US Department of Justice
Office of the Chief Information Officer

Information Technology (IT) Project Manager Guide

March 20, 2015

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1 Introduction

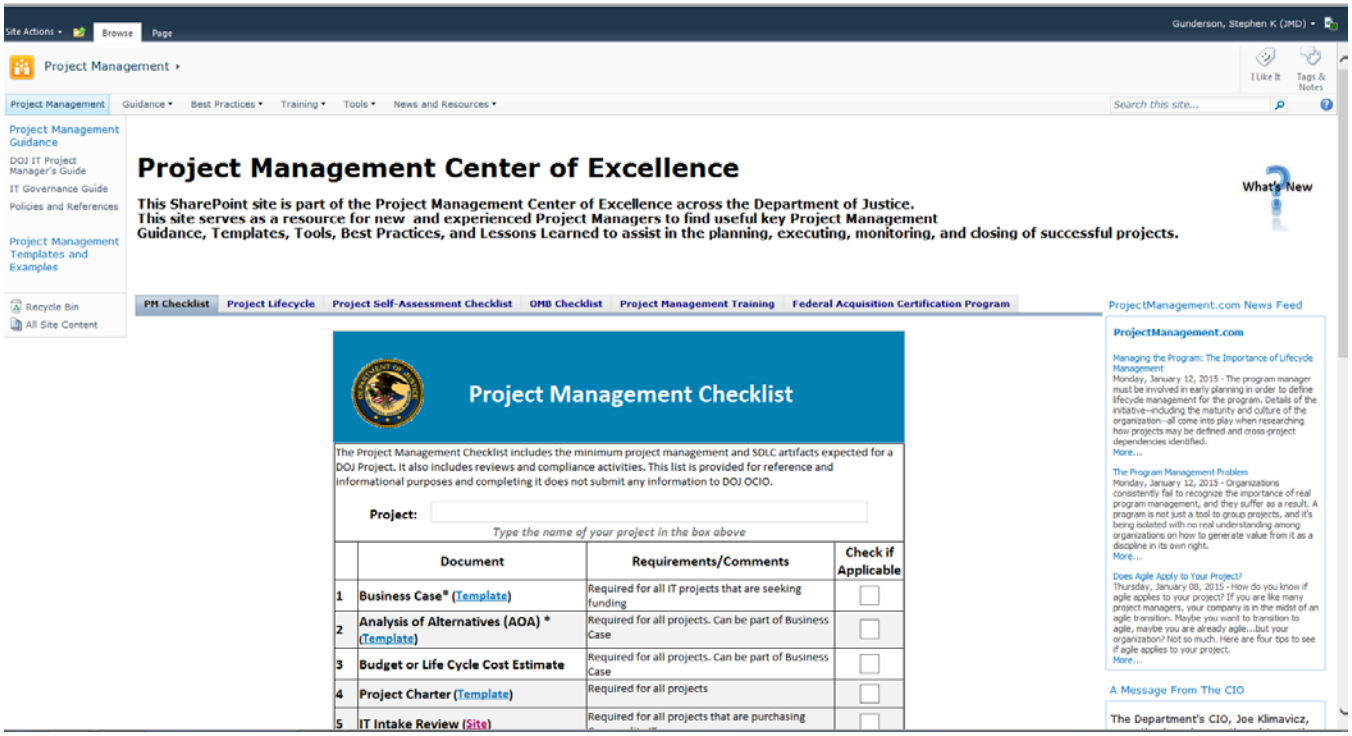
1.1 Executive Summary

This IT Project Manager Guide provides guidelines for managing information technology (IT) projects at the U.S. Department of Justice (DOJ) and direction on how to implement Project Management principles to initiate and execute projects successfully. Specifically, this Guide, and the processes contained within it, focuses on managing project cost, schedule, scope, risk, staffing, communications, and stakeholders. This DOJ IT Project Manager Guide is also aligned with the DOJ System Development Life Cycle Guidance Document (January 2003 version) and includes a minimum list of artifacts generally required for all projects. **For Major Programs, formerly known as OMB Exhibit 300 Investments, a companion IT Capital Planning and Investment Control Guide (October 2014 version) is available for additional guidance.**

While this document contains guidance and best practices applicable to all information technology projects across DOJ, Project Managers are advised to consult with their component CIO organization to ensure they are complying with any additional DOJ-approved alternate or supplemental project management requirements. Some DOJ-wide requirements worth highlighting for the Project Manager that are addressed in this guide include:

- Compliance with Privacy and Systems of Records Notice (SORN) regulations;
- Certification and Accreditation (C&A) procedures and testing;
- Section 508 compliance;
- A new DOJ Policy for Records & Information Management Certification (RIMCert); and
- Supply Chain Risk Management

The DOJ Office of the Chief Information Officer (OCIO), Justice Management Division (JMD), has also developed a companion SharePoint site for this IT Project Manager Guide. The DOJ Project Management Center of Excellence (CoE) site (https://itim.doj.gov/ProjectManagement/default..aspx) is dedicated to maturing the Project Management Discipline as it applies to IT projects at DOJ and serves as a resource for both new and experienced Project Managers. The site provides useful guidance, processes, templates, tools, techniques, best practices, lessons learned, peer-to-peer knowledge exchange, and training resources centered on the planning, executing, monitoring, and closing of successful projects. It also includes an online, clickable version of this DOJ IT Project Manager guide, with links to the pertinent information referenced above.



DOJ Project Management CoE SharePoint Site Landing Page

1.1.1 Project Management Description

Per the Project Management Institute, a project is a "temporary group activity designed to produce a unique product, service or result" with project management being "the application of knowledge, skills and techniques to execute projects effectively and efficiently." The Project Manager is the person responsible for accomplishing the project objectives.

Managing a project includes:

- Identifying requirements.
- Establishing clear and achievable objectives.
- Balancing the competing demands for quality, scope, time, and cost.
- Adapting the specifications, plans, and approach to different concerns and expectations of the various stakeholders.

Project Managers often talk of a "triple constraint" – project scope, time, and cost – in managing competing project requirements. Project quality is affected by balancing these three factors. High quality projects deliver the required product, service, or result within scope, on time, and within budget. The relationship amongst these factors is such that if any one of the three factors changes, at least one other factor is likely to be affected. Project Managers also manage projects in response to project uncertainty. Project risk is an uncertain event or condition that, if it occurs, has a positive or negative effect on at least one project objective.

1.1.2 The Project Life Cycle

It is recommended that Project Managers divide projects into phases to provide better management control with appropriate links to the ongoing operations of the performing organization. Collectively, these phases are known as the project life cycle. Project life cycles generally define:

- What technical work to do in each phase (for example, in which phase should the architect's work be performed?).

- When the deliverables are to be generated in each phase, and how each deliverable is reviewed, verified, and validated.
- Who is involved in each phase (for example, concurrent engineering requires that implementers be involved with requirements and design).
- How to control and improve each phase.

The Department of Justice uses the DOJ System Development Life Cycle (SDLC) methodology (January 2003). It can be accessed on the DOJ internet at: http://www.justice.gov/archive/jmd/irm/lifecycle/table.htm. For those components that have received authorization from DOJ OCIO to use an alternative SDLC, please refer to specific guidance from your component IT governance leadership.

1.1.3 Project Stakeholders

Project stakeholders are individuals and organizations that are actively involved in the project, or whose interests may be affected as a result of project execution or project completion. They may also exert influence over the project's objectives and outcomes. The project management team is responsible for identifying the stakeholders, determining their requirements and expectations, and, to the extent possible, managing their influences in relation to the requirements to ensure a successful project.

