele-file" system).
- Risk Analysis – an analysis of issues created while the potential project is being conceived. The intent of Risk Analysis is to try and 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) toward 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 an analysis will need to be conducted as to how to reallocate 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 only if projects are determined that they will be 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 which can be easily and quickly used to support decisions. Figure 2 displays an example of a completed weighting, assessment method that may be used in conjunction with agency generated criteria (see Figure 3 as an example) in determining relative merits of projects.

Figure 2

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 3

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

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

Because different Agencies have different internal requirements, it is suggested that each Agency determine the best methodology for implementing an assessment scheme for their 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, it is recommended that an assessment approach 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.

Project Notebook and Checklist

PROJECT NOTEBOOK

The Project Notebook is the “Repository” that holds all project-related documentation. The Project Notebook is the central location for project-related information, and it contains current, up-to-date documentation, such as current project schedule, status reports, project change notices, etc. The Project Notebook also contains historical documentation such as base-lined versions of the project schedule, status reports, risk analyses, issues log, etc.

The Project Notebook can be in the form of a three-ring binder or a series of hierarchical folders on a secured network drive, or as part of a document management tool.

The Project Notebook should be developed as early as possible in the project to promote organization and documentation accountability. Contained in the Project Notebook is the Project Plan. The Project Plan comprises all of the documents, templates, and statements that are developed during the Planning Phase of the project. A format for the Project Plan is summarized as part of this Desk Reference. A more detailed version of this format may be found in the Project Management Methodology document.

PROJECT NOTEBOOK CHECKLIST

A methodical and efficient project checklist can prevent the loss of time while trying to develop a plan for establishing the need for necessary project documentation. It is hoped that the Project Notebook Checklist, located on the following page, will prove useful as a place to begin.

TIPS AND TECHNIQUES FOR USE

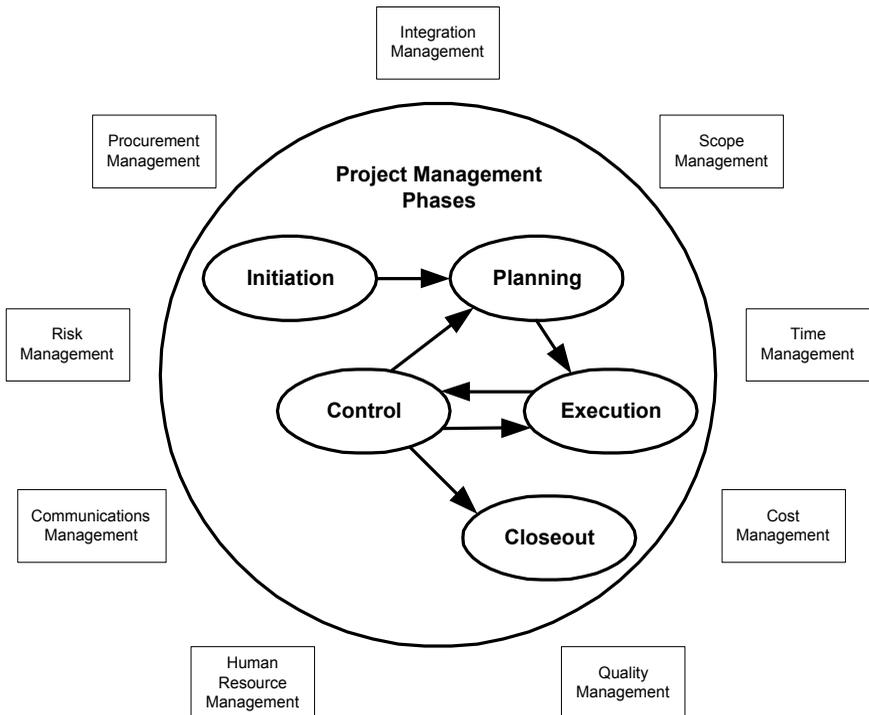
The Project Notebook Checklist is broken down by the various phases of a project. The checklist is meant to facilitate the identification of the various documents necessary to be completed by the team during the course of the project. This checklist should be used as an aid to record and monitor progress of major requirements needed to document project activities.

The Project Notebook Checklist should serve as the Table of Contents for the Project Notebook. Miscellaneous Phase items can be placed immediately after the master section tabs (i.e., “Planning” in the case of the Project Plan Format Document). The contents of this guide should be filed with the project documentation during archiving (during the Project Closeout Phase).

Project Notebook Checklist

<u>PHASE</u>	<u>PROJECT DOCUMENT</u>	<u>ASSIGN DATE</u>	<u>RESPONSIBLE PARTY</u>	<u>COMPLETE DATE</u>
INITIATION	PROJECT CONCEPT			
	BUSINESS CASE			
	PROJECT CHARTER			
	TECHNICAL PROJECT COMPONENTS			
PLANNING	PROJECT PLAN			
	WORK BREAKDOWN STRUCTURE			
	RESOURCE PLAN			
	PROJECT SCHEDULE			
	RISK MANAGEMENT PLAN			
	QUALITY PLAN			
	COMMUNICATIONS PLAN			
	CHANGE MANAGEMENT PLAN			
	PROJECT BUDGET ESTIMATE			
	PROJECT PLANNING TRANSITION CHECKLIST			
	TECHNICAL PROJECT COMPONENTS			
	EXECUTION/ CONTROL	PROJECT STATUS REPORTS		
CHANGE CONTROL REQUEST / CHANGE CONTROL LOG				(WHEN NEEDED / ESTABLISHED)
ISSUE DOCUMENT / ISSUE TRACKING LOG				(WHEN NEEDED / ESTABLISHED)
TECHNICAL PROJECT COMPONENTS				
CLOSEOUT	POST IMPLEMENTATION EVALUATION REPORT			
	TECHNICAL PROJECT COMPONENTS			

PROJECT MANAGEMENT PHASES AND KNOWLEDGE AREAS



WHAT IS PROJECT MANAGEMENT?

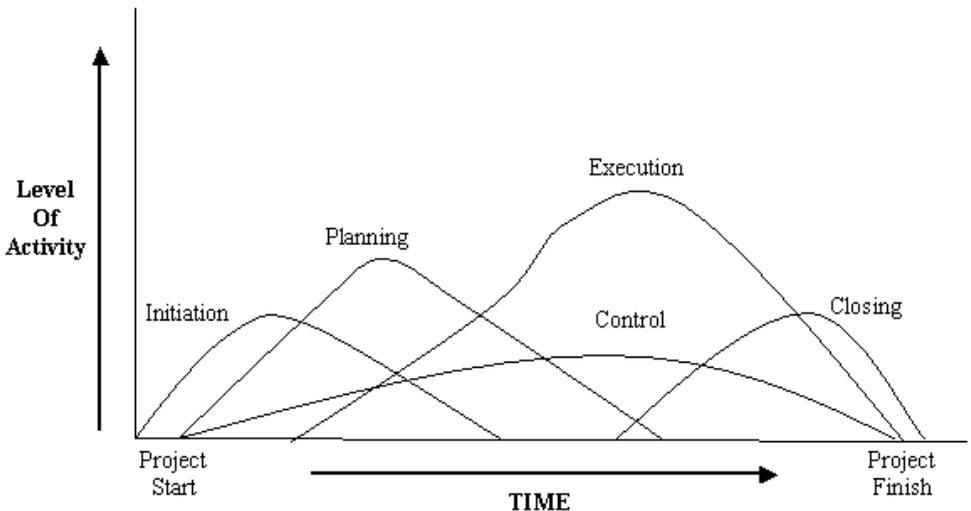
Project Management is the application of knowledge, skills, tools, and techniques to project activities to meet the project requirements.

***PMBOK®*, 2004**

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 the figure on the previous page. These phases overlap and can typically resemble something as portrayed in the following figure.

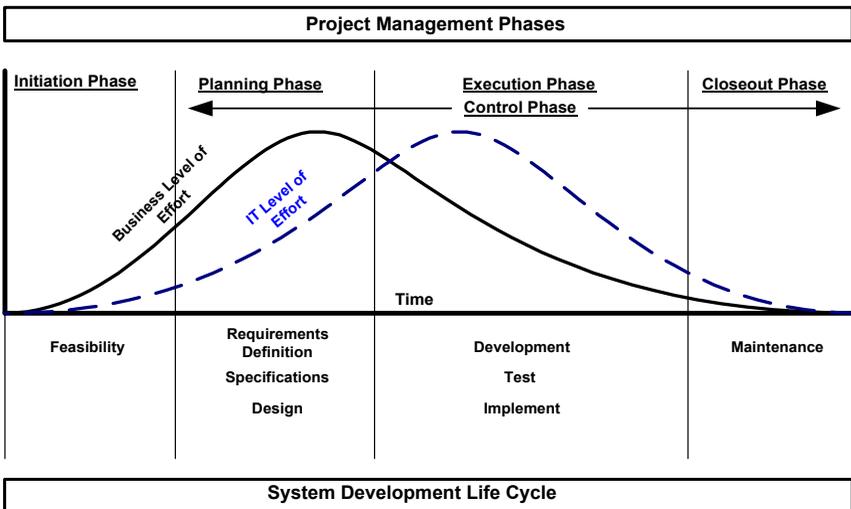


Project Management and The System Development Life Cycle

The Project Management Methodology that is summarized within this guide is intended to be used on any type of generic project effort. However, with the immersion of technology into almost every aspect of the way the State of Michigan does business, Information Technology (IT) Projects have become the most prevalent types of new project efforts.

These projects include software development, telecommunications, and hardware installation.

Information Technology projects typically have their own life cycle called the *System Development Life Cycle (SDLC)*. The System Development Life Cycle has its own set of deliverables and processes that are focused on the more technical portions of the project. The diagram below is a graphical representation of the Project Management Phases (top portion) as compared to the System Development Life Cycle (bottom portion). Note that the two processes are performed in parallel and not in place of one another.



Project Management is a combination of processes to aid the project manager in order to guarantee complete and correct project management, while the technical staff typically carries out the aspects of the System Development Life Cycle. Because of the large number of Information Technology projects within the agencies, this guide makes several references to the processes that take place at the same time as Project Management efforts. These sections are clearly labeled throughout the desk reference for your use.

Project Stakeholders and Their Responsibilities

To ensure project success, the project management team must identify stakeholders early in the project, determine their needs and expectations, and manage those expectations over the course of the project. Below is a list of possible project stakeholders presented in order of relevance to the use of this document.

Stakeholders on every project include:

Project Manager – who has ultimate responsibility for ensuring project success in all areas.

Customer/Client – person(s) or organization(s) who use the product/services of the project.

Project Team Members – who are responsible for performing the work on the project.

Project Sponsor – who leads in getting the need for the project recognized and providing financial resources.

State Agency Management – who defines the business needs of the project.

Quality Assurance – who verifies the ability of the product/process to meet the stated requirements.

Agency/State Procurement – who provides purchasing and contract support to the project.

Project Management Resource Center – who is responsible for defining statewide project policies and providing project oversight.

State of Michigan Citizens and Visitors – who are interested in the success of all projects.

See the State of Michigan Project Management Methodology for a detailed listing of Roles and Responsibilities.

Selection of a Project Manager

Selection of a project manager is not easy nor is it something that should be taken lightly. A project manager's skills and actions are a direct reflection of the agency's commitment and competence in project management. A project manager's daily responsibilities typically include some or all of the following:

- Providing direction, leadership, and support to project team members in a professional manner at project, functional, and task levels
- Using, developing, and improving upon the project management methodology within the agency
- Providing teams with advice and input on tasks throughout the project including documentation, creation of plans, schedules, and reports
- Resolving conflicts within the project between resources, schedules, etc.
- Influencing customers and team members in order to get buy-in on decisions that will lead to the success of agency projects
- Delegating responsibility to team members

Taking these responsibilities into account, it is easy to see that a project manager should not necessarily be selected from an agency based strictly upon tenure or function, but rather based upon a combination of other strengths. A project manager should be selected based upon:

- Skills in project management methods and tools
- Interpersonal and team leadership skills
- Basic business and management skills
- Experience within the project's technical field
- Respect and recognition among peers within the agency

Selecting a project manager based upon these criteria alone would be difficult, therefore more thought needs to be put into the process. Additional information would include level of experience, visibility of the project, availability, and personal interest on the part of the candidate.

Project Phases and Deliverables

The diagram on the following page is a more detailed version of the process introduced on page 19. This diagram is intended to give the user a visual understanding of the process and document flow through the project phases. Each box is representative of one of the five phases of the project management process. Within each box, the reader will find one to three items:

- A brief description of the phase, its relevance, and its purpose within the project.
- A list of the documents associated with that particular phase of the project. These are actual documents that will have to be created for each project, dependent on the needs or size of the project. Further descriptions of the documents are available later in the guide as each phase is broken down into greater detail.
- Information Technology Project Components – As previously mentioned, Information Technology projects are the most common projects within the State of Michigan. This section is dedicated to relating the deliverables and processes that are simultaneously carried out within the Project Management Methodology.

Project Initiation Phase

The Project Initiation Phase is the conceptual element of project management. The purpose of the Initiation Phase is to specify what the project should accomplish and to gain management support.