Stakeholders have varying levels of responsibility and authority when participating on a project and these can change over the course of the project's life cycle. Their responsibility and authority ranges from occasional contributions in surveys and focus groups to full project sponsorship, which includes providing financial and political support. Stakeholders who ignore this responsibility can have a damaging impact on the project objectives. Likewise, Project Managers who ignore stakeholders can expect a damaging impact on project outcomes.

Key stakeholders on every project include:

- *Customer / User*: The person or organization that will use the project's product. There may be multiple layers of customers. In some application areas, customers and user are synonymous, while in others, customer refers to the entity acquiring the project's products and users are those who will directly utilize the project's product.
- *Performing Organization*: The enterprise whose employees are most directly involved in doing the work of the project.
- *Project Manager*: The person responsible for managing the project.
- *Project Team Management*: The members of the team who are directly involved in project management activities.
- *Project Team Members*: The group that is performing the work on the project.
- *Sponsor*: The person or group that provides the financial resources, in cash or in kind, for the project.
- *Influencers*: People or groups that are not directly related to the acquisition or use of the project's product, but due to an individual's position in the customer organization or performing organization, can influence, positively or negatively, the course of the project.

Project Managers must manage stakeholder expectations for ultimate project success, which can be difficult because stakeholders might have very different or competing objectives.

1.1.4 Project Management Knowledge Areas

The Project Management Institute is the global de facto standard for project management standards. Their Project Management Body of Knowledge (PMBOK)® methodology defines ten supporting knowledge areas, which map to five project management process groups that serve as the basis for DOJ's Project Management Process Overview described in Section 1.3 (*Project Management Process Overview*). The ten PMBOK knowledge areas are:

- Project Scope Management
- Project Time (Schedule) Management
- Project Cost Management
- Project Quality Management
- Project Human Resource Management
- Project Communications Management
- Project Risk Management
- Project Procurement Management
- Project Stakeholder Management
- Project Integration Management

Brief overviews of each of these PMI PMBOK knowledge areas can be found in Appendix A (*Project Management Knowledge Areas*), including a mapping of these knowledge areas to DOJ's Project Management Processes (Stages) described in the next section.

1.2 Project Management Process (Project Stages) Overview

Regardless of the System Development Life Cycle (SDLC) or Work Breakdown Structure (WBS) being used, the typical project should follow the Project Management Process described in this section, broken into five Project Stages consistent with the PMI PMBOK process stages.

Project Stage	Activity
Initiation (see Section 2.1)	Project Manager (PM) is assigned to manage the project, and project is assigned to DOJ project team.
	Information is collected about the project.
	PM holds a kick off meeting with the project team to introduce the project and prepare for the planning stage. The kick off meeting ends the initiation stage. The Project Manager approves going into the Planning stage.
Planning (see Section 2.2)	Develop a detailed Work Breakdown Structure (WBS) for the project.
	Develop a comprehensive Project Schedule.
	Create a risk register of all project risks known at that point.
	Identify and document project roles, responsibilities, and reporting relationships.

Project Stage	Activity
	Draft remaining parts of the Project Management Plan (PMP).
	Conduct review and approval of PMP with Project Sponsor, management or equivalent level.
Execution, Monitoring, and Control (see Section 2.3)	Perform ongoing schedule management.
	Perform ongoing project cost management.
	Perform ongoing risk management.
	Perform ongoing human resource management.
	Establish system performance goals.
	Provide written status reports to management and participate in monthly project reviews with them.
	Complete project deliverables, and sign-off by Project Sponsor.
Closeout (see Section 2.4)	Deliver the final project deliverables.
	Release team resources.
	Perform project closeout reporting activities.
	Conduct and record lessons learned.

2 Project Management Process Stages

2.1 Project Initiation

2.1.1 Assign Project Manager to the Project

During the Project Initiation Phase, a Project Manager (PM) is assigned to manage the project from the Initiation Phase up to and including the Closing Stage. It is also beneficial that the Project Manager is, or becomes, FAC-P/PM or PMP certified. Program Managers assigned to programs considered major acquisitions by their agency, and as defined by Office of Management and Budget (OMB) Circular A-11 (IT and non-IT), must be senior-level FAC-P/PM certified. Project Managers assigned to lead projects within these major acquisitions must be, at a minimum, mid-level FAC-P/PM certified. Other P/PMs should be certified at an appropriate level as determined by their agency. The completion date for these certifications is 12 months from the date of assignment to the program or project. Below, please find information on becoming FAC-P/PM and/or PMP certified.

PROJECT MANAGEMENT PROCESS STAGES

- **Initiation**
- Planning
- Execution, Monitoring, and Control
- Closeout

2.1.1.1 Federal Acquisition Certification Program for

Program and Project Managers

There are three levels of Federal Acquisition Certification Program for Program and Project Managers (FAC-P/PM) certification, including Entry, Mid-, and Senior Level, and individuals have to meet specific experience and training requirements, and complete 80 hours of continuous learning every two years, to maintain those certifications. After an individual completes all of the experience and training requirements for the FAC-P/PM Program (Entry, Mid-level, or Senior), they must register and submit an application for the Federal Acquisition Certification in the Federal Acquisition Institute Training Application System (FAITAS).

For more information on becoming FAC-P/PM certified, please visit the Project Management Center of Excellence site at (https://itim.doj.gov/ProjectManagement/default..aspx).

2.1.1.2 Project Management Professional Certification

Department of Justice Project Managers are encouraged to become certified in the Project Management discipline. PMI's Project Management Professional (PMP)® credential is the key industry-recognized certification for project managers and demonstrates that you have the experience, education, and competency to lead and direct projects.

You may use 24 hours of your PMP training towards a mid-level FAC-P/PM certification.

For more information on obtaining your PMP certification, please visit: http://www.pmi.org.

2.1.2 Collect Project Information

The Project Manager will gather information to provide context for the project. This includes Project Charter type information, such as the reason for the project, its scope and objectives, as well as contact information for the Project Sponsor and other key people. The PM will also obtain any information about the project funding and desired timeframe and will meet with the Project Sponsor to learn directly about their goals and objectives. Any information about the selection of the project team will be reviewed, with input from the Project Manager.

2.1.3 Conduct Kick off Meeting

The purpose of the kick off meetings is to introduce the project and prepare for the planning stage.

Attendees: In addition to the Project Manager and any known project team members, the kick off meeting will also include, whenever possible, the Project Sponsor and members of the functional organization for whom the project is being undertaken.

Agenda: The agenda will include a project overview, the high-level deliverables and schedule milestones, and information about the team roles and responsibilities. The Project Manager should coordinate with the Project Sponsor and discuss their goals for the project, and what constitutes success from their perspective. Review the risk management procedures that will be conducted during the planning and execution stages; begin discussion on any key known risks to the project at this point.

Finally, cover the essentials of some basic project processes, such as: the types of project meetings, and their attendees and frequency; management of project documentation; the formal change request process

using the Change Control log; and the process for issue and risk escalation, such as using an Issues Tracking log. Customer review and sign-off procedures will also be discussed.

2.2 Project Planning

2.2.1 Create Work Breakdown Structure

The Work Breakdown Structure, or WBS, is a critical feature of successfully managing any project. It is also an essential step before developing the project schedule, and as such is an integral part of planning, estimating, and scheduling. Developing a WBS involves the detailing of a project's scope so that a clear understanding of customer expectations, agreed outcomes/results, and a valid definition of project deliverables is achieved. This process acts as a starting point for understanding the work requirement to create the deliverables that will achieve the project goals.