Project Initiation Documents:

Project Concept Document
Business Case

Project Charter

Project Planning Phase

The purpose of the Project Planning Phase is to identify and document scope, business requirements, tasks, schedules, risk, quality, and staffing needs. This process should continue until all relevant areas of the chartered project have been addressed.

Project Planning Documents:

The ultimate deliverable from the Planning Phase is the **Project Plan**, which is composed of inputs from the following documents:

Work Breakdown Structure

Communications Plan

Risk Management Plan

Resource Plan

Project Schedule

Quality Plan

Change Management Plan

Project Planning Transition Checklist

Project Budget Estimate

Technical Project Components: Requirements Definition, Specifications, Design, Implementation, and Training.

Project Control Phase

Project Control involves managing the processes that compare actual project performance with planned performance and taking corrective action to yield the desired outcome when significant differences exist.

Project Control Documents: Change Control Request, Issue Document

Technical Project Components: Develop, Test, Implement, Train, and Document

Project Execution Phase

The Execution Phase is when the actual work is done to create the product of the project. During Project Execution, the project effort focuses on participating in, observing, and analyzing work being done.

Project Execution Documents: Status Reports

Technical Project Components: Develop, Test, Implement, Train, and Document

Project Closeout Phase

The Project Closeout Phase involves the administrative and financial efforts needed to close out a project after the work has been completed. Also, during the Closeout Phase the product is transferred to the customer./client

Project Closeout Documents: Post Implementation Evaluation Report

Technical Project Components: Maintenance Agreements and Service Level Agreements

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 needs 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 outdated business processes may suffer the same fate.

The necessity of investigating the state of the business processes before initial work towards 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 the Initiation Phase of this methodology) and also as part of the Critical Success Factors within the Project Plan (see Planning Phase of this methodology) 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.

Active Project Transition Process

The Active Project Transition Process is designed to transition projects that are already into the Planning or Execution Phase, and begin using the State's Project Management Methodology's formal processes and templates. Refer to the Active Project Transition Process, located within the Overview Section of the PMM for more information on this topic. See the following pages for an overview of the Project Transition Document.

ACTIVE PROJECT TRANSITION DOCUMENT

The purpose of this document is to convey activities occurring on the project to date, avoiding the need to complete the entire set of documentation from scratch.

A. GENERAL INFORMATION

Information to be provided in this section is general in nature and provides the pertinent information about the organization of the project and personnel involved.

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 referenced or attached.

C. BUSINESS PROBLEM

Describe the business problem or issue that requires 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.

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, yet 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.

- continued -

PROJECT TRANSITION DOCUMENT - CONTINUED

J. RESOURCES

Identify the internal and external resources that are currently, or planned to be, utilized during the project.

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.

L. SCHEDULE INFORMATION

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

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).

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.

O. SIGNATURES

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).

- end -

Lessons Learned Document

Project team members should utilize the Lessons Learned Document to submit Lessons Learned / Best Practices to the project manager as they occur, rather than waiting until the PIER (in Project Closeout) 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 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.

LESSONS LEARNED DOCUMENT

The purpose of the lessons Learned Document is to facilitate a mechanism to share project-based lessons learned and best practices, assessable to all project managers affiliated with state government.

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.

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)

PMM Feedback Document

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 projects, on others and on the organization.

The PMM feedback process 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 can be strengthened or otherwise improved.

PMM FEEDBACK TEMPLATE

Feedback is very important. It is the project manager's chance to help improve the tools that they use. The template is designed to provide comments and suggestions on PM Methodology experiences back to the Project Management Resource Center so that the PMM will continue to be improved.

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.

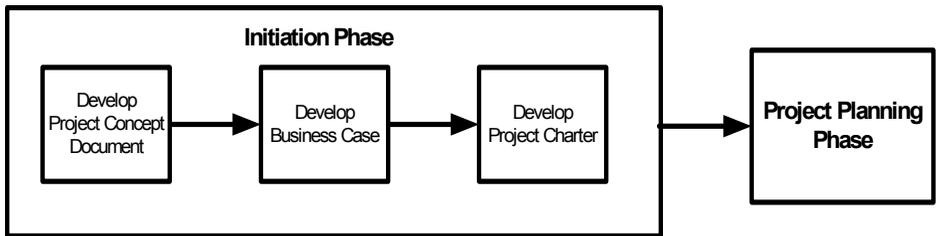
B. INSTRUCTIONS

For each phase block completed on the PMM Feedback Template, 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 Initiation Phase



📄 = Deliverable

⌘ = Process

The Project Initiation Phase is the conceptual element of project management. The purpose of the Initiation Phase is to specify what the project should accomplish and to gain management approval.

PROJECT MANAGER ROLES AND RESPONSIBILITIES (OR LEAD PERSON IF THE PROJECT MANAGER NOT YET SELECTED)

- Develop Project Concept Document and Project Charter
- Define project success criteria
- Document project constraints
- Document project assumptions

INITIATION PHASE CORE PROCESSES

- 📄 Develop the Project Concept Document – The Project Concept Document is the foundation for making the decision to initiate a project. It describes the project purpose and high level planning information to determine project viability.
- 📄 Develop the Project Charter – The Project Charter is created to formally communicate the existence of the project. The Project Charter is issued at the end of the Initiation Phase / beginning of the Planning Phase of a project and is used as the basis to create the Project Plan.

INITIATION PHASE DELIVERABLES

- ☞ Project Concept Document – delineates a Product Description Statement, Critical Success Factors, and other top-level planning information. The entire Project Concept Document Template is available in the State of Michigan Project Management Methodology. See page 35 for an example of its contents.
- ☞ Business Case – supports planning and decision-making. It answers the question: "What are the financial benefits, opportunities, or weaknesses of approving this project?" A good business case shows expected financial consequences of the project over time and includes the methods and rationale that were used for quantifying benefits and costs. See page 37 for an example of its contents.
- ☞ Project Charter – used to formally initiate a project. The Project Charter Template is available in the State of Michigan Project Management Methodology. See page 38 for an example of its contents.

INITIATION PHASE – OTHER IMPORTANT INFORMATION

- ⌘ If the project is selected for implementation, the project manager should be selected when the idea becomes a project or at least by the end of the Initiation Phase.
- ⌘ Be aware of barriers/problems that may arise in the Initiation Phase such as: Team Frustration, Obtaining Management Commitment, Customer Indecision, Scarcity of Resources, Lack of Coordinated Leadership, Lack of Consensus on Objectives, and Lack of a Management Sponsor.

PROJECT CONCEPT DOCUMENT

The purpose of the Project Concept Document is to define the project's reason for being, and it ensures that the project is consistent with the agency's business plan by defining Critical Success Factors, a Product Description Statement, and other high-level planning information.

A. GENERAL INFORMATION

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

B. SYNOPSIS

Information in this section outlines the reasons the Project Concept Document has been created and what the project is intended to accomplish. Major headings include:

Current Situation: Detail the current operating/business environment.

Factors or Problems: All projects start with a business problem/issue to solve.

Areas Impacted: Provide a brief statement of what areas will be impacted by both the project and resulting product or service.

Project Objectives: Provide a brief, concise list of what the project is to accomplish.

Product Description Statement: Provide a brief description of the characteristics of the product/process to be created.

C. STRATEGIC OVERVIEW

This section focuses attention on the compatibility of the project and the strategic and technical direction of the agency.

D. POTENTIAL SOLUTIONS

This section discusses the potential solutions (including off-the-shelf packages) to the problem in the Concept Document.

E. PRELIMINARY RECOMMENDATIONS

This section reviews the preliminary recommendation based upon the areas impacted by this recommendation or the operational protocol.

- continued -

PROJECT CONCEPT DOCUMENT - CONTINUED

F. HIGH-LEVEL PLANNING INFORMATION

This section reviews the high-level activities of the project with respect to the dates, durations, cost, etc. for future considerations.

G. PLANNING, FINANCIAL, AND SCHEDULE INFORMATION

This section discusses estimated budgets, schedules and other information over the life of the entire project.

H. CRITICAL SUCCESS FACTORS

This section is used to list high-level factors that will determine the success of the project. A more detailed description of these factors will be created in the Planning Phase.

I. SIGNATURES

The signatures of the people relay an understanding in the purpose and content of the document by those endorsing it.

- end -

BUSINESS CASE

The purpose of the Business Case is to support planning and decision-making. It answers the question: "What are the financial benefits, opportunities, or weaknesses of approving this project?" A good business case shows expected financial consequences of the project over time and includes the methods and rationale that were used for quantifying benefits and costs. Currently, the Business Case is required for all Level 2 and Level 3 IT-based projects.

SECTION I: PROPOSAL

Information to be provided in this section gives the necessary information about the organization of the project and project participants, goals of the project, whether or not it is mandated, the business significance of this project, any internal improvements to be achieved, current technology and funding sources.

SECTION II: FINANCIAL ANALYSIS

Information in this section outlines current and anticipated costs related to internal operations and citizen benefit of the new system.

SECTION III: POST PROJECT QUANTIFIABLE MEASURES

This section is used to list the quantifiable measures for success after implementation and identify how they will be measured. Categories include:

1. Internal Improvements
2. Citizen Impact
3. Cost Savings
4. Tangible and Intangible Benefits

PROJECT CHARTER

The purpose of the Project Charter is to formally communicate the existence of a project.

A. GENERAL INFORMATION

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

B. PROJECT PURPOSE

This section communicates the purpose of the project and the charter that is being established.

C. PROJECT OBJECTIVE

This section defines the objectives of the project as they relate to the goals and objectives of the agency.

D. PROJECT SCOPE

The level of detail in this section must be sufficient to allow for detailed scope development in the Project Plan. A more detailed description of the project scope will be developed in the Project Planning Phase.

E. PROJECT AUTHORITY

This section describes the authority of the individual or organization initiating the project, limitations or initial checkpoint of the authorization, management oversight of the project, and the authority of the project manager.

F. ROLES AND RESPONSIBILITIES

This section discusses the overall structure of the project organization and its roles and responsibilities throughout the project phases.

G. MANAGEMENT CHECKPOINTS

This section describes key management checkpoints established by the initiating agency.

H. SIGNATURES

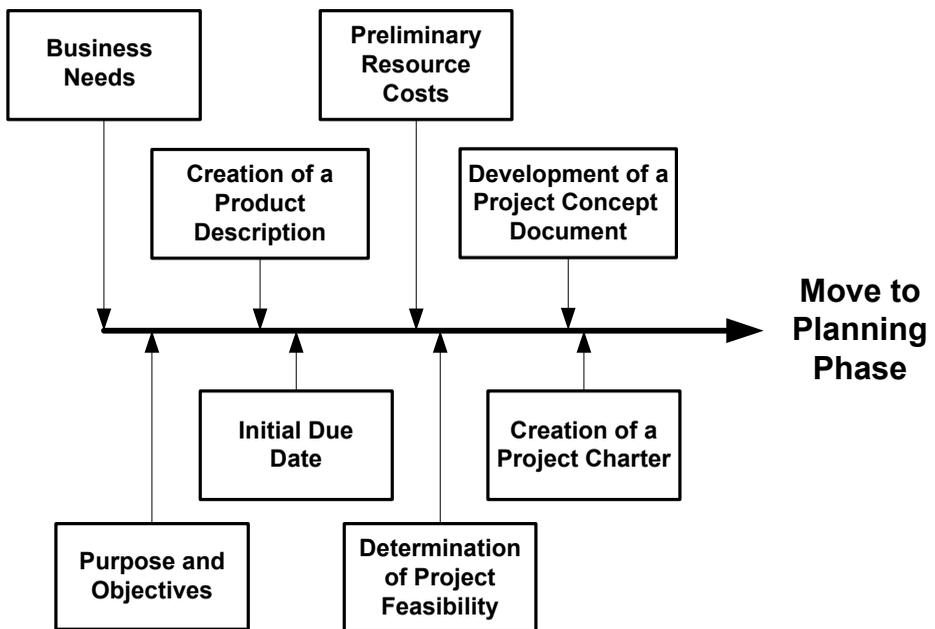
The signatures of the people relay an understanding in the purpose and content of the document by those endorsing it.

Considerations in the Timeframe for Completion

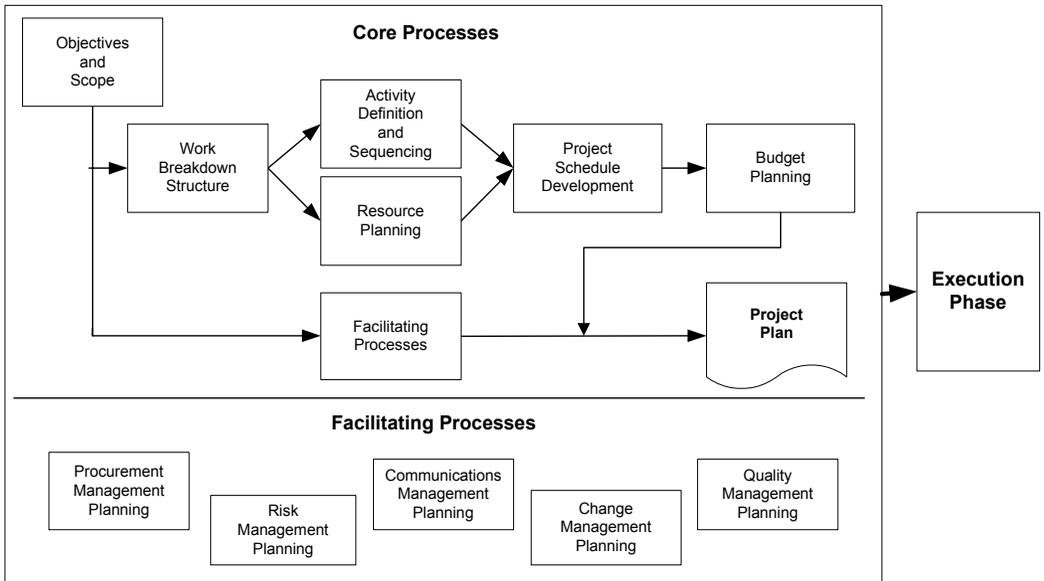
The general timeframe for most project teams to complete the process to generate a Project Charter varies widely according to project size, which is driven by unlimited factors. A generic sequence flow showing where basic processes of the initiation activities (through Project Charter to the Project Planning Phase) starts and ends is provided on the following diagram.