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This detailing of a project's scope results in the decomposition of the project to identify specific project phases (level 1) followed by the deliverables required by each phase. Thus, begin by using the project scope and requirements and identify all project deliverables. Then, break them down into any component deliverables, and the step-by-step tasks and subtasks needed in order to accomplish each one. Each descending level represents an increasingly detailed definition of the project work. Once each project phase's deliverables are identified (level 2), continue to decompose each deliverable into sub-deliverables (levels 3, 4, 5) until further decomposition arrives naturally at the tasks needed to complete each sub-deliverable. The WBS is displayed as a diagram of the logical hierarchy of deliverables and tasks, or as a numbered list with the number level of each task representing where it fits on the hierarchy structure. Project milestones are also defined in the WBS as major events or points in time against which progress is measured. Thus, each element of work has been decomposed into smaller sub-elements until reaching the level of work packages or tasks that are a manageable size for tracking progress and controlling the project. A well-organized WBS allows a project manager to later more precisely identify which components are causing cost or schedule overruns and to more effectively mitigate the root cause of the overruns. See Appendix B (*Development of WBS*) for more information.

After the WBS is completed, create a WBS Dictionary which will provide a more detailed description of each element of the WBS. When the schedule is developed in MS Project, enter the detailed task descriptions in the Notes section of each of the project's tasks.

2.2.2 Create Project Schedule

The next step in managing your project to a successful completion is creating the master project schedule. Creating and maintaining a comprehensive master schedule for your project will ensure timely and accurate reporting to your management, stakeholders, and customers. The master schedule will also provide open communication of the project plan and work scope to your project team members so that everyone will be aware of their responsibilities on the project.

Use the deliverable and task hierarchy of the WBS, and information from the WBS Dictionary, to build the schedule. To be able to accurately track the project, realistically estimate the work hours for each task. Assign all of the resources needed for each task, and the number of work hours allocated for each one, rolling up to the work hours estimated for the task. The hierarchy of the WBS will flow naturally to the task predecessor/successor relationships. Another connection of the schedule with the WBS is that

the WBS ID number is assigned to each task and deliverable in the schedule, and it appears in the WBS column. That WBS ID number corresponds to the WBS ID number of the equivalent WBS element or deliverable in the WBS. Include milestones, which can relate to the completion of a major deliverable or phase, and link them to their predecessor(s). See Appendix C (*Creating the Project Schedule*) for more detailed information on building the schedule.

The level of detail in a schedule will be sufficient to accommodate a clearly defined logical sequence of activities, describe a step-by-step process for accomplishing all phases of work leading to product deliverables, and accommodate the collection of actual time and cost charges at the appropriate level. The level of detail in the schedule will reflect discrete, measurable tasks that relate to WBS elements. Every WBS element will have at least one schedule task. Higher risk and/or higher cost areas will have more detail.

After the resources are input, and the schedule file saved, level the project resources to ensure that they are not over-allocated. Cost measures can now be determined directly from the initial and updated project schedule, but only if some hourly rate has been assigned to each resource. If the organization cannot provide that, a proxy rate can still be used, to enable tracking to still take place.

Once the schedule is reviewed and approved by the project team and stakeholders, it can be baselined. Setting the project baseline is an important step in the overall schedule development process and, in most cases, signifies the transition between the planning process and the tracking process. The baseline established in the project schedule will represent the binding commitment between the Project Manager, the project team, the organization, and the customer or stakeholder. As such, the project baseline will be taken very seriously and never changed arbitrarily. Further information about baselining can be found in Appendix D (*Establishing the Project Baseline*).

If there are any risks have been identified in relation to specific tasks, deliverables, or milestones, a note can be entered into that item in the schedule, to draw attention to that linkage.

The creation of a project schedule is summarized below.

- Include major milestones
- Make sure that task and milestone descriptions are complete
- Structure the task and milestone data in logical order and groupings
- Provide ID numbering of schedule tasks and milestones to match or “connect” to the WBS
- Establish predecessor/ successor relationships
- Tasks show work and duration
- Level the resource allocations across the project
- Assign rates or proxy rates to the resource, in order to more accurately track the project performance
- Associate risks to the related tasks or milestones
- Baseline the schedule

2.2.3 Create Risk Register

During the Planning Stage, document in a Risk Register all of the project risks which are known at that point. Each risk will have information as shown in the following table. See Appendix E (*Risk Management Plan Template*) for the DOJ standard method for identifying, scoring, and prioritizing risk exposure.

Risk Rank: #	**Status Indicator**:
Risk Description:	
Risk Exposure (Risk Probability x Risk Impact):	
Mitigation Strategy:	
Mitigation Accomplishments:	

2.2.4 Identify and Document Project Roles and Responsibilities

Project Human Resource Management includes the processes that organize and manage the project team, including staffing. One of the planning activities is to design and document the project team organization chart, including roles and reporting relationships of the various project team members. Associated project roles and responsibilities should be clearly defined and documented as well, and reviewed with the team to reinforce understanding. All team members should be involved in the project planning process, particularly for their assigned areas. Early involvement of team members adds expertise during the planning process and strengthens commitment to the project.

For projects involving a contractor, a Contracting Officer Representative (COR) is involved. As an appointee of the Contracting Officer (CO) and nominee of the program office, the COR is an essential member of the team. The COR serves a vital role in linking program management and technical requirements of the organization to the business needs. PMs and/or one or more members of their staff may be designated to serve as COR on a contract. The COR can be described as the "eyes and ears" of the CO during contract performance. *Justice Acquisition Regulation Subpart 2801.70 - Contracting Officer Representative (COR)* prescribes general DOJ policies and procedures for selection and appointment of CORs. For more information on COR responsibilities, please reference Appendix F (*COR Responsibilities*).

2.2.5 Draft the Project Management Plan

During the Planning Stage, develop a Project Management Plan (PMP) and update the document as needed over the life cycle of the project. The PMP is the fundamental document for the project that covers all the processes to be used in setting up and managing the project. The PMP also documents how work will be executed and managed to meet the project objectives, including how project performance will be measured. The PMP should include the original plans (baselines) for project scope, project schedule, project cost, and performance measurement. Appendix G (*PMP Template*) provides a template you can use with industry-standard guidance and/or examples included in each section. The specific level of detail within each section should be commensurate with that topic's importance and relevance to the project, and sections that do not apply to the project should be omitted.

One important element of the PMP to highlight is the cost estimate for your project. A good cost estimate is a critical factor in the future success of your project. Developing a good cost estimate begins with an accurate scope definition, followed by a well-structured and comprehensive WBS, ideally based on a proven SDLC or methodology. All related hardware, software, training, and implementation costs

also need to be included. Your project's business case and/or alternatives analysis should have built out the major assumptions and factors for your cost estimate. Your PMP and its project schedule then factors in additional information, such as resources assigned to the project, to develop the cost estimate that management expects will be met for final delivery of the specified solution. For more information on good cost estimating, please visit the Project Management Center of Excellence site at (https://itim.doj.gov/ProjectManagement/default.aspx).

2.2.6 Review and Approve PMP

Once completed, the PMP is submitted to the Project Sponsor, and relevant component Project Management Office (PMO) or equivalent oversight function, for review and approval before project execution begins. The assigned Project Manager should coordinate with the Project Sponsor and the PMO to hold a meeting to review the PMP, and make any adjustments as necessary. During this review, the Project Manager will walk through the WBS and master schedule to share the technical approach planned for the project. All project assumptions, as well as the known risks and risk mitigation plans, will be discussed. This is the ideal time to discover if there are concerns or issues with some aspect of the carefully devised plan that have not previously been noted.

Stakeholder financial, political, and technical support of a project means that their solid backing is critical to project success. Therefore, the PMP review process will not be completed until the Project Sponsor and DOJ component management sign off. Since stakeholders sometimes have conflicting objectives, the PM may need to help manage or negotiate the expectations between them.

2.3 Project Execution, Monitoring, and Control

The third stage in the Project Management Process is project execution, monitoring, and control.

2.3.1 Manage Schedule

A key task in managing your project to a successful completion is tracking and analyzing the progress of the project by making routine updates to the master schedule in accordance with actual performance. When planning the schedule, you were concerned with the duration of each task and the amount of work necessary to complete each task. When you move into the performance stage of the project, you are concerned with the actual amount of time someone performs on each task and the actual amount of work accomplished. As project work is executed, all tasks and milestones in the schedule will, on a routine basis, be updated to reflect their current status. Ideally, you would like to keep your schedule current on a day-to-day basis. However, that is not always practical or realistic. At a minimum, updates can be performed monthly but a weekly or bi-weekly status cycle is recommended.

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It is critical for the schedule to accurately and realistically reflect the current plan to complete the remaining authorized scope as contained in the baseline. To ensure accurate analysis of the project performance, all incomplete tasks and milestones in the schedule must be periodically updated to a single status date.

Once the actual data is entered for each reporting period, an analysis of project progress will be performed to see if the schedule is still on track or if revisions to the plan are necessary. This part of the project management process - tracking and analyzing - will be performed throughout the life of the project. The tracking process includes: a comparison of where you are (current actuals) in relation to where you should be (the baselined plan); re-planning to minimize the effect of schedule variances; and communication of the project progress to the project stakeholders and team members. The tracking capabilities of Microsoft Project and, perhaps, the information in any PMO Project Dashboard repository your organization may be using, are needed to analyze and communicate project progress. More information on updating the schedule is found in Appendix H (*Updating the Project Schedule*).

Setting up the schedule and establishing the baseline are just the first steps in managing the project schedule. No project schedule is ever planned perfectly, and tasks in the schedule will move or change based on the real events of project execution. Therefore, accurate tracking to status and updating the project schedule on a frequent basis is critical to the success of any project. Some tasks inevitably will start or complete early while others will start or complete late. The schedule must be updated and the status information must be analyzed so that changes can be identified and potential issues recognized early, allowing action/workaround plans to be developed and risks/issues mitigated as early as possible, before they become critical and insurmountable.

Update the schedule using status reports and project data provided by the project teams, external contractors and the project/PMO leadership. Collect and report status on task performance. Identify the following:

- Tasks that are behind or ahead of the schedule plan (baseline)
- Tasks that should have started (or progressed) and have not
- Changes to the project critical path
- Missing or incorrectly allocated resources

2.3.2 Manage Costs

Cost management is an essential purpose of project management, and accurate tracking is crucial to effective management. The reference section includes two DOJ documents containing additional information about project cost management and tracking. The project schedule will be set up so that tracking costs can be a routine function, with the project cost numbers initially provided directly from the baselined schedule and ongoing from the updated schedule. Within Appendix H (*Updating the Project Schedule*), the *Analyze Project Progress* section provides a list of several sources of the cost data. Further information on reporting the cost elements is also provided in Section 2.3.6 (*Status Reporting*).

Large or critical projects may be selected for formal Earned Value Management (EVM) review. These projects include:

- IT projects with development/modernization/enhancement (DME) costs that exceed $10 million annually or $25 million over a five year life cycle period.
- IT projects requiring the special attention of the DOJ CIO due to high management visibility, level of DME funding, duration of the development phase, or level of risk.

For more information on formal and informal EVM guidance and practices, please visit the Project Management Center of Excellence site at (https://itim.doj.gov/ProjectManagement/default.aspx).

2.3.3 Manage Risks

During the Execution Stage, the Project Manager actively manages risk. Whenever possible, the PM takes action to lessen the probability of a risk event occurring, or the impact to the project if it does occur. Engage team members in tracking specific risks, and assign mitigation action plans to staff in order to prevent risks from occurring. Risk status and updates will be a regular part of project team status meetings, and risk information can be rolled up across projects, programs, and portfolios using automated repositories/dashboards.

Active risk management includes the following:

- Add risks to the Risk Register as they become known
- Assess risk status for each risk, with the high-probability/ high-impact risks receiving particular attention
- Develop and update Risk Mitigation plans for the highest priority risks
- Monitor and track risk events and status
- Set in motion the plan to manage the issues that are the outcome of a risk event occurring, and use the Issues Tracking Log
- Archive risks after the point at which they can no longer occur, and need no further tracking

For further information on risk management, reporting, and control, please see Appendix E (*Risk Management Plan Template*).

2.3.4 Manage Team Resources

During the Execution Stage of the project, HR management continues to be involved obtaining the needed staff for the project team, within the constraints of the project budget. Once they are onboard, the Project Manager tracks their performance, and assesses when to provide positive feedback as well as feedback for improvement. The Project Manager actively helps improve the interaction of team members to enhance project performance. Even in a project of relatively short duration, they can develop and improve the competencies of the project staff. They must also resolve staffing issues, such as coordinating staffing changes and matching staff skills to those needed on the various project activities, helping to ensure project progress.

2.3.5 Set Performance Goals

The Project Manager should establish a set of performance goals for the solution being implemented and then track actual performance to these goals throughout the life of the project. Identification of performance goals and measures should begin early, during the planning stage (for example, included in the PMP).

The following are some principal system performance categories the PM should consider when establishing these system performance metrics:

- **Customer Results** – this could be either quantitative or qualitative data analysis of customer expectations. Describe the process used to assess customer satisfaction (e.g., surveys, user group meetings, customer focus groups, etc.). Summarize the results of the customer surveys and compare the results to the goal. Focus on such factors as efficiency, effectiveness, maintainability, productivity, security, availability and reliability.
- **Strategic and Business Results** – this is a quantitative analysis reviewing performance goals and measures. Establish performance goals and measures with actual results for the asset and the

business processes that the investment supports. Describe how the investment is continuing to meet each strategic goal and how it supports the overall strategy.

- **Technical Performance** – this is a qualitative analysis comparing new innovation and initiatives that anticipate changing customer needs including investments to address future challenges, to better meet customer needs, to make better use of technology and to lower operation costs.
- **Performance Assessment** – this is a quantitative analysis comparing the established systems performance goals such as responsiveness, availability, reliability, etc. to the actual measured results.

For additional guidance on setting performance goals, including templates, examples, and best practices, please visit the Project Management Center of Excellence site at (https://itim.doj.gov/ProjectManagement/Home.aspx).

2.3.6 Perform Status Reporting

Several templates are available in the PM CoE SharePoint site to use as a reporting mechanism for consistent project reporting and key indicators of project performance. The reporting should highlight specific areas of positive status and areas where leadership assistance may be required for projects that are in need of attention or assistance. Your organization may have a specific template you are to use, or an automated Dashboard, such as the JMD OCIO IT Project Status Report Dashboard (see the following link for the access and/or descriptions of its functionality:
https://itim.doj.gov/projectmanagement/SitePages/Status%20Reporting.aspx

2.3.7 Complete and Obtain Signoff on Project Deliverables

The DOJ System Development Life Cycle (SDLC) provides guidance and recommendations for developing project deliverables based on development phases. Your DOJ component may also already have DOJ OCIO approval to use a component-specific SDLC. To ensure that the essential planning and evaluation actions necessary for program success are performed and documented, the Department has identified a minimum set of artifacts that should be prepared for all development and major enhancement programs (see Section 3.1, *DOJ Minimum PM and SDLC Artifacts*):

2.4 Project Closeout

2.4.1 Produce Final Deliverables

The final deliverables of the project are subject to customer acceptance or rejection. Their acceptance criteria will be based on the defined and documented requirements and if they have been met, including the end product's conformance to quality measures. Requesting that the customer sign off on the product testing results helps set the stage for their final acceptance of deliverables.