This sequence flow is provided only as a guideline since each project is unique and will require different levels of detail, research, and development. It does not take into consideration all levels of review that may vary between agencies.

This general sequence should be adjusted as necessary to reflect the specific project at hand.



Project Planning Phase



📄 = Deliverable

⚙️ = Process

The purpose of the Project Planning Phase is to identify and document scope, business requirements, tasks, schedules, costs, risk, quality, and staffing needs. This process should continue until all relevant areas of the chartered project have been addressed.

PROJECT MANAGER ROLES AND RESPONSIBILITIES

- Develop detailed Project Plan, tailoring methodology to reflect project needs.
- Creation of a Work Breakdown Structure.
- Develop or assist in the development of a Project Schedule, Budget Estimate, Communications Plan, Risk Management Plan, Change Management Plan, Quality Plan, and Resource Plan.
- Ensure that management, customers/clients, affected state agencies and contractors agree to project commitments.
- Ensure that Project Plan is approved and baselined.
- Assign resources to project and assign work packages.
- Approve the Project Quality Plan and the Change Management Plan.

PLANNING PHASE CORE PROCESSES

- ☞ Define Objectives and Scope – Define the need within the agency to understand the objective of the product/process being created and where this new project fits into the agency objectives. This is also the time when business requirements are defined.
- ☞ Define Critical Success Factors – Determine the factors that need to be in place in order for the project to be a success.
- ☞ Create the Work Breakdown Structure (WBS) – The Work Breakdown Structure is a deliverable-oriented document that is used to break down the work to be done within the project to a manageable level.
- ⌘ Activity Definition and Sequencing – Activity Definition and Sequencing involves dividing the project into smaller, more manageable components (activities) and then specifying the order of completion.
- ⌘ Perform Resource Planning – The resource component includes the ability to plan and manage the resources required to deliver the project. This starts with the agency selection and assignment of a project manager and includes the management of the resources assigned to that manager.
- ☞ Develop Project Schedule – The Project Schedule provides a graphical representation of predicted tasks, milestones, dependencies, resource requirements, task duration, and deadlines. The project's master schedule interrelates all tasks on a common time scale.
- ☞ Perform Budget Planning – Budget Planning is the determination of costs associated with the defined activities. The steps associated with budgeting are highly dependent upon both the estimated lengths of tasks and the resources assigned to the project. This process results in a documented budget estimate.

PLANNING PHASE FACILITATING PROCESSES

- ⌘ Cost Benefit Analysis – A Cost Benefit Analysis provides information to make a balanced decision about the cost and benefits, or value, of various economic choices about various alternatives within project activities/tasks. This step occurs within the Work Breakdown Structure creation, where you evaluate each task to ensure added value to the project.
- ☞ Procurement Planning – Procurement Planning is the process in which the project manager identifies those needs of the project which can be met by purchasing products or services from outside their agency. Many agencies will have a procurement or contracts area, but on a large effort, it may still be necessary to outline the guidelines for procurement within the project.
- ☞ Communication Planning – Communications Planning involves defining the information needs of project stakeholders as well as which people need what information, when it will be needed and how they will get it. A Communications Plan will be drafted as a result of this effort.
- ☞ Risk Management Planning – Risk Planning involves the following: risk

identification, risk analysis and quantification, risk mitigation planning, and risk response. A Risk Management Planning template is helpful in identifying and controlling these items.

- ☞ **Change Management Planning** – Change Management Planning is the process of managing changes to the project. Accordingly, it provides the project team with a change management methodology for identifying and controlling the scope, which in turn may affect the physical design characteristics of a deliverable. A Change Management Plan should be drafted as a result of this effort.
- ☞ **Quality Planning** – Quality Planning is the process of identifying which quality standards are relevant to the project and determines how to satisfy them. The result of this process is a document called the Quality Plan.

PLANNING PHASE DELIVERABLES

- ☞ **Project Plan** – A Project Plan is a formal, consolidation of Project Planning documents that is used to manage and control a project. It should be as accurate and complete as possible without being several volumes in length. The Project Plan documents the pertinent information associated with the project. A summarized version of the Project Plan, and its parts, is included beginning on page 45.
- ☞ **Project Planning Transition Checklist** – The Project Planning Transition Checklist ensures that planning activities have been finished, reviewed, and signed off so that the project may move into the Execution Phase. It should be organized according to the major areas of concern that will determine the project's success. See page 56.

SYSTEM DEVELOPMENT LIFE CYCLE COMPONENTS OF THE PLANNING PHASE

- ☞ **Requirements Document** – The Requirements Document is a formal document that outlines the high level requirements of a technical project.
- ☞ **Specifications Document** – The Specifications Document is a formal document that can provide specific information about the project deliverable characteristics. (Specifications might include measurements of time, weight, processing speed, etc.)
- ☞ **Design Documents** – Design Documents are technical documents that lay out in great detail the anticipated design of the project deliverable. (Examples might include technical schematics or construction plans.)
- ☞ **Implementation Plan** – At the completion of the Planning Phase, an Implementation Plan integrates the delineation of project tasks into an action plan for the project. A Training Plan outlines any required training to be completed by both the customer and members of the project team.

PLANNING PHASE – OTHER IMPORTANT INFORMATION

- ⌘ The Project Planning Phase is not something that should be done in a vacuum. Ensure buy-in by including all key stakeholders and project team members.
- 📄 The Project Plan and other documents are not static documents and Project Planning is an iterative process. You should expect plans to be revised and improved upon consistently throughout the project. The Project Plan, once finished, should only be modified based on approved scope changes, as addressed in the Project Control Phase.
- ⌘ Keep the stakeholders informed about the progress of the Project Planning Phase. Often time people do not get interested in a project until it is in the Execution Phase and the importance of good planning is often overlooked.

PROJECT PLAN

The purpose of the Project Plan is to form the basis for all management efforts associated with the project, and it serves as a record of plans to be used with the project. Once the Project Plan is completed, agency management should review it. The level and extent to which the plan will be reviewed is based upon the size of the project as stated in dollars or period of time. Ultimately, the review process allows for executive management buy-in and approval of the plan.

A. GENERAL INFORMATION

Information in the project summary was started during the Project Initiation Phase and should be included here. Information includes the project name, original estimates, plan revision numbers, points of contact, etc.

B. EXECUTIVE SUMMARY

Provides an executive level overview of the project, as identified in the Project Plan. Identify the business need or problem, identify the goals and objectives, and define the management strategy used to implement the project.

C. PROJECT SCOPE STATEMENT

Provides statements as to the overall size, content and complexity of the project, including project results/completion criteria, , approach to be used to manage and complete the project, content of the project, and exclusions to the project (what will not be included as part of this effort).

D. CRITICAL SUCCESS FACTORS

Provides the project team, and management, with project critical success factors (objectives) that all members of the team understand, accept, and are committed to.

E. ADDITIONAL PROJECT REQUIREMENTS

Provides a detailed listing of project requirements, with references, to the statement of work, the work breakdown structure, and specifications. This would also include any mechanisms used to assist in the management control over the project. Escalation procedures, cyclical management reporting, and project status reports should also be included.

- continued -

PROJECT PLAN - CONTINUED

F. TECHNICAL PROJECT REQUIREMENTS

Provide a detailed listing of the Requirements Definition, Specifications, Design, and Implementation and Training Plans for inclusion into the project activities.

G. SIGNATURES

The signatures of the people involved relay an understanding in the purpose and content of this document by those endorsing it. By signing this document, these individuals agree to this as the formal Project Plan.

H. PROJECT PLAN DOCUMENTS SUMMARY

Provides a check box for each document included in the project plan.

WORK BREAKDOWN STRUCTURE

Describes a deliverable-oriented grouping of project elements which organizes and defines the total scope of the project. (See example on page 48.)

RESOURCE PLAN

Describes the major resources that will be needed to proceed with the execution of the project. (See example on page 49.)

PROJECT SCHEDULE

Provides the project schedule using a Gantt chart. The schedule must include milestones, task dependencies, task duration, work product delivery dates, quality milestones, and action items. (See example on page 50.)

- continued -

PROJECT PLAN - CONTINUED

H. PROJECT PLAN DOCUMENTS SUMMARY - CONTINUED

RISK MANAGEMENT PLAN

Provides a description of all risks identified for the project, and a plan to integrate risk management throughout the project. (See example on page 51.)

QUALITY PLAN

Provides a Quality Plan that defines the person(s) responsible for project quality assurance which are the procedures that will be used and resources required to conduct quality assurance. (See example on page 52.)

COMMUNICATIONS PLAN

Defines the information needs of the project stakeholders, and the project team, by documenting what, when, and how the information will be distributed. (See example on page 53.)

CHANGE MANAGEMENT PLAN

Provides the project team with a change management methodology for identifying and controlling the scope of the project. (See example on page 54.)

PROJECT BUDGET ESTIMATE

Describes cost and budget considerations including an overview, additional resource requirements, and estimated cost at completion. (See example on page 55.)

PROJECT PLANNING TRANSITION CHECKLIST

The Project Planning Transition Checklist ensures that planning activities have been finished, reviewed, and signed off so that the project may move into the Execution Phase. (See example on page 56.)

- end -

WORK BREAKDOWN STRUCTURE

Describes a deliverable-oriented grouping of project elements which organizes and defines the total scope of the project.

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.

B. WBS ELEMENT/ACTIVITY NUMBER

Assign a particular number as a part of a sequence related to a certain task or activity.

C. ACTIVITY/TASK NAME

Establish the title of the task or activity.

D. EFFORT/DURATION

Determine the number of effort hours and/or days/weeks it will take to complete the task or activity.

E. RESOURCE NAMES

Assign a responsible team or person for completing the task.

F. DICTIONARY DESCRIPTION

Provide a description of the activity or task.

G. COST

Estimate the cost of performing the activity or task.

The Work Breakdown Structure can contain other elements such as start date, Earned Value Analysis data, dependencies, etc.

RESOURCE PLAN

Describes the major resources that will be needed to proceed with the execution of the project.

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.

B. RESOURCE PROFILES

Determine the major resources that will be needed to proceed with the execution of the project. These resources may include the following:

- People, including various skill types
- Money
- Equipment
- Facilities
- Materials and Supplies
- Information Technology

C. PROJECT RESOURCE INFORMATION

For the resources needed on the project, determine the following:

- Cost estimates for each resource.
- The availability of each resource.
- The estimated quality and output of people and equipment resources.

D. RESOURCE STAFFING PLAN

After establishing the human resources required for the project, develop a staffing plan that shows the number of personnel, by type, that will be required on the project on a periodic basis. Include when and how resources – including human, hardware, facilities, etc. – will be phased off the project.

PROJECT SCHEDULE

Provide the baselined Project Schedule when approved. The Project Schedule must include milestones, task dependencies, task duration, work product delivery dates, quality milestones, and action items.

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.

B. DEFINE THE TYPE OF SCHEDULE

Define what type of schedule will be used to transfer project information. (GANTT, PERT, or other Network Diagram)

C. DEFINE PRECISE AND MEASURABLE MILESTONES

Define the milestones within the project and how to recognize when they are completed or achieved.

D. DEFINE PRIORITIES

Define which activities are more critical and take precedence over others and why.

E. DEFINE THE CRITICAL PATH

Based on the priorities, durations, and dependencies, define the series of activities which determine the earliest completion of the project.

F. DOCUMENT ASSUMPTIONS

Determine what the assumptions are for the project and make sure they are represented within the logical structure of the project schedule.

G. IDENTIFY RISKS

Determine what the risks are for the project and make sure they are documented and a plan is conceived to deal with them.

H. REVIEW RESULTS

Review the schedule created for consistency, errors, and to ensure that the project is completed with the necessary timeframe.

RISK MANAGEMENT PLAN

Provides a description of all risks identified for the project and a plan to integrate risk management throughout the project.

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.

B. RISK MANAGEMENT STRATEGY

Define the risk management methodology to be used, the risk assumptions, the roles and responsibilities, the timeframes, risk ranking/scoring techniques, establish risk thresholds, define risk communications, and develop a risk tracking process.

C. RISK IDENTIFICATION

Defines the risk and the type of risk (personnel, equipment, customer, logistics, organization, or other).