2.4.2 Release Team Resources

Personnel that become available as a result of the project ending will need to be assigned to other projects and activities. In a matrixed organization, they will continue to be responsible to their "home" organization and will report back there for additional work assignments. Those managers who are responsible for resource assignments will be made aware in advance of a project ending soon, in order

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to take early steps to negotiate the project team members' eventual placement elsewhere. Providing this security helps lessen the risk of staff attrition.

2.4.3 Document Project Closeout Reporting

A final Project Status Report, or Completion Report, should be submitted upon project completion. Any concerns or recommendations can be noted for management review and discussion. The disposition of unused funds must be decided at this point. Through earlier trend reporting of actual expenditures and estimate-at-completion figures, this can often be very close to the final project financial numbers.

2.4.4 Document Lessons Learned

A critical but often overlooked activity is for the Project Manager to lead and document a Lessons Learned discussion at the end of the project. The Project Manager will introduce the meeting as an exercise to help future projects, and set the tone for an open discussion. Sometimes, after a difficult project operating under stressful conditions, there could be recriminations or finger pointing. Since this is not helpful in getting the kind of information that would be useful for future projects, the Project Manager should set the ground rules and guide the discussion.

There are a variety of approaches to devise Lessons Learned discussion topics, checklists and reports. The Project Manager can customize this, since it must correspond to the specific elements of the project. Generally, the typical approach is to find out what went well, what could be improved, and the areas and specifics of improvement recommendations. Some examples of Lessons Learned questions are:

- What were the obstacles to accomplishing the project?
- How effective was the project management processes, and what could be improved?
- Were the contingency plans for risk events implemented smoothly?
- Assess the test phase overall. If there were more fixes needed than usual, what were the root causes of that?
- Were customer communications handled effectively and, if not, what are some possible improvements?
- Were all of the project objectives and requirements met?
- What activities should be continued, changed, or discarded?
- Did the change control mechanism work effectively, and if not, how could it be improved?
- How accurate was the initial project schedule?
- Did the project avoid scope creep?
- Identify root causes for any schedule slippage, and how they might have been avoided.
- Provide general comments on potential improvement of project processes.

A typical Lessons Learned report would include sections such as:

1. Project Successes
2. Suboptimal Aspects of the Project
3. Recommendations for Future Projects

3 DOJ Project Management Reference Checklists

As Project Managers for DOJ, there are some important artifacts, compliance requirements, and project management practices that you should be aware of, and plan to work with, for planning and delivery of successful projects. These are summarized in the next three sections:

- DOJ Minimum Project Management and SDLC Artifacts
- Important Federal Compliance Requirements
- Project Management Practices Checklist

3.1 DOJ Minimum Project Management and SDLC Artifacts

The following is the DOJ minimum list of Project Management and SDLC documentation that should generally be developed, used, and maintained for all types of projects. Some artifacts are 'as applicable,' which means that they are required only if an IT-related system or solution is involved.

1. Business Case
2. Analysis of Alternatives (AOA) [can be part of Business Case]
3. Budget or Life Cycle Cost Estimate [can be part of Business Case or AOA]
4. Project Charter [can include Business Case and AOA]
5. Project Management Plan (PMP) [can include #1-4 above and #6 below]
    a. Executive Summary
    b. Scope Definition
    c. Approach
    d. Assumptions/Dependencies/Constraints
    e. Project Organization
    f. Project Plan – to include Work Breakdown Structure, Project Milestones, Project Schedule, Organizational Change Management Plan, etc.
    g. Risk Management Plan
    h. Appendices – details such as the WBS, Schedule, Cost-Benefit Analysis, etc.
6. Risk Management Plan
7. Risk Register
8. Issue Log – See Appendix I (*Sample Issues Tracking Log Template*)
9. Project Status Report
10. Concept of Operations (CONOPS) – required only if there is a change to business processes
11. System Design Document (SDD) [as applicable]
    a. Services (High-Level Process & High-Level Logical Data Model)
    b. Systems (Application Interface Diagram & High Level Network Diagram)
    c. Security (Description)
    d. Schedule (Implementation Plan or Roadmap)
12. Information System Contingency Plan (ISCP) [as applicable]
13. Target Architecture [as applicable]
14. Post Implementation Review / Independent Verification and Validation (IV&V) Review or Lessons Learned Report, as directed by component or Department authority

Please visit the Project Management Center of Excellence site at (https://itim.doj.gov/ProjectManagement/default.aspx) for access to an online, clickable Project

Manager's Checklist that includes all above minimal PM and SDLC artifacts, including descriptions, applicability (i.e. to guide you as to whether your project requires the artifact), templates, and examples.

3.2 Important Federal Compliance Requirements

DOJ Project Managers should ensure compliance with the following Federal Requirements during project planning and execution:

- DOJ Procurement Guidance Document 8-04
- Compliance with Privacy and Systems of Records Notice (SORN) regulations;
- Security Assessment and Authorization (SA&A) procedures and testing for security;
- Section 508 of the Rehabilitation Act, Electronic and Information Technology
- DOJ Policy for Records & Information Management Certification (RIMCert); and
- Supply Chain Risk Management (SCRM) requirements.

Each is described in detail in the sections below. Each is also included in the online, clickable Project Manager's Checklist found in the Project Management Center of Excellence site at (https://itim.doj.gov/ProjectManagement/default.aspx).

3.2.1 Compliance with Privacy and Systems of Records Notice (SORN)

Section 208 of the E-Government Act of 2002 requires all federal agencies to conduct a Privacy Impact Assessment (PIA) before:

- developing or procuring information technology that collects, maintains, or disseminates information that is in identifiable form; or
- initiating a new collection of information that will be collected, maintained, or disseminated using information technology; and that includes any information in identifiable form in certain circumstances involving the public.

An Initial Privacy Assessment (IPA) is the first step in a process developed by the DOJ Office of Privacy and Civil Liberties (OPCL) to assist DOJ components in identifying privacy concerns that may necessitate changes to the system, and to determine whether or not additional privacy analysis and documentation is required, such as a SORN or a full PIA. For further information on privacy compliance, please go to DOJ OPCL's intranet site at: http://dojnet.doj.gov/privacy_resources/index.php.

3.2.2 Security Assessment and Authorization (SA&A) procedures and testing

In accordance with Public Law 107-347, the E-Government Act of 2002, Title III, Federal Information Security Management Act of 2002 (FISMA), and the OMB Circular A-130, *Management of Federal Information Resources*, Appendix III, November 2000, all information systems under development are expected to be in compliance with National Institute of Standards and Technology (NIST) and Committee on National Security Systems (CNSS) security standards and guidelines immediately upon deployment of the system.

The DOJ CIO has the authority via DOJ Order 2640-2, the DOJ Security Assessment and Authorization (SA&A) Handbook (Version 8.4 – April 2014), and NIST Special Publication (SP) 800-37 Revision 1, *Guide for Applying the Risk Management Framework to Federal Information Systems*, to develop and maintain information security policies, procedures, and control techniques to address all applicable requirements to protect the confidentiality, integrity, and availability of the Department's IT resources. The DOJ Chief Information Security Officer (CISO) shall ensure that IT security policy and requirements are developed consistent with applicable statutory authority, including the Clinger-Cohen

Act and FISMA; with regulatory requirements and external guidance, including the CNSS instructions and policy, OMB policy, Federal Information Processing Standards (FIPS) publications, and with DOJ Orders, policies, and requirements in balance with component mission needs.

The Security Assessment and Authorization (SA&A) Handbook (Version 8.4 – April 2014) serves as a single source for describing the process for performing a successful security assessment and authorization using the Cyber Security and Assessment Management (CSAM) Application. The use of CSAM is required throughout the Department to ensure compliance with federal laws, regulations, and DOJ policies, in addition to reducing the time and cost associated with performing security assessment and authorization activities.

Project Managers must complete the following tasks:
1) Ensure an Information Systems Security Officer (ISSO) is designated early in the design phase to implement proper security controls throughout the project.
2) Ensure the ITSS Policy Analyst is aware of project.
3) If an Authorization to Test (ATT) is necessary, ensure it is completed in accordance with the DOJ SA&A Handbook prior to operational testing for new or major updates to applications or systems.
4) Work in conjunction with ISSO to complete the SA&A requirements, including CSAM output.
5) Ensure an Authorization to Operate (ATO) is achieved at the end of ATT period. If an ATT is not required, ensure ATO is achieved prior to the consumption of or residing on production.

In accordance with the SA&A Handbook, the following tasks must be completed and are mapped to the appropriate System Development Lifecycle (SDLC) phases. This table identifies the security-related tasks and responsible party:

SDLC Phase	**Associated Tasks** (Not all tasks may be required)	**Responsible Party**
Phase 1: Initiation	-Align the system to a Strategic Goal	System Owner
Phase 2: System Concept Development	-Create the system in CSAM	CSAM Help Desk
	-Identify the system boundary and any technical risks -Create the system narrative -Create the technical narrative	ISSO
Phase 3: Planning	-Security analysis of contractual documents -Define privacy requirements	System Owner
Phase 4: Requirements Analysis	-Identify Information Types -FIPS 199 categorization -IPA -PIA / SORN -E-Authentication Risk Assessment -MOU/ISA -Select security controls	ISSO
Phase 5: Design	-Comply with DOJ Continuous Monitoring Strategy -Identify Common Controls and inherit from existing systems -Document separation of duties	ISSO
Phase 6:	-Implement security controls	ISSO

Development	-Contingency Plan (CP) -Incident Response Plan (IRP) -Configuration Management Plan -Complete the Security RTM Report	
Phase 7: Integration and Test	-Assess security controls -Security Assessment Report (SAR) -POA&M Report	ISSO
	-Certifying Official recommendation	Certifying Official
	-ATT/ATO package for AO signature	System Owner
Phase 8: Implementation	-System operates as intended in a production environment	System Owner
Phase 9: Operations and Maintenance	-Security Impact Analysis -Capture CCB Reports and minutes monthly in CSAM -Complete Core Controls annually -Complete A-123 controls annually -Residual Risk Report -Update the CP and IRP annually -Security Status Report	ISSO
	-Review and sign the SSP annually	System Owner ISSO
Phase 10: Disposition	-System Decommissioning Plan -System Retirement memorandum	System Owner

For further information on SA&A procedures and testing, please visit the DOJ Information Technology Security Staff (ITSS) internal site at:
http://dojnet.doj.gov/jmd/irm/itsecurity/ia/saa/sa-a-handbook-v8-4.pdf

An updated list of Policy Analysts assignments are located here:
http://dojnet.doj.gov/jmd/irm/itsecurity/ia/itss-policy-analysts.php

3.2.3 Section 508 of the Rehabilitation Act Compliance

Section 508 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794d) requires that when federal agencies develop, procure, maintain, or use electronic and information technology, federal employees with disabilities have access to, and use of, information and data that is comparable to the access and use by federal employees who are not individuals with disabilities, unless an undue burden would be imposed on the agency. Section 508 also requires that individuals with disabilities who are members of the public seeking information or services from a federal agency, have access to, and use of, information and data that is comparable to that provided to the public who are not individuals with disabilities, unless an undue burden would be imposed on the agency. For further information on Section 508 Compliance, please refer to the U.S. Access Board: http://www.access-board.gov/guidelines-and-standards/communications-and-it/about-the-section-508-standards/section-508-standards

3.2.4 DOJ Policy for Records & Information Management Certification

A new DOJ Policy for Records & Information Management Certification (RIMCert) was issued on June 23, 2014, by the Assistant Attorney General for Administration, who signed and issued DOJ Policy Statement 0801.01 *Records & Information Management Certification.* The new DOJ Policy Statement

ensures the incorporation of recordkeeping requirements into the development and maintenance of DOJ information technology systems, applications, and services that capture, create, or maintain federal records. This policy formalizes the requirement for RIMCert when new information systems are developed and deployed or when major enhancements are implemented in existing systems. The Policy Statement is available on the DOJ Directives Management SharePoint site at https://portal.doj.gov/sites/dm/dm/Directives/0801%2001.pdf and has been distributed to all component Directives Managers and Records Officers/Managers.

Project Managers must complete the following tasks:

1) Contact the DOJ Office of Records Management Policy (ORMP) and obtain a copy of the RIMCert application. A copy of the RIMCert application is also available on the PM CoE SharePoint site (https://itim.doj.gov/projectmanagement/default.aspx).
2) Assist the System Owner in answering the questions on the RIMCert application.
3) Submit completed RIMCert application to DOJ ORMP for review and approval.

3.2.5 Supply Chain Risk Management (SCRM) Requirement

DOJ PMs must comply with DOJ Procurement Guidance Document (PGD) 14-03 - *Acquisition of High or Moderate Impact Information Technology Systems (Supply Chain Risk Assessment).* Section 515 of the Department of Justice's fiscal year 2014 appropriations act (Public Law 113-76, Division B, Title II) provides that funds appropriated under the act may not be used to "acquire a high-impact or moderate-impact information system, as defined for security categorization in the National Institute of Standards and Technology's Federal Information Processing Standard Publication 199, Standards for Security Categorization of Federal Information and Information Systems," unless the Department has conducted assessments of supply chain risk and the risk of cyber-espionage or sabotage, including any risk associated with a system being produced, manufactured, or assembled by entities the United States has identified as posing a cyber-threat, including but not limited to those owned, directed, or subsidized by the People's Republic of China. For further information on Section 515 Guidance, please refer to: http://dojnet.doj.gov/jmd/cao/procurement-guidance.php

Project Managers must complete the following tasks:

1) Ensure an ISSO is designated to assist the CO with the Risk Management Intake Form (Attachment 3 of PGD14-03).
2) Work with CO and ISSO to complete the Risk Management Intake Form.
3) Once ITSS renders Risk Acceptance Determination, ensure this document is included in the Authority To Operate (ATO) sign-off by DOJ CIO and System Owner.

The CO must complete the following tasks:

1) After selection of successful Offerer but prior to issuing any award, notify ITSS of intent to issue award and provide the following information:
    a) Summary of the Procurement, including quantity and type of equipment or software to be acquired
    b) Ensure Offerer completes Security Risk Questionnaire (Attachment 2 of PGD 14-03)
    c) Complete Risk Management Intake Form (Attachment 3 of PGD 14-03)
    d) Identify any known cyber or sabotage vulnerabilities presented by the procurement
2) Ensure all above information is submitted to ITSS. ITSS and FBI will conduct a national security risk assessment and render decision.