D. QUALITATIVE AND QUANTITATIVE ANALYSIS

Qualitative Analysis includes assessing the impact of risk events and prioritizing risk in relation to effect on project objectives. Quantitative Analysis includes assessing the probability of risk event occurring, establishing consequences of impact on project objectives, and determine weighting of risk.

E. RISK RESPONSE PLANNING

Determine the options and actions to enhance opportunities and reduce threats to the project's objectives. Assign responsibilities for each agreed response.

QUALITY PLAN

Provides a Quality Plan that defines the person(s) responsible for project quality assurance, the standards and procedures that will be used, and the resources required to conduct quality related activities on the project.

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.

B. PROJECT SCOPE

Describe the project, either by inserting the Project Scope Statement, or by providing a summary description of the overall project, its objectives, its customers, and its customer's business needs.

C. DELIVERABLE DESCRIPTION

Describe the project deliverables, including the contract deliverables and milestone checklist.

D. ACCEPTANCE CRITERIA

Describe acceptance criteria for deliverables as they will be used in acceptance testing. List the relevant quality standards.

E. QUALITY ASSURANCE ACTIVITIES

Define the Quality Assurance activities for the project, including test and acceptance processes, documentation and operational support transition, milestone checklist, requirement verification processes, audits, schedule and communication activities, and continuous improvement processes.

F. PROJECT MONITORING AND CONTROL

Define in-process control plans which address quality assurance activity areas, how control information will be collected, how information will be used to control processes and deliverables, what and when monitoring and reviews are required, and how variance to acceptable criteria will be reported and resolved.

F. PROJECT TEAM QUALITY RESPONSIBILITIES

Describe quality-related responsibilities of the project team, including specific tasks such as acceptance test, audit, review, and checklist responsibility assignments.

COMMUNICATIONS PLAN

Defines the information needs of the project stakeholders and the project team, by documenting what, when, and how the information will be distributed.

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.

B. TIMELINESS

Describe how often and how quickly information will be needed and made available to the various project stakeholders.

C. INFORMATION TYPES

Describe how different types of information will be disseminated.

D. EXISTING SYSTEMS

Discuss the communication systems already in place and how they will be leveraged on the project. Include status reporting and status/project review meetings.

E. LENGTH OF INVOLVEMENT

Describe how long individual stakeholders will continue to receive information on the project.

F. ENVIRONMENTAL CONSIDERATIONS

Study the political environment to understand stakeholder requirements and other environmental considerations.

G. METHOD FOR UPDATING THE COMMUNICATIONS PLAN

Describe how and when the Communications Plan will be updated throughout the project.

CHANGE MANAGEMENT PLAN

Provides the project team with a change management methodology for identifying and controlling the functional and physical design characteristics of a deliverable.

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.

B. CHANGE MANAGEMENT ROLES AND RESPONSIBILITIES

Describe the roles and responsibilities of the following project roles pertaining to reacting to, documenting, reviewing, approving, implementing, and monitoring changes imposed on this project.

C. CHANGE MANAGEMENT GOVERNANCE

Explain/describe in sufficient detail, the process for how changes are to be initiated, reviewed, approved, and implemented. Include a flow diagram or other pictorial representation, as appropriate. Include detail to the Project Sponsor level, Project Manager level, Project Team level, and Work Package level. Also, document any level (in amount or percentage) of delegated authority that the Project Manager has with regard to project changes.

D. CAPTURING AND MONITORING PROJECT CHANGES

Describe the method to be employed on this project to capture and monitor approved changes. Also, explain the process to be employed for changing project baselines, including applicable touch points.

E. COMMUNICATING PROJECT CHANGES

Describe the proper communications channels for each category of project change, as depicted in the Change Management Governance section.

PROJECT BUDGET ESTIMATE

Describes cost and budget considerations including an overview, additional resource requirements, and estimated cost at completion.

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.

B. PROJECT TASK

Define which project task is being estimated.

C. LABOR HOURS

Determine the number of hours of labor that will be needed to perform the task.

D. LABOR COST

Establish the cost per labor hour to perform the task.

E. MATERIAL COST

Determine the cost of the materials needed to perform the task or create the product of the task.

F. TRAVEL COST

Determine the cost of travel to perform the task.

G. OTHER COSTS

Decide on any other costs incurred to perform the task.

H. TOTAL COST PER TASK

Determine the total cost to perform the task.

PROJECT PLANNING TRANSITION CHECKLIST

The Project Planning Transition Checklist ensures that planning activities have been finished, reviewed, and signed off so that the project may move into the Execution Phase.

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.

B. CHECKLIST ITEMS

PLANNING

Is the project scope the same as agreed to in the Initiation Phase? Is there a baseline plan from which to measure progress?

ORGANIZATION

Is the project team identified and qualified? Have roles and responsibilities been defined?

TRACKING AND MONITORING

Have the various types of reports, their content, and frequency of reporting been defined? Has the format for tracking schedules and costs been defined?

REVIEWING

Have the various meetings, the purpose, context, frequency, and participants been defined and communicated?

ISSUE MANAGEMENT

Is an Issue Management Process documented? What is the issue form to be used?

CONFIGURATION MANAGEMENT

Will there be a Change Control Process in place? Will there be a change request form in use? What deliverables will be processed through the Configuration Management process?

RISK MANAGEMENT

Has a risk management process been established? How often will the risk worksheets be updated and risk status be reported?

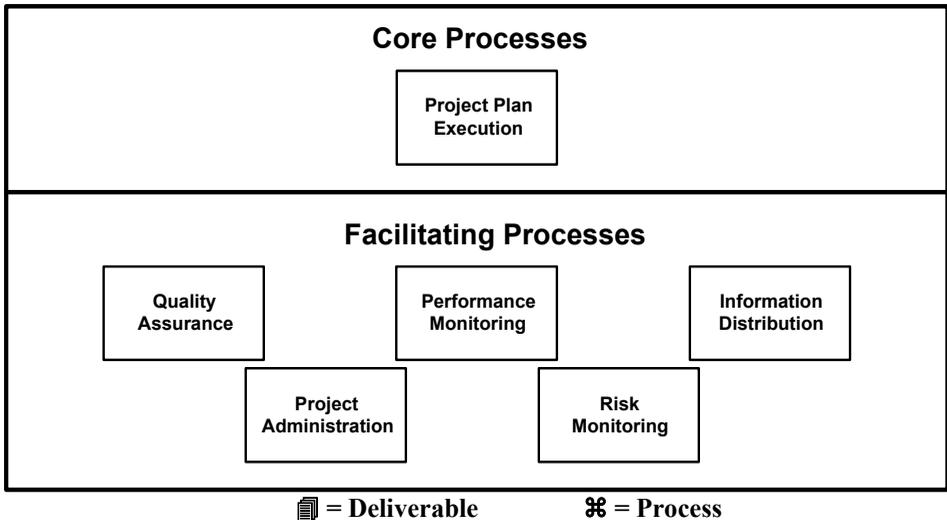
QUALITY ASSURANCE

Is there a Quality Assurance Plan documented and filed? Have the quality assurance roles and responsibilities been clearly defined?

C. SIGNATURES

Have the appropriate approval signatures by the project team members, sponsors, stakeholders, and management been obtained?

Project Execution Phase



The Execution Phase is when the actual work is done to create the product of the project. During Project Execution, the project effort focuses on participating in, observing, and analyzing the work being done.

PROJECT MANAGER ROLES AND RESPONSIBILITIES

- Manage day-to-day tasks and provide direction to team members performing work on the project.
- Regularly review project status (executive status reports do not usually require detail information) 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.

EXECUTION PHASE CORE PROCESSES

⌘ Project Plan Execution – The primary process for carrying out the Project Plan. The project manager, and the team, will coordinate and execute the project activities as determined by the type of project being executed.

☞ Status Reports – Status Reports are the means by which the project team, the contractors, and executive management stay informed about the progress and key activities required to successfully complete the project.

EXECUTION PHASE FACILITATING PROCESSES

⌘ Quality Assurance – Quality Assurance is the process of evaluating overall project performance, on a regular basis, to provide confidence that the project will satisfy the relevant quality standards.

- ⌘ Performance Monitoring – Performance Monitoring is measuring actual performance as compared to planned performance. If the project is not performing according to baseline, steps should be taken to get the project back on track. Monitoring and analyzing will take place on budgets, schedule, quality, risk, scope, etc.
- ⌘ Information Distribution – The project manager is responsible for communicating project status to parties outside the project team. The project team is expected to report status to the project manager. A Sample of a Project Status Report is available on page 59.
- ⌘ Project Administration – Project Administration entails making Project Plan modifications from such things as: new estimates of work still to be completed, changes in scope/functionality of end-product(s), resource changes, and unforeseen circumstances. It also involves monitoring the various Execution Phase activities, monitoring risks, status reporting, and reviewing/authorizing project changes as needed.
- ⌘ Risk Monitoring – Risk Monitoring involves active risk identification, quantification, and resolution. This is done by exercising an established risk management process.

SYSTEM DEVELOPMENT LIFE CYCLE COMPONENTS OF THE EXECUTION PHASE

The System Development Life Cycle Components extend across both the Execution and Control Phases. Therefore, the same information shown in this section applies to the Control Phase as well.

- ⌘ Development – Development is the actual work performed to develop the Information Technology Project. Examples might include software coding or hardware construction.
- ⌘ Testing – Testing is the actual test of the products or processes created within the Development phase. Products are either tested and sent back to Development or they are implemented.
- ⌘ Implementation – Once products are tested and approved, they are implemented (put into the production environment).
- ⌘ Documentation – While the project is being executed, operational manuals, documented standards, system outputs, and performance reports will support the documentation requirements of the product.

EXECUTION PHASE – OTHER IMPORTANT INFORMATION

- ⌘ Many of the processes within the Execution Phase are very closely aligned with the Control Phase. (See the Project Phases and Deliverables Diagram, pages 24 and 25, for a graphical perspective.) Segmenting processes into Execution or Control Phases is not as important as getting the job done right.
- ⌘ The project manager’s responsibility is to keep the project moving and be an effective leader. He, or she, has ultimate responsibility for ensuring that the project is successfully completed on time, within budget, and at an acceptable level of quality. This requires staying in touch with all areas of the project.

PROJECT STATUS REPORT

Project status reports cover multiple areas including scope, budget, schedule, risk, procurement and quality. In order to produce status reports, the project team members must be aware of their project responsibilities and monitor them closely.

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.

B. CURRENT ACTIVITY STATUS

The description of activity should not span more than 2 to 3 lines. Activities should be linked to the project tasks list or Work Breakdown Structure. Include status on completed tasks and tasks behind schedule, including possible impact on the project.

C. SIGNIFICANT ACCOMPLISHMENTS FOR CURRENT PERIOD

A summary of the significant accomplishments of the project during the reporting period.

D. PLANNED ACTIVITIES FOR NEXT PERIOD

The description of activity should not span more than 2 to 3 lines. Activities should be linked to the project tasks list or Work Breakdown Structure.

E. FINANCIAL STATUS

Covers planned versus actual costs and budgets.

F. TECHNICAL STATUS/ISSUES

Includes any relevant technical issues at this point in the project.

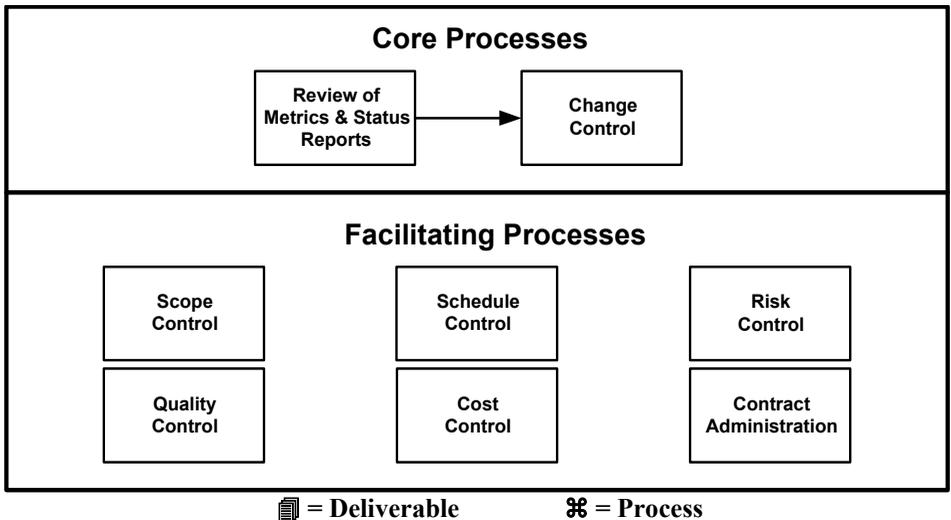
G. PREVIOUS ACTION ITEMS

Covers any open action items from previous status reports.

H. LAST RISK UPDATE – STATUS

Covers any risk status changes since the last status report.

Project Control Phase



Project Control involves managing the processes that compare actual project performance with planned performance and taking corrective action to yield the desired outcome when significant differences exist.

The Control Phase is executed concurrently with the Planning, Execution, and Closeout Phases, although the bulk of the effort dealing with Project Control occurs within the Execution Phase.