3.2.6 Commodity IT Intake Process

The Commodity IT Intake Review is performed by the OCIO Policy and Planning Staff (PPS) as part of the Department's PortfolioStat process. OMB Memorandum M-12-10, dated March 30, 2012, created the IT PortfolioStat process, which placed new restrictions on IT spending and requirements for how IT spending is tracked and reported. In a subsequent memo to Heads of Department Components, the Deputy Attorney General provided additional guidance on IT spending. This guidance required that all purchases of IT Infrastructure, Enterprise IT Systems, and Business Systems must be reported to DOJ OCIO for review and approval. Exceptions to this process were created for the following categories:

- Department Investment Review Board (DIRB) Programs
- Routine Service Orders
- Tactical Law Enforcement Operations
- Litigation Support
- Task Orders Under Existing Blanket Purchase Agreements

All purchases of commodity IT products and services must be reviewed and approved by the Department Intake Review Board. Requests are submitted through the Commodity IT Intake Process SharePoint site (https://portal.doj.gov/jmd/ocio/CmmdtIt/SitePages/Home.aspx). Requests are reviewed within five business days of being submitted for review and submitters are notified by email of the status of their request.

3.3 Project Management Practices Checklist

The PM should use this checklist for minimal adherence to good Project Management practices:

1. **Scope Management**: The Project Manager has defined scope, objectives, characteristics of the project deliverables, application requirements, boundaries of the project, deliverables, acceptance criteria, constraints (schedule, budget, quality), and assumptions. See Appendix J (*Sample Change Request Log Template*)
2. **Time (Schedule) Management**: The Project Manager has established a schedule that has DOJ SDLC phases defined with date-based dependencies. Defines phase sequencing, durations, effort requirement, schedule constraints.
3. **Cost Management**: Project costs are defined and tracked for the DOJ SDLC phases. Estimates for labor costs, material, equipment, services, facilities, information technology, and any other costs must be included.
4. **Quality Management**: The Project Manager has determined which quality standards are relevant to the project and is following both quality assurance and quality control process to ensure that project satisfies contractual and performance agreements.
5. **Risk Management**: The Project Manager maintains a Risk Log to document top risks related to the programmatic, security and technical aspects of the project, as well as mitigation approaches being employed on the project.
6. **Human Resource Management**: The Project Manager understands the types of resources needed for the overall project. Skill and competency of project team members have been defined to ensure successful delivery of work products.
7. **Communications Management**: The Project Manager, on a monthly basis, chairs team meeting to review overall project status according to the project schedule and budget objectives, as well as the status of any risk mitigation activities.

8. **Procurement Management**: The Project Manager understands the products, services to be purchased or acquired in order to complete the work of the project.
9. **Stakeholder Management**: The Project Manager obtains requirements from project stakeholders and engages them on decisions and execution based on the analysis of their needs, interests, and potential impact
10. **Integration Management**: The Project Manager can ensure all these steps are integrated by developing a good Project Management Plan (PMP) that includes processes to accomplish each of the above, as it specifically relates to the project, including good control of project activities during project execution, so that necessary adjustments can be made as the project progresses.

4 Appendices

Appendix A Project Management Knowledge (Practice) Areas

The Project Management Institute's (PMI's) Project Management Body of Knowledge (PMBOK)® Guide defines ten 10 knowledge areas, which OCIO has mapped to the four DOJ Project Management Stages and Processes, as illustrated in the matrix below. These knowledge areas are defined by the specific knowledge requirements the project manager should be familiar with in order to do a professional job. A brief description of each knowledge area follows the matrix below*.

PMI Knowledge Areas*	DOJ Project Management Stages (Section 2.0)			
	Initiation Process (2.1)	Planning Process (2.2)	Execution, Monitoring, and Control Process (2.3)	Closeout Process (2.4)
Project Scope Management		Create WBS (2.2.1)	Perform Status Reporting (2.3.6)	
Project Time (Schedule) Management		Create Project Schedule (2.2.2)	Manage Schedule (2.3.1)	
Project Cost Management		Create Draft PMP (2.2.5)	Manage Cost (2.3.2)	
Project Quality Management		Create Draft PMP (2.2.5)	Complete and Obtain Signoff on Project Deliverables (2.3.7)	Produce Final Deliverables (2.4.1)
Project Risk Management		Create Risk Register (2.2.3)	Manage Risk (2.3.3)	
Project Human Resource Management	Assign PM to Project (2.1.1)	Identify and Document Project R&R (2.2.4)	Manage Team Resources (2.3.4)	Release Team Resources (2.4.2)
Project Communications Management		Create Draft PMP (2.2.5)	Perform Status Reporting (2.3.6)	Document Project Closeout Reporting (2.4.3)
Project Procurement Management		Create Draft PMP (2.2.5)	Manage Cost (2.3.2)	Document Project Closeout Reporting (2.4.3)
Project Stakeholder Management	Conduct Project KO Meeting (2.1.3)	Create Draft PMP (2.2.5)	Set Performance Goals (2.3.5)	
Project Integration Management	Collect Project Information (2.1.2)	Create Draft PMP (2.2.5) Review and Approve PMP (2.2.6)	Perform Status Reporting (2.3.6)	Document Lessons Learned (2.4.4)

PMI PMBOK® Knowledge Areas mapped to DOJ Project Management Process Stages

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i) Project Scope Management

Project Scope Management includes the processes required to ensure that the project includes all the work required, and only the work required, to complete the project successfully. Project Scope Management is concerned primarily with defining and controlling what is - and is not - included in the project.

- *Scope Planning*: Creating a project scope management plan that documents how the project will be defined, verified, controlled, and who will break down the work, along with how the work breakdown structure (WBS) will be created and defined.
- *Scope Definition*: Developing a detailed project scope statement as the basis for future project decisions.
- *Create WBS*: Subdividing the major project deliverables and project work into similar, more manageable components.
- *Scope Verificati*on: Formalizing acceptance of the completed project deliverables.
- *Scope Control*: Controlling changes to the project scope.

In the project context, the term "scope" can refer to:

- *Product Scope*: The features and functions that characterize the product, service, or result.
- *Project Scope*: The work that needs to be accomplished to deliver a product, service, or result with the specified features and functions.

ii) Project Time (Schedule) Management

Project Time Management includes the processes required to accomplish timely completion of the project. The Project Time Management processes include the following:

- *Activity Definition*: Identifying the specific schedule activities that need to be performed to produce the various project deliverables.
- *Activity Sequencing*: Identifying and documenting dependencies among scheduling activities.
- *Activity Resource Estimating*: Estimating the type and quantities of resources required to perform each schedule activity.
- *Activity Duration Estimating*: Estimating the number of work periods that will be needed to complete individual schedule activities.
- *Schedule Development*: Analyzing activity sequences, durations, resource requirements, and schedule constraints to create the project schedule.
- *Schedule Control*: Controlling changes to the project schedule.

iii) Project Cost Management

Project Cost Management includes the processes involved in planning, estimating, budgeting, and controlling costs so that the project can be completed within the approved budget.

- *Cost Estimating*: Developing an approximation of the costs of the resources needed to complete project activities.
- *Cost Budgeting*: Aggregating the estimated cost of the individual activities or work packages to establish a cost baseline.
- *Cost Control*: Influencing the factors that create cost variances and controlling changes to the project budget.

Project Cost Management is primarily concerned with the cost of resources needed to complete scheduling activities. However, Project Cost Management should also consider the effect of project decisions on the cost of using, maintaining, and supporting the product, service, or result of the project. For example, limiting the number of design reviews can reduce the cost of the project at the expense of an increase in the customer's operational costs. This broader view of Project Cost Management is often called life-cycle costing. Life-cycle costing, together with value engineering techniques, can improve decision-making and is used to reduce the cost and execution time, and to improve the quality and performance of the project deliverables.

In many application areas, predicting and analyzing the prospective financial performance of the project's product is done outside of the project. In others, such as a capital facilities project, Project Cost Management can include this work. When such predictions and analysis are included, Project Cost Management will address additional processes and numerous general management techniques such as return on investment, discounted cash flow, and investment payback analysis.