PROJECT MANAGER ROLES AND RESPONSIBILITIES

- Make changes and recommendations to budgets and schedules as needed.
- Review the results of Quality Audits.
- Participate in Change Control Board to approve product specification changes.
- Review project risks and establish mitigation procedures.

CONTROL PHASE CORE PROCESSES

- ⌘ Review of Metrics and Status Reports – Where possible, metrics should be assigned against the processes to discover and evaluate variances in the processes. The Status Reports that are a product of the Execution Phase, once published, need to be reviewed and scrutinized for impact and relevance.
- ⌘ Change Control – Change Control deals with influencing the activities that create changes in order to ensure that changes are beneficial. Change Control includes being able to determine that a change has occurred and managing the actual changes when they occur.

CONTROL PHASE FACILITATING PROCESSES

- ⌘ **Scope Control** – Scope Control is the process that identifies and manages all elements (people, requirements, and technology) inside and outside of the project that increase or decrease the project scope beyond the required or defined need of the original, agreed upon Project Scope Statement.
- ⌘ **Schedule Control** – Schedule Control involves influencing the factors that create schedule changes to ensure that changes are beneficial, determining that the schedule has changed and managing the actual changes when and as they occur.
- ⌘ **Risk Control** – Risk Control involves executing the Risk Plan in order to respond to risk events over the course of the project.
- ⌘ **Quality Control** – Quality Control involves monitoring specific project results to determine if they comply with relevant quality standards and identifying ways to eliminate causes of unsatisfactory results.
- ⌘ **Cost Control** – Cost Control involves influencing the factors that create changes to the cost baseline to ensure that changes are beneficial, determining that the cost baseline has changed and managing the actual changes when and as they occur.
- ⌘ **Contract Administration** – Contract Administration is the process of ensuring that the vendor’s performance meets contractual requirements.

SYSTEM DEVELOPMENT LIFE CYCLE COMPONENTS OF THE CONTROL PHASE

The System Development Life Cycle Components extend across both the Execution and Control Phases. The information for this section is detailed in the Execution Phase.

CONTROL PHASE – OTHER IMPORTANT INFORMATION

- ⌘ Many of the processes within the Project Control Phase are very closely aligned with the Project Execution Phase. (See the Project Phases and Deliverables Diagram on pages 24 and 25 for a graphical perspective.) Segmenting processes into Execution or Control Phases is not as important as getting the job done right.
- ⌘ Involve the entire team in managing control of the project, especially with the possibility of scope creep. Be sure that everyone understands what they are to deliver and that anything short of or beyond the requirements is outside of the scope of the project.
- ⌘ The project manager maintains control of the project through processes. Make sure that control processes are instituted early on and meetings are held regularly.

CHANGE CONTROL REQUEST AND CHANGE TRACKING LOG

The Change Control Request provides members of the project team an opportunity to submit requests for change so that determinations can be made as their benefit. The Change Management Tracking Log assists in the management of all change requests.

Contents of the Change Control Request Template

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.

B. REQUESTOR INFORMATION

The requestor will provide information concerning the requested change along with any supporting documentation.

C. INITIAL REVIEW OF THE CHANGE REQUEST

The Change Request is reviewed by a Change Control Board (determined in Project Governance, as part of the Change Management Plan) in order to determine whether or not to proceed, and they will make any further recommendations as necessary.

D. INITIAL IMPACT ANALYSIS

The assigned analyst will make an initial assessment of the cost, schedule, and resources needed to implement the proposed change.

E. IMPACT ANALYSIS RESULTS

When the analysis has been completed by the assigned analyst, and the cost, schedule, and resource needs are identified, the management team will submit the change to executive management and/or project oversight entities for review.

F. SIGNATURES

With executive management and/or project oversight state agency approval, the appropriate processes will be followed to update the baseline documents.

Contents of the Change Management Tracking Log

The Change Management Tracking Log, represented in a spreadsheet-type format, contains the following fields: Change Request Number, Issue Date, Requestor, Title of Request, Impact/Deliverables Affected, Responsible Person, Completion Date, and Recommendation/Status.

ISSUE DOCUMENT AND ISSUE TRACKING LOG

The purpose of an Issue Tracking Log, and subsequent Issue Document, is to provide a mechanism for organizing, maintaining, and tracking the resolution of issues that cannot be resolved at the "individual" level.

Contents of the Issue 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.

B. ISSUE BACKGROUND

This section of the Issue Document provides a listing of issue information in more detail. Provide information and initial comments to include an estimate of additional effort (Cost/Schedule Impact Analysis prepared if further evaluation is required).

C. RECOMMENDATION

An issue review meeting will be the forum for making a determination regarding the outcome of the issue.

D. MANAGEMENT ACTION

Management decision as to how the issue is to be resolved.

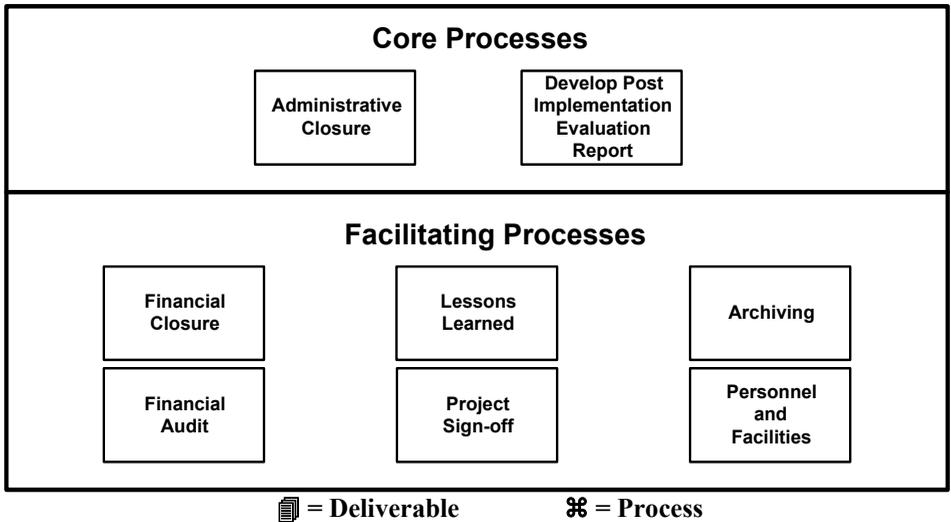
E. SIGNATURES

The signatures of the participants relay an understanding in the purpose and content of this document by endorsing it.

Contents of the Issue Tracking Log

The Issue Tracking Log, represented in a spreadsheet-type format, contains the following fields: Issue Number, Issue Priority, Date Issue Opened, Submitted By, Issue Owner, Description of Issue, Status, Date Assigned, Estimated and Actual Resolution Dates, Resolution, and Comments.

Project Closeout Phase



The Project Closeout Phase involves the administrative and financial efforts needed to close out a project after the work has been completed. Also during the Closeout Phase, the product is transferred to the customer.

PROJECT MANAGER ROLES AND RESPONSIBILITIES

- Obtain customer and management sign-off.
- Close out any open action items.
- Develop Post Implementation Evaluation 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 Contract Administrator(s) in contract closeout.
- Assist in resource transition from the project.
- Celebrate success.

CLOSEOUT PHASE CORE PROCESSES

⌘ Administrative Closure – Administrative Closure is the process of preparing closure documentation of the project deliverables for the customer as well as taking other administrative actions to ensure that the project and its assets are redistributed.

- ☐ Post Implementation Evaluation Report (PIER) – A Post Implementation Evaluation Report documents the successes and failures of the project. It provides a historical record of the planned and actual budget and schedule. Other selected metrics on the project can also be collected, based upon agency organizational procedures. The report also contains recommendations for other projects of similar size and scope. A sample of the format of the PIER is provided on page 68.

CLOSEOUT PHASE FACILITATING PROCESSES

- ⌘ Financial Closure – Financial Closure is the process of completing and terminating the financial and budgetary aspects of the project being performed. It includes both (external) contract closure and (internal) project account closure.
- ⌘ Lessons Learned – A Lessons Learned session is a valuable closure and release mechanism for team members, regardless of the project's success. It allows for an exchange of observations of the project's performance to aid with future projects of a similar nature. Lessons Learned should be sent to the Agency Project Management Office (and possibly the State Office of Project Management at DMB) for input into other projects.
- ⌘ Archiving – Archiving is creating and storing a hard and/or soft copy of all documents related to the project. The summary project management information collected includes information such as a description of the project, a project organization chart, budgeted and actual cost, and budgeted and actual schedule.
- ⌘ Financial Audit – A Financial Audit is a thorough examination of a project, by an evaluation team including a detailed overview of the project's financial procedures, budgets, records, etc. It may deal with a project as a whole or the separate individual parts of a project.
- ⌘ Project Sign-off – A final meeting with all necessary stakeholders may be held to review the product delivered against the baseline requirements and specifications. The final deliverable of this meeting should be a statement created by the project manager that describes the project's final deliverables in comparison with the authorized project baseline documents. This sign-off is contained as part of the PIER documentation.
- ⌘ Personnel and Facilities – This closure process is the reassignment and reallocation of agency personnel and equipment that have been used during the project.

CLOSEOUT PHASE DELIVERABLES

- ☐ Post Implementation Evaluation Report – This report records and appraises actions conducted on the project. The report contains Lessons Learned, which provide an opportunity to better understand project successes and shortcomings, which can be effectively applied to the next project.

SYSTEM DEVELOPMENT LIFE CYCLE COMPONENTS OF THE CLOSEOUT PHASE

- ⌘ **Maintenance** – Once the product(s) of the Information Technology project is created and implemented, it goes into maintenance mode in which it will stay throughout its useable life, or until it is retired or replaced. In order to support the maintenance effort, all user manuals and other useful documentation should be turned over to the system operators and users.
- ⌘ **Service Level Agreement** – This agreement process, and document, indicates that the project team has taken the steps to procure necessary protracted services and maintenance for the product.

CLOSEOUT PHASE – OTHER IMPORTANT INFORMATION

- ⌘ Closing out a project is not as easy as one would think. There are several small details that must be taken care of such as account closure and personnel reassignment. Make a checklist that pertains to your project of things to closeout, and follow up on each item.
- ⌘ Procedures for future changes may also be of concern at project closeout. Accordingly, establish any necessary actions to accommodate product changes, formally or informally, in the future.
- ⌘ Don't forget to celebrate your project's success. Award those who supported the project and let the team members know that their participation was appreciated.

POST IMPLEMENTATION EVALUATION REPORT

The purpose of the Post Implementation Evaluation Report (PIER) is to document the successes and failures of the project and to provide a historical record of the planned and actual budget and schedule.

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.

B. STAFFING AND SKILLS

Describe how the staffing and skill needs for this project were determined and managed. Describe changes to these needs during the project.

C. PROJECT ORGANIZATIONAL STRUCTURE

Provide an organization chart that was used for the project. Describe any changes made to the structure along the way and why.

D. SCHEDULE MANAGEMENT

Provide the baseline project schedules and final project schedules (as attachments if necessary). Describe the process used for controlling schedules as well as actions taken to correct any problems.

E. COST MANAGEMENT

Describe cost and budget results of the project in comparison to the baseline.

F. RISK MANAGEMENT

Provide a description of the risks identified and how they were handled.

G. QUALITY CONTROL

Describe how quality control was involved in this project.

H. CONFIGURATION MANAGEMENT

Describe how the configuration management process was utilized.

- continued -

POST IMPLEMENTATION EVALUATION REPORT - CONTINUED

I. COMMUNICATIONS MANAGEMENT

Describe the project communication process, its effectiveness and any changes made to the communications plan during the project.

J. CUSTOMER EXPECTATIONS MANAGEMENT

Describe how customer expectations were managed. Were expectations clear from the beginning? How were expectations different than expected?

K. LESSONS LEARNED

Describe the successes and shortcomings of the project activities.

L. PROJECT SIGN-OFF

Delineates the functional areas of the project team have taken all steps to present deliverables and project activities are closed out.

APPENDICES

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Key Terms and Acronyms

The following is a list of common terms and acronyms used within the Project Management industry. While many of these terms are not mentioned within the body of this guide, they are nonetheless important to understanding Project Management. If you need further information on any of the subjects in the following list, please consult the State of Michigan Project Management Methodology and the variety of sources listed in the Resources and Reference list within the Appendix of the Project Management Methodology. These terms are taken from several sources, including State of Michigan procedure documents and the Project Management Body of Knowledge (PMBOK®).

- A -

Acquisition Process – The process of acquiring personnel/goods/services for new or existing work within the general definitions of contracts requiring an offer and acceptance, consideration, lawful subject matter, and competent parties.

Action Item Status – A list of problem issues including a description, point of contact, and dates of action and resolution.

Action Plan – A plan that describes what needs to be done and when it needs to be completed. Project plans are action plans.

Activity – The work or effort needed to achieve a result. An activity consumes time and usually consumes resources.

Activity Definition – Identifying the specific activities which must be performed in order to produce the various project deliverables.

Activity Duration – The time in calendar units between the start and finish of a schedule activity.

Activity Duration Estimating – Estimating the number of work periods that will be needed to complete individual activities.

Actual Cost – Total costs incurred (direct and indirect) in accomplishing work during a given time period.

Administrative Closure – Generating, gathering, and disseminating information to formalize project completion.

Agency – Used to define a general state organizational level consisting of the Agency and Departments interchangeably. Reference to Agency (with a capital “A”) is used for reference to a specific agency or to that specific organizational level.

Alternative Analysis – Breaking down a complex scope situation for the purpose of generating and evaluating different solutions and approaches.

Analysis – The study and examination of something complex and the separation into its more simple components. Analysis typically includes discovering not only what are the parts of the item being studied, but also how they fit together. An example is the study of schedule variances for cause, impact, corrective action, and results.

Application Area – A category of projects that have a common element not present in all projects. Application areas are usually defined in terms of either the product of the project (i.e., by similar technologies or industry sectors) or the type of customer (e.g., internal vs. external, government vs. commercial). Application areas often overlap.

Approve – To accept as satisfactory. Approval implies that the item approved has the endorsement of the approving entity. The approval may still require confirmation by somebody else, as in levels of approval. In management use, the important distinction is between approve and authorize. See Authorization.

Areas of Responsibility – Used to define the person or organizational entity responsible for specific policy areas, processes, and procedures as identified. The current levels of responsibility are Legislature, Department of Management and Budget, state agency, and customer.

Arrow Diagramming Method (ADM) – A network diagramming technique in which activities are represented by arrows. The tail of the arrow represents the start and the head represents the finish of the activity (the length of the arrow does *not* represent the expected duration of the activity). Activities are connected at points called "nodes" (usually drawn as small circles) to illustrate the sequence in which the activities are expected to be performed.

Authorization – The power granted by management to specified individuals allowing them to approve transactions, procedures, or total systems. Defined as the final organization authority.

Assumptions – Factors that, for planning purposes, are considered to be true, real, or certain without proof or demonstration.

Authorized Work – An effort that has been approved by higher authority and may or may not be defined.

- B -

Backward Pass – The calculation of late finish dates and late start dates for the uncompleted portions of all network activities. Determined by working backwards through the network logic from the project's end date.

Baseline – The original plan (for a project, a work package, or an activity) plus or minus approved changes. Usually used with a modifier (e.g., cost baseline, schedule baseline performance measurement baseline).

Budget – When unqualified, refers to an estimate of funds planned to cover a project or specified period of future time.

Budget At Completion (BAC) – The estimated total cost of the project when done.

Planned Value – The sum of the approved cost estimates including any overhead allocation) for activities (or portions of activities) scheduled to be performed during a given period (usually project-to-date).

Business Impact Analysis – Identifies project constraints, alternatives, and related assumptions as they apply to the initiation phase.

Business Plan – Model used by a manager for planning and scheduling project work.

- C -

Calendar Unit – The smallest unit of the calendar produced. This unit is generally in hours, days, or weeks. It can also be grouped in shifts.

Champion – A person who takes on personal responsibility for the successful completion of a “visionary project.”

Change Control – The process of controlling, documenting, and storing the changes to control items. This includes proposing the change, evaluating, approving or rejecting, scheduling and tracking.

Change Control Board (CCB) – A formally constituted group of stakeholders responsible for approving or rejecting changes to the project *baselines*.

Change in Scope – A change in objectives, work plan, or schedule resulting in a material difference from the terms of previously granted approval to proceed.

Change Management Process – A set of tasks or procedures established to ensure that project performance is measured to the baseline and changes are reviewed, approved or rejected, and the baseline is updated.

Change Request – Requests to expand or reduce the project scope, modify the costs or

budgets, or revise schedules.

Chart of Accounts – Any numbering system used to monitor project costs by category (e.g., labor, supplies, materials). The project chart of accounts is usually based upon corporate chart of accounts of the primary performing organization.

Charter – A document issued by the initiator of the project, usually the project sponsor, that formally authorizes the existence of the project, and provides the project manager with the authority to apply organizational resources to project activities.

Code of Accounts – Any numbering system used to uniquely identify each element of the *work breakdown structure*.

Concept – An imaginative arrangement of a set of ideas.

Conceptual Project Planning – The process of developing broad-scope project documentation from which the technical requirements, estimates, schedules, control procedures, and effective project management will all flow.

Concurrent Engineering – An approach to project staffing that, in its most general form, calls for implementers to be involved in the design phase. Sometimes confused with *fast tracking*.

Configuration Control – The process of evaluating, approving or disapproving, and managing changes to controlled items.

Configuration Management (CM) – The technical and administrative application of configuration control. It includes the maintenance of a configuration control unit, change and version control standards, and configuration of control facilities. Configuration Management is a formal discipline which provides project team members and customers with the methods and tools used to identify the product developed, establish baselines, control changes to these baselines, record and track status, and audit the product.

Constraint – The state, quality, or sense of being restricted to a given course of action or interaction. An applicable restriction or limitation, either internal or external, to the project that will affect the performance of the project or a process.

Contingency Planning – The development of a management plan that identifies alternative strategies to be used to ensure project success if specified risk events occur.

Contingency Reserve – A separately planned quantity used to allow for future situations may be planned for only in part (sometimes called "known unknowns"). For example, rework is certain, the amount of rework is not. Contingency reserves involve cost, schedule, or both. Contingency reserves are intended to reduce the impact of missing cost or schedule objectives. Contingency reserves are not included in the project's cost and

schedule baselines.

Contract – A contract is a mutually binding agreement, which obligates the seller to provide the specified product, and obligates the buyer to pay for it. Contracts generally fall into one of three broad categories:

Fixed price or lump sum contracts – This category of contract involves a fixed total price for a well-defined product. Fixed price contracts may also include incentives for meeting or exceeding selected project objectives such as schedule targets.

Cost reimbursable contracts – This category of contract involves payment (reimbursement) to the contractor for its actual costs. Costs are usually classified as direct costs (costs incurred directly by the project, such as wages for members of the project team) and indirect costs (costs allocated to the project by the performing organization as a cost of doing business, such as salaries for corporate executives). Indirect costs are usually calculated as a percentage of direct costs. Cost reimbursable contracts often include incentives for meeting or exceeding selected project objectives such as schedule targets or total cost.

Unit price contracts – The contractor is paid a preset amount per unit of service (e.g., \$70 per hour for professional services or \$1.08 per cubic yard of earth removed) and the total value of the contract is a function of the quantities needed to complete the work.

Contract Administration – Managing the relationship with the seller.

Contract Closeout – Completion and settlement of the contract including resolution of all outstanding items.

Control – The process of comparing actual performance with planned performance, analyzing variances, evaluating possible alternatives, and taking appropriate corrective action as needed.

Control Charts – Control charts are a graphic display of the results, over time and against established control limits, of a process. They are used to determine if the process is in control or in need of adjustment.

Control Item – A project element that is considered a unit for the purpose of configuration management. This includes such items as software modules, versions of software systems, project design document, project plans, and other associated documents.

Control System – A mechanism that reacts to the current project status in order to ensure accomplishment of project objectives.

Core Processes – Processes that have clear dependencies and that require the same order

on most projects.

Corrective Action – Changes made to bring expected future performance of the project into line with the plan.

Cost Benefit Analysis (CBA) – Provides information to make a balanced decision about the cost and benefits, or value, of various economic choices about various alternatives within the project.

Cost Budgeting – Allocating the cost estimates to individual project components.

Cost Control – Controlling changes to the project budget.

Cost Estimating – Estimating the cost of the resources needed to complete project activities.

Cost of Quality – The costs incurred to ensure quality. The cost of quality includes quality planning, quality control, quality assurance, and rework.

Cost Performance Index (CPI) – The ratio of budgeted costs to actual costs (BCWP/ACWP). CPI is often used to predict the magnitude of a possible cost overrun using the following formula: $\text{original cost estimate}/\text{CPI} = \text{projected cost at completion}$.

Cost/Schedule Impact Analysis (CSIA) – The process followed to determine the cost and/or schedule impact of a specific change with a project.

Cost Variance (CV) – Any difference between the estimated cost of an activity and the actual cost of that activity.

Crashing – Taking action to decrease the total project duration after analyzing a number of alternatives to determine how to get the maximum duration compression for the cost.

Critical Activity – Any activity on a *critical path*. Most commonly determined by using the *critical path method*. Although some activities are "critical" in the dictionary sense without being on the critical path, this meaning is seldom used in the project context.

Critical Path – The sequence of tasks that determine the minimum schedule for a project. If one task on the critical path is delayed, the schedule will be late.

Critical Path Method (CPM) – A network analysis technique used to predict project duration by analyzing which sequence of activities (which *path*) has the least amount of scheduling flexibility (the least amount of *float*). Early dates are calculated by means of a *forward pass* using a specified start date. Late dates are calculated by means of a *backward pass* starting from a specified completion date (usually the forward pass' calculated project *early finish date*).

Critical Success Factors – Identified factors that must be present in order for the project to be successful in terms of scope/budget/schedule. Used to *alert* the sponsor to factors that the project needs to have in place.

Current Finish Date – The current estimate of the point in time when an activity will be completed.

Current Start Date – The current estimate of the point in time when an activity will begin.

- D -

Data Date – The point in time that separates actual (historical) data from future (scheduled) data. Also called *as-of date*.

Decision Tree Analysis – The decision tree is a diagram that describes a decision under consideration and shows the implications of choosing one or another of the available alternatives. This analysis incorporates probabilities and the costs of each logical path of events.

Decomposition – The process of breaking down activities and the work package to a manageable level.

Deflection – The act of transferring all or part of a risk to another party, usually by some form of contract.

Deliverable – Any measurable, tangible, verifiable outcome, result, or item that must be produced to complete a project or part of a project. Often used more narrowly in reference to an *external deliverable*, which is a deliverable that is subject to approval by the project sponsor or customer.

Design Documents – Technical documents that lay out in great detail the anticipated design of the project deliverable.

Development – The actual work performed to develop the Information Technology Project.

Discrete Activity – A task that has a measurable deliverable and has a definite start and finish. An item on the Work Breakdown Structure would be an example of a discrete activity.

Dummy Activity – An activity of zero duration used to show a *logical relationship* in the *arrow diagramming method*. Dummy activities are used when logical relationships cannot

be completely or correctly described with regular activity arrows. Dummies are shown graphically as a dashed line headed by an arrow.

Duration – The number of work periods (not including holidays or other non-working periods) required to complete an activity or other project element. Usually expressed as workdays or workweeks. Sometimes incorrectly equated with elapsed time.

Duration Compression – Shortening the project schedule without reducing the project scope. Duration compression is not always possible and often requires an increase in project cost.

- E -

Early Finish Date – In the *critical path method*, the earliest possible point in time on which the uncompleted portions of an activity (or the project) can be finished based upon the network logic and any schedule constraints. Early finish dates can change as the project progresses and changes are made to the Project Plan.

Early Start Date – In the *critical path method*, the earliest possible point in time in which the uncompleted portions of an activity (or the project) can start, based upon the network logic and any schedule constraints. Early start dates can change as the project progresses and changes are made to the Project Plan.

Earned Value – A method for measuring project performance. It compares the amount of work that was planned with what was actually accomplished to determine if cost and schedule performance is as planned.

Effort – The number of labor units required to complete an activity or other project element. Usually expressed as staff hours, staff days, or staff weeks. Should not be confused with *duration*.

Estimate – An assessment of the likely quantitative result. Usually applied to project costs and durations and should always include some indication of accuracy (e.g., +/- x percent). Usually used with a modifier (e.g., preliminary, conceptual, feasibility). Some application areas have specific modifiers that imply particular accuracy ranges (e.g., order-of-magnitude estimate, budget estimate, and definitive estimate in engineering and construction projects).

Estimate At Completion (EAC) – The expected total cost of an activity, a group of activities, or of the project when the defined scope of work has been completed. Most techniques for forecasting EAC include some adjustment of the original cost estimate based on project performance to date. Also shown as "estimated at completion." Often shown as $EAC = \text{Actuals-to-date} + \text{ETC}$.

Estimate To Complete (ETC) – The expected additional cost needed to complete an activity, a group of activities, or the project. Most techniques for forecasting ETC include some adjustment to the original estimate based on project performance to date. Also called "estimated to complete."

Ethics – In the conduct of their operations, state organizations and their employees will employ information technology in a legal and ethical manner consistent with government statutes, rules, and regulations. Information technology will not be used for purposes that are unrelated to the state organization's mission or violates state or federal law. Contract provisions, including software licensing agreements, will be strictly enforced.

Exception Reporting – The process of documenting those situations where there are significant deviations from the specifications of a project. The assumption is made that the project will be developed within established boundaries. When the process falls outside of those boundaries, a report is made on why this deviation occurred.

Expected Monetary Value – The product of an event's probability of occurrence and the gain or loss that will result. For example, if there is a 50 percent probability that it will rain, and rain will result in a \$100 loss, the expected monetary value of the rain event is \$50 (.5 x \$100).

- F -

Facilitating Processes – Interactions among processes that are more dependent on the nature of the project.

Fast Tracking – Compressing the project schedule by overlapping activities that would normally be done in sequence, such as design and construction. Sometimes confused with *concurrent engineering*.

Feasibility Study – A formal document in the Initiation Phase that analyzes and discusses the technical feasibility of a project.