Project Cost Management considers the information requirements of the project stakeholders. Different project stakeholders will measure project costs in different ways and at different times. For example, the cost of an acquired item can be measured when the acquisition decision is made or committed, the order is placed, the item is delivered, and the actual cost is incurred or recorded for project accounting purposes.

On some projects, especially ones of similar scope, cost estimating and cost budgeting are so tightly linked, that they are viewed as a single process that can be performed by a single person over a relatively short period of time. These processes are presented here as distinct processes because the tools and techniques for each are different. The ability to influence cost is greatest at the early stages of the project, and this is why early scope definition is critical.

Although not shown here as a discrete process, the work involved in performing the three processes of Project Cost Management is preceded by a planning effort by the project management team. This planning effort is part of the process to develop the Project Management Plan, which produces a cost management plan that sets out the format and establishes the criteria for planning, structuring, controlling, estimating, and budgeting project costs. The cost management processes and their associated tools and techniques vary by application area, and are usually selected during the project life-cycle definition, and are documented in the Cost Management Plan.

iv) Project Quality Management

Project Quality Management processes include all the activities of the performing organization that determine quality policies, objectives, and responsibilities so that the project will satisfy the needs for which the project was undertaken. It implements the quality management system through the policy, procedures, and processes of quality planning, quality control, and quality assurance, with continuous process improvement activities conducted throughout as appropriate. The Project Quality Management processes include the following:

- *Quality Planning*: Applying the planned systematic quality activities to ensure that the project employs all processes needed to meet requirements.
- *Perform Quality Control*: Monitoring specific project results to determine whether they comply with relevant quality standards and identifying ways to eliminate causes of unsatisfactory performance.
- *Perform Quality Assurances*: Applying the planned systematic quality activities to ensure that the project employs all processes needed to meet requirements.

Project Quality Management must address the management of the project *and* the product of the project. While Project Quality Management applies to all projects, regardless of the nature of their product, product quality measurement and techniques are specific to the particular type of product produced by the project. For example, quality management of software products entails different approaches and measures then nuclear power plants, while Project Quality Management applies to both. In either case, failure to meet quality requirements in either dimension can have serious negative consequences for any or all of the project stakeholders. For example:

- Meeting customer requirements by overworking the project team may produce negative consequences in the form of increased employee attrition, unfounded errors, or rework required.
- Meeting project schedule objectives by rushing planned quality inspections may produce negative consequences when errors go undetected.

Modern quality management complements project management. For example, both disciplines recognize the importance of:

- *Customer Satisfaction*: Understanding, evaluating, defining, and managing expectations so that customer requirements are met. This requires a combination of conformance to requirements (the project must produce what it said it would produce) and fitness for work (the product or service must satisfy real needs).
- *Prevention over Inspection*: The cost of preventing mistakes is generally much less than the cost of correcting them, as revealed by inspection.
- *Management Responsibility*: Success requires the participation of all members of the team, but it remains the responsibility of the management to provide the resources needed to succeed.
- *Continuous Improvement*: The plan-do-check-act cycle is the basis for quality improvement (as defined by Shewart and modified by Deming, in ASQ Handbook, pages 13 –14, American Society for Quality, 1999). In addition, quality improvement initiatives undertaken by the performing organization, such as TQM and Six Sigma, can improve the quality of the project's management as well as the quality of the project's product.

v) Project Risk Management

Project Risk Management includes the processes concerned with conducting risk management planning, identification, analysis, response, monitoring, and control of a project. The objectives of Project Risk Management are to increase the probability and impact of positive events, and decrease the probability and impact of events adverse to the project. Project Risk Management includes the following:

- *Risk Management Planning*: Deciding how to approach, plan, and execute the risk management activities for a project.
- *Risk Identification*: Determining which risks might affect the project and documenting their characteristics.
- *Qualitative Risk Analysis*: Prioritizing risks for subsequent further analysis or action by assessing their combined probability of occurrence and impact.
- *Quantitative Risk Analysis*: Numerically analyzing the effect of overall project objectives on identified risks.
- *Risk Response Planning*: Developing options and actions to enhance opportunities and to reduce threats to project objectives.

- *Risk Monitoring and Control*: Tracking identified risks, monitoring residual risks, identifying new risks, executing risk response plans, and evaluating their effectiveness throughout the project life-cycle.

Project risk is an uncertain event or condition that, if it occurs, has a positive or negative effect on at least one project objective, such as time, cost, scope, or quality (i.e. where the project time objective is to deliver in accordance with the agreed upon schedule; when the project cost objective is to deliver within the agreed upon costs; etc). A risk may have one or more causes and, if it occurs, one or more impacts. For example, a cause may be requiring an environmental permit to work, or having limited personnel assigned to design a project. The risk event is that the permitting agency may take longer than planned to issue a permit, or the design personnel available and assigned may not be adequate for the activity. If either of these uncertain events occurs, there may be an impact on the project cost, schedule, or performance. Risk conditions could include aspects of the project's or organization's environment that may contribute to the project risk, such as poor project management practices, lack of integrated management systems, concurrent multiple projects, or dependency on external participants who cannot be controlled.

vi) Project Human Resource Management

Project Human Resource Management includes the processes that organize and manage the project team. The project team is comprised of people who have assigned roles and responsibilities for completing the assigned project. While it is common to speak of roles and responsibilities being assigned, team members should be involved in much of the project's planning and decision-making. Early involvement of team members adds expertise during the planning process and strengthens commitment to the project. The type and number of project team members can often change as the project progresses. Project team members can be referred to as the project's staff.

- *Human Resource Planning*: Identifying and documenting project roles, responsibilities, and reporting relationships, as well as creating the staffing management plan.
- *Acquire Project Team*: Obtaining the human resources needed to complete the project.
- *Develop Project Team*: Improving the competencies and interaction of team members to enhance project performance.
- *Manage Project Team*: Tracking team member performance, providing feedback, resolving issues, and coordinating changes to enhance project performance.

vii) Project Communications Management

Project Communications Management is the Knowledge Area that employs the processes required to ensure timely and appropriate generation, collection, distribution, storage, retrieval, and ultimate disposition of project information. The Project Communication Management processes provide the critical links amongst people and information that are necessary for successful communication. Project Managers can spend an inordinate amount of time communicating with the project team, stakeholders, customers, and sponsor. Everyone on the project should understand how communications affects the project as a whole. The Project Communications Management processes include the following:

- *Communications Planning*: Determining the information and communication needs of the project stakeholders.
- *Information Distribution*: Making needed information available to project stakeholders in a timely manner.
- *Performance Reporting*: Collecting and distributing performance information. This includes status reporting, progress measurement, and forecasting.

- *Manage Stakeholders*: Managing communications to satisfy the requirements and resolve issues with project stakeholders.

viii) Project Procurement Management

Project Procurement Management includes the processes to purchase or acquire the products, services, or results needed from outside the project team to perform the work. This section presents different perspectives on procurement. The organization can be either the buyer or seller of a product or service under a contract. The Project Procurement Management processes include the following:

- *Plan Purchases and Acquisition*: Determining what to purchase or acquire and determining when and how.
- *Identifying Requirements*: Documenting products, services, and resulting requirements, and identifying potential sellers.
- *Request Seller Responses*: Obtaining information, quotations, bids, offers, or proposals, as appropriate.
- *Select Sellers:* Reviewing offers, choosing among potential sellers, and negotiating a written contract with each seller.
- *Contract Administration:* Managing the contract and relationships between the contract and seller, reviewing and documenting how a seller is performing or has performed (to establish required corrective actions and to provide a basis for future relationships with the seller), managing contract related changes and, when appropriate, managing the contractual relationship with the outside buyer of the product.
- *Contract