Financial Audit – A thorough examination of a project by an evaluation team which includes a detailed overview of the project's financial procedures, budgets, records, etc. It may deal with a project as a whole or the separate individual parts of a project.

Financial Closure – The process of completing and terminating the financial and budgetary aspects of the project being performed. It includes both (external) contract closure and (internal) project account closure.

Float – The amount of time an activity may be delayed from its early start without delaying the project finish date. Float is a mathematical calculation and can change as the project progresses and changes are made to the Project Plan. Also called *slack*, *total float*, and *path float*.

Forward Pass – The calculation of the early start and early finish dates for the uncompleted portions of all network activities.

Free Float – The amount of time an activity can be delayed without delaying the *early start* of any immediately following activities.

Functional Manager – A manager responsible for activities in a specialized department or function (e.g., engineering, manufacturing, marketing).

Functional Organization – An organization structure in which staff are grouped hierarchically by specialty (e.g., production, marketing, engineering, and accounting at the top level; with engineering further divided into mechanical, electrical, and others).

Function Point – Unit of measure to quantify the overall size and complexity of a computer application.

Functional Requirements – What the systems/products are, do, or provide from the customer's point of view.

- G -

Grade – A category or rank used to distinguish items having the same functional use (e.g., "hammer"), but do not share the same requirements for quality (e.g., different hammers may need to withstand different amounts of force).

Graphical Evaluation and Review Technique (GERT) – A network analysis technique that allows for conditional and probabilistic treatment of *logical relationships* (i.e., some activities may not be performed).

Guideline(s) – Used to define a collection of steps that are recommendations to be followed to meet a stated policy(s).

- H -

Hammock – An aggregate or summary activity (a group of related activities is shown as one and reported at a summary level). A hammock may or may not have an internal sequence.

Hanger – An unintended break in a *network path*. Hangers are usually caused by missing *activities* or missing *logical relationships*.

- I -

Impact Statement – A cause and effect report generated at the manager level to show the impact that new projects will have on current schedules and resources as they enter the work stream.

Implementation – Occurs when products have completed testing are moved into production or into their working environment. Normally used as a term on Information Technology projects.

Independent Project Oversight – A process that employs a variety of quality control, inspection, testing measurement, and other observation processes to ensure that planned project objectives are achieved in accordance with an approved plan. Project oversight is usually done by an independent entity (separate from the project team) trained or experienced in a variety of management and technical review methods. Project oversight includes both technical and management oversight.

Initial Risk Identification – The process during the initial concept phase of identifying risks that might impact a project. The risk identification process is recommended for agencies to evaluate a project.

Initiation – Committing the organization to begin a project phase.

- L -

Lag – The amount of time after one task is started or finished before the next task can be started or finished. For example, in a finish-to-start dependency with a 10-day lag, the successor activity cannot start until 10 days after the predecessor has finished.

Late Finish Date – In the critical *path method*, the latest possible point in time that an activity may be completed without delaying a specified milestone (usually the finish date).

Late Start Date – In the critical *path method*, the latest possible point in time that an activity may begin without delaying a specified milestone (usually the project date).

Lead – The amount of time that precedes the start of work on another task.

Leadership – The way in which the project manager influences the project team to behave in a manner that will facilitate project goal achievement.

Lessons Learned – The learning gained from the process of performing the project, so

that other projects can be performed better. Lessons learned can be identified at any point in the project, and should be documented in the Project Notebook.

Level of Effort – Support-type activity (e.g., vendor or customer liaison) that does not readily lend itself to measurement of discrete accomplishment. It is generally characterized by a uniform rate of activity over a specific period of time.

Life Cycle – The type of methodology to be used in project development, e.g. System Development Methodology, Information Engineering Methodology, or Rapid Application Development Methodology.

Life Cycle Costing – The concept of including acquisition, operating, and disposal costs when evaluating various alternatives.

Line Manager – The manager of any group that actually makes a product or performs a service. Often referred to as a *functional manager*.

Logical Relationship – A dependency between two project activities, or between a project activity and a milestone. See also *precedence relationship*. The four possible types of logical relationships are:

- Finish-to-start: the "from" activity must finish before the "to" activity can start.
- Finish-to-finish: the "from" activity must finish before the "to" activity can finish.
- Start-to-start: the "from" activity must start before the "to" activity can start.
- Start-to-finish: the "from" activity must start before the "to" activity can finish.

- M -

Management Project Oversight – The process of evaluating and monitoring the project management processes that exist for a given project and ensuring that the stated process conforms to the project plan.

Management Reserve – A separately planned quantity used to allow for future situations which are impossible to predict (sometimes called "unknown *unknowns*"). Management reserves may involve cost or schedule. Management reserves are intended to reduce the risk of missing cost or schedule objectives. Use of management reserve requires a change to the project's cost baseline.

Master Schedule – A comprehensive list of an approved project containing schedule and progress statistics.

Matrix Organization – Any organizational structure in which the project manager shares responsibility with the functional managers for assigning priorities and for directing the work of individuals assigned to the project.

Methodology – Used to define the processes, policies, and guidelines that are included as part of the framework for project management.

Milestone – A significant event in the project usually completion of a major deliverable.

Milestone Schedule – A summary-level schedule, which identifies the major milestones.

Mission Statement – A concise statement, usually one paragraph, summarizing what the project is about and what it will accomplish.

Mitigation – Taking steps to lessen risk by lowering the probability of a risk event's occurrence or reducing its effect should it occur.

Monitoring – The capture, analysis, and reporting of project performance, usually as compared to plan.

Monte Carlo Analysis – A schedule risk assessment technique that performs a project simulation many times in order to calculate a distribution of likely results.

- N -

Near Critical Activity – An activity that has low total float.

Network Analysis – The process of identifying early and late start and finish dates for the uncompleted portions of project activities. See also *Critical Path Method*, *Program Evaluation and Review Technique*, and *Graphical Evaluation and Review Technique*.

Node – One of the defining points of a network; a junction point joined to some or all of the other dependency lines. See also *arrow diagramming method* and *precedence diagramming method*.

- O -

Order of Magnitude – This is an approximate estimate made without detailed data that is usually produced from cost data. This type of estimate is used during the formative stages of an expenditure program for initial evaluation of the project.

Organizational Breakdown Structure (OBS) – A depiction of the project organization arranged so as to relate *work packages* to organizational units.

Organizational Planning – Identifying, documenting, and assigning project roles, responsibilities, and reporting relationships.

Overall Change Control – Coordinating changes across the entire project.

- P -

Parametric Estimating – An estimating technique that uses a statistical relationship between historical data and other variables (e.g., square footage in construction, lines of code in software development) to calculate an estimate.

Pareto Diagram – A histogram that, ordered by frequency of occurrence, shows how many results were generated by each identified cause.

Path – A set of sequentially connected activities in a *project network diagram*.

Path Convergence – In mathematical analysis, the tendency of parallel paths of approximately equal duration to delay the completion of the milestone where they meet.

Percent Complete – An estimate, expressed as a percent, of the amount of work which has been completed on an activity or group of activities.

Performance Reporting – Collecting and disseminating information about project performance to help ensure project progress.

Performing Organization – The enterprise whose employees are most directly involved in doing the work of the project.

PERT Chart – A specific type of *project network diagram*. See *Program Evaluation and Review Technique*.

Plan – An intended future course of action.

Policy – A succinct statement that gives direction to state organizations to support IT implementation. Policies are high-level, overall statements that do not dictate specific procedural steps or processes. Directives issued by management for guidance and direction where uniformity of action is essential.

Portfolio – A collection of projects or programs and other work that are grouped together to facilitate effective management of that work to meet objectives.

Portfolio Management – The centralized management of one or more portfolios, which includes identifying, prioritizing, authorizing, managing, and controlling projects, programs, and other related work, to achieve specific strategic business objectives.

Post Implementation Evaluation Report (PIER) – Documents the successes and failures of the project. It provides a historical record of the planned and actual budget and schedule. Other selected metrics on the project can also be collected based upon state

organization procedures. The report also contains recommendations for other projects of similar size and scope.

Precedence Diagramming Method (PDM) – A network diagramming technique in which activities are represented by boxes (or nodes). Activities are linked by *precedence relationships* to show the sequence in which the activities are to be performed.

Precedence Relationship – The term used in the *precedence diagramming method for a logical relationship*. In current usage, however, precedence relationship, logical relationship, and dependency are widely used interchangeably regardless of the diagramming method in use.

Process – A set of interrelated actions and activities performed to achieve a pre-specified set of products, results, or services.

Predecessor Activity – A task or activity that precedes, or comes before, another task or activity. In the *precedence diagramming method*, the "from" activity.

Priority – The imposed sequences desired with respect to the scheduling of activities within previously imposed constraints.

Procedure – Used to define a collection of steps that the organization is responsible for implementing to ensure that policies and process requirements are met. The agency may use guidelines to develop these procedures.

Product – General terms used to define the end result of a project delivered to a customer.

Product Description Statement – A non-formal, high level document that describes the characteristics of the product/process to be created.

Program – A group of related projects managed in a coordinated way. Programs usually include an element of ongoing activity.

Progress Analysis – The evaluation of progress against the approved schedule and the determination of its impact. For cost, this is the development of performance indices.

Program Evaluation and Review Technique (PERT) – An event-oriented network analysis technique used to estimate project duration when there is a high degree of uncertainty with the individual activity duration estimates. PERT applies the *critical path method* to a weighted average duration estimate.

Project – A temporary endeavor undertaken to create a unique product or service.

Project Administration – Entails making Project Plan modifications that may result from such things as: new estimates of work still to be done, changes in scope/functionality of

end-product(s), resource changes and unforeseen circumstances. It also involves monitoring the various Execution Phase activities, monitoring risks, status reporting, and reviewing/authorizing project changes as needed.

Project Charter – A document issued by senior management that provides the project manager with the authority to apply organizational resources to project activities.

Project Communications Management – A subset of project management that includes the processes required to ensure proper collection and dissemination of project information. It consists of *communications planning, information distribution, performance reporting, and administrative closure*.

Project Concept Document – The document that is the foundation for making a decision to initiate a project. It describes the project purpose and high level planning information to determine project viability.

Project Control – A project management function that involves comparing actual performance with planned performance, and taking corrective action to yield the desired outcome, when significant differences exist.

Project Cost Management – A subset of project management that includes the processes required to ensure that the project is completed within the approved budget. It consists of *resource planning, cost estimating, cost budgeting, and cost control*.

Project Duration – The elapsed time from project start date through to project finish date.

Project Human Resource Management – A subset of project management that includes the processes required to make the most effective use of the people involved with the project. It consists of *organizational planning, staff acquisition, and team development*.

Project Initiation – A process that occurs before the organization has begun the Project Planning Phase and denotes a series of steps to have the project externally approved and started, including selection of the project manager.

Project Integration Management – A subset of project management that includes the processes required to ensure that the various elements of the project are properly coordinated. It consists of *Project Plan development, Project Plan execution, and overall change control*.

Project Management – The application of knowledge, skills, tools, and techniques to project activities in order to meet project requirements.

Project Manager – The individual appointed and given responsibility for management of the project.

Project Network Diagram – Any schematic display of the logical relationships of project activities. Always drawn from left to right to reflect project chronology. Often incorrectly referred to as a "PERT chart."

Project Oversight – A process that employs a variety of quality control, inspection, testing measurement, and other observation processes to ensure that planned project objectives are achieved in accordance with an approved plan. Project oversight is usually done by an independent entity (separate from the project team) trained or experienced in a variety of management and technical review methods. Project oversight includes both technical and management oversight. (Same as Independent Project Oversight).

Project Phase – A collection of logically-related project activities, usually culminating in the completion of a major *deliverable*.

Project Plan – A formal, approved document used to guide both project execution and project control. The primary uses of the Project Plan are to document planning assumptions and decisions, facilitate communication among stakeholders, and document approved scope, cost, and schedule baselines.

Project Procurement Management – A subset of project management that includes the processes required to acquire goods and services from outside the performing organization. It consists of *procurement planning, solicitation planning, solicitation, source selection, contract administration, and contract closeout*.

Project Quality Management – A subset of project management that includes the processes required to ensure that the project will satisfy the needs for which it was undertaken. It consists of *quality planning, quality assurance, and quality control*.

Project Risk Management – A subset of project management that includes the processes concerned with identifying, analyzing, and responding to project risk. It consists of *risk identification, risk quantification, risk response development, and risk response control*.

Project Schedule – The planned dates for performing activities and the planned dates for meeting milestones.

Project Scope Management – A subset of project management that includes the processes required to ensure that the project includes all of the work required, and only the work required, to complete the project successfully. It consists of *initiation, scope planning, scope definition, scope verification, and scope change control*.

Project Time Management – A subset of project management that includes the processes required to ensure timely completion of the project. It consists of *activity definition and activity sequencing, activity duration estimating, schedule development, and schedule control*.

Project Transition Checklist – A document that ensures that the activities of the Planning Phase have been finished, reviewed, and signed off so that the project may move from the Planning Phase into the Execution Phase.

Projectized Organization – Any organizational structure in which the project manager has full authority to assign priorities and to direct the work of individuals assigned to the project.

- Q -

Quality – A composite of attributes (including performance features and characteristics) of the product, process, or service required to satisfy the need for which the project is undertaken.

Quality Assurance (QA) – The process of evaluating overall project performance on a regular basis to provide confidence that the project will satisfy the relevant quality standards.

Quality Control (QC) – The process of monitoring specific project results to determine if they comply with relevant quality standards and identifying ways to eliminate causes of unsatisfactory performance.

Quality Management – A collection of quality policies, plans, procedures, specifications, and requirements is attained through quality assurance (Managerial) and quality control (Technical).

Quality Planning – Identifying which quality standards are relevant to the project and determining how to satisfy them.

- R -

Remaining Duration – The time, expressed in calendar units, needed to complete an activity.

Requirements Document – A formal document that outlines the high level requirements of a technical project.

Reserve – A provision in the Project Plan to mitigate cost and/or schedule risk. Often used with a modifier (e.g., *management reserve*, *contingency reserve*) to provide further detail on what types of risk are meant to be mitigated. The specific meaning of the modified term varies by *application area*.

Resource – Something that lies ready for use or that can be drawn upon for aid or to take care of a need.

Resource Leveling – Any form of *network analysis* in which scheduling decisions (start and finish dates) are driven by resource management concerns (e.g., limited resource availability or difficult-to-manage changes in resource levels).

Resource-Limited Schedule – A project schedule whose start and finish dates reflect expected resource availability. The final project schedule should always be resource-limited.

Resource Loading Profiles – Detailed staffing plan including number of personnel by type over time.

Resource Planning – Determining what resources (people, equipment, materials) are needed in what quantities to perform project activities.

Responsibility Assignment Matrix – A structure which relates the project organization structure to the *work breakdown structure* to help ensure that each element of the project's scope of work is assigned to a responsible individual.

Retainage – A portion of a contract payment that is held until contract completion in order to ensure full performance of the contract terms.

Risk – An uncertain event or condition that, if it occurs, has a positive or negative effect on a project's objectives.

Risk Assessment – Review, examination, and judgment of whether or not the identified risks are acceptable. Initial risk assessment is used as a tool to determine project oversight requirements.

Risk Event – A discrete occurrence that may affect the project for better or worse.

Risk Identification – Determining which risk events are likely to affect the project.

Risk Management – The art and science of identifying, analyzing, and responding to risk factors throughout the life of a project and in the best interests of its objectives.

Risk Mitigation – The act of revising the project's scope, budget, schedule, or quality in order to reduce uncertainty on the project.

Response Development – Defining enhancement steps for opportunities and mitigation steps for threats.

- S -

Schedule – The planned dates for performing activities and for meeting deliverables.

Schedule Compression – Shortening the project schedule duration without reducing the project scope.

Schedule Development – Analyzing activity sequences, activity durations, and resource requirements to create the project schedule.

Schedule Performance Index (SPI) – The ratio of work performed to work scheduled.

Schedule Variance (SV) – Any difference between the scheduled completion of an activity and the actual completion of that activity.

Scope – The sum of the products and services to be provided as a project.

Scope Change – Any change to the project scope. A scope change almost always requires an adjustment to the project cost or schedule.

Scope Creep – The gradual addition of new requirements to the original product specifications.

Scope Definition – Decomposing the major deliverables into smaller, more manageable components to provide better control.

Scope Planning – Developing a written scope statement that includes the project justification, the major deliverables, and the project objectives.

Scope Statement – A document capturing the sum of products and services to be provided as a project. The Scope Statement is part of the Project Plan.

Scope Verification – Ensuring that all identified project deliverables have been completed satisfactorily.

Slack – Term used in *PERT* or arrow diagramming method for *float*.

Specification Documents – Documents that provide specific information about the project deliverable characteristics.

Slippage – The tendency of a project to exceed original estimates of budget and time.

Sponsor – The individual or group that provides the financial resources, in cash or in kind, for the project.

Stakeholder – Individuals and organizations who are involved in or may be affected by project activities.

Statement of Work (SOW) –_A narrative description of products or services to be supplied under contract.

State Organization –_Used to define a general state organizational level consisting of the Agency and Departments interchangeably. Reference to Agency (with a capital “A”) is used for specific reference to an Agency or that specific organizational level.

Status Reports –_A report containing information on a specific project, indicating if the project is ahead of schedule, on schedule, or behind schedule in relation to the project plan.

Successor Activity –_A task or activity that succeeds, or comes after, another task or activity. In the *precedence diagramming method*, the "to" activity.

- T -

Task – Well defined components of project work. Often referred as a *work package*.

Team Member –_The individuals, reporting either part time or full time to the project manager, responsible for some aspect of the project’s activities.

Template – A *document* in a predefines format that provides a defined structure for collecting, organizing and presenting information and data. Templates are often based upon documents created during prior *projects*. Templates can reduce the *effort* needed to perform *work* and increase the consistency of *results*.

Testing –_The actual test of the products or processes created within the development phase of an Information Technology project.

Time-Scaled Network Diagram – Any *project network diagram* drawn in such a way that the positioning and length of the activity represents its duration. Essentially, it is a bar chart that includes *network logic*.

- W -

Workaround – A response to a negative risk event. Distinguished from contingency plan in that a workaround is not planned in advance of the occurrence of the risk event.

Work Breakdown Structure (WBS) – A deliverable-oriented grouping of project elements which organizes and defines the total scope of the project. Each descending level represents an increasingly detailed definition of a project component. Project components may be products or services.

Work Package – A deliverable at the lowest level of the *work breakdown structure*. A work package may be further decomposed into activities.

Project Management Institute

The Project Management Institute is a non-profit professional organization dedicated to advancing the state-of-the-art in project management.

Project Management Institute Overview

The Project Management Institute (PMI[®]) is considered by many project managers to be the preeminent authority regarding Project Management standards and processes. The State of Michigan Project Management Methodology and Desk Reference have used the Project Management Institute's Project Management Body of Knowledge (PMBOK[®]) extensively as the cornerstone on which to build its strategy and process for applying project management.

The PMBOK[®] contains detailed descriptions and definitions on many of the concepts and processes discussed within this desk reference. The Project Management Institute emphasizes a list of objectives that they continually refine which will improve the ability and quality of work for project managers. A continually growing base of knowledge, submitted by project management professionals, keeps the Project Management Institute on the cutting edge.

The PMBOK[®] breaks the project management process down into nine core knowledge areas, which have been discussed throughout this desk reference. In each of these knowledge areas, the inputs, tools, processes, and outputs are described in detail for clearer understanding. The PMBOK[®] also breaks down the Project Management Phases into five distinct, iterative processes, very similar to the phases of the State of Michigan Methodology.

The PMBOK[®] also provides many recommendations on strategies for project management styles and organizational development for project managers. Suggestions for development of various types of Project Plans and implementation of these plans are provided as well. While the PMBOK[®] is not the only source of Project Management knowledge in the world, it is one of the most concise and easy to read publications on the subject.

Project Management Institute Resources

While the PMBOK[®] is the most widely known resource that comes from the Project Management Institute, PMI[®] also provides various other services such as:

Memberships: Chapters of Project Management Institute members are located throughout the United States including the Michigan Capital Area Chapter based in the Lansing area. These chapters are composed of project managers in many different industries who meet on a regular basis to share information, discuss issues relating to

project management and network with their peers. Membership is based on an annual enrollment and fee.

Certification: The Project Management Institute offers the Project Management Professional (PMP®) Certification. The Project Management Professional title is a professionally recognized certification based upon an individual's project management work experience as well as their ability to pass an examination on the principles of the Project Management Body of Knowledge.

Specific Interest Groups (SIG): The Project Management Institute offers a vast array of different areas in which project managers may specialize. SIGs allow project managers within a certain special industry or work area to be part of a group that focuses on developing and supporting project management within that area.

Publications: The Project Management Institute also entitles its members to discounted publications, which are produced by the organization and PMI® partner organizations. The publications discuss trends and subjects that relate to project management and its application in the workplace.

Seminars & Education: The Project Management Institute is also well known for its informative seminar series and opportunities for professional education. They are noted for providing top speakers in the industry at conferences to speak on timely and relevant subjects. Furthermore, PMI® has started its own college for continuing education in the different project management areas.

Finding additional information on PMI®

To find out more about the Project Management Institute and what resources it can provide to project managers, visit their website at <http://www.pmi.org>. The local chapter, the Michigan Capital Area Chapter, can be found at <http://www.pmi-mcac.org>.

Quite a bit of information is available on the PMI® website including an option to download the PMBOK® in .pdf format. The address for starting the download is: <http://www.pmi.org/publictn/PMBOKtoc.htm>.

Capability Maturity Model

Capability Maturity Model Overview

The Capability Maturity Model (CMM) comes from the Software Engineering Institute (SEI) of Carnegie Mellon University. The SEI has conducted significant research into several areas of business process improvement and reengineering over the past several years.

The CMM (expanded to CMMI – Capability Maturity Model Integration), described briefly below, is a professionally recognized model for process development within software-based organizations. The ultimate intent of applying this model for software development in order for State of Michigan agencies to strive to a level five maturity in Project Management. If successful, this practice will eventually spread to other methodology areas and throughout Michigan State Government.

CMM Defined

The Capability Maturity Model for Software (CMM-SW) describes the principles and practices underlying software process maturity and is intended to help software organizations improve the maturity of their software processes in terms of an evolutionary path from ad hoc, chaotic processes to mature, disciplined software processes. The CMM is organized into five maturity levels:

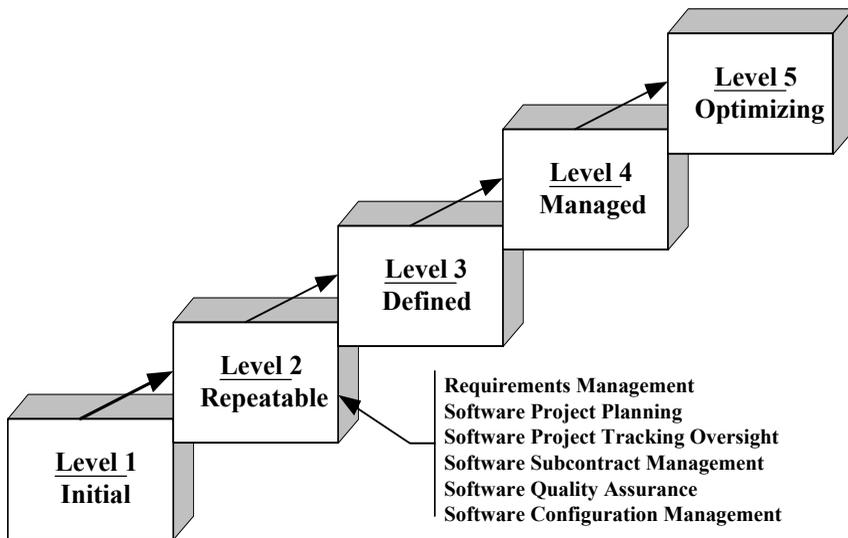
- 1) Initial.** The software processes are characterized as ad hoc, and occasionally even chaotic. Few processes are defined, and success depends on individual effort and heroics.
- 2) Repeatable.** Basic management processes are established to track cost, schedule, and functionality. The necessary process discipline is in place to repeat earlier successes on projects with similar applications.
- 3) Defined.** The software process for both management and engineering activities is documented, standardized, and integrated into a standard software process for the organization. All projects use an approved, tailored version of the organization's standard software process for developing and maintaining software.

4) Managed. Detailed measures of the software process and product quality are collected. Both the software process and products are quantitatively understood and controlled.

5) Optimizing. Continuous process improvement is enabled by quantitative feedback from the process and from piloting innovative ideas and technologies.

Predictability, effectiveness, and control of an organization's software processes are believed to improve as the organization moves up these five levels. While not rigorous, the empirical evidence to date supports this belief.

CAPABILITY MATURITY MODEL PROCESS LEVELS



CMM Process Decomposition

Except for Level 1, each maturity level is decomposed into several Key Process Areas (KPA) that indicate the areas an organization should focus on to improve its software process.

The Key Process Areas at Level 2 focus on the software project's concerns related to establishing basic project management controls. They are Requirements Management, Software Project Planning, Software Project Tracking and Oversight, Software Subcontract Management, Software Quality Assurance, and Software Configuration Management.

The Key Process Areas at Level 3 address both project and organizational issues, as the organization establishes an infrastructure that institutionalizes effective software engineering and management processes across all projects. They are Organization Process Focus, Organization Process Definition, Training Program, Integrated Software Management, Software Product Engineering, Intergroup Coordination, and Peer Reviews.

The Key Process Areas at Level 4 focus on establishing a quantitative understanding of both the software process and the software work products being built. They are Quantitative Process Management and Software Quality Management.

The Key Process Areas at Level 5 cover the issues that both the organization and the projects must address to implement continual, measurable software process improvement. They are Defect Prevention, Technology Change Management, and Process Change Management.

Each Key Process Area is described in terms of the key practices that contribute to satisfying its goals. The key practices describe the infrastructure and activities that contribute most to the effective implementation and institutionalization of the key process area.

Finding Additional Information on CMM and the SEI

To find out more about the Capability Maturity Model and implementing its methods into your workplace, you can visit their website at

<http://www.sei.cmu.edu/>

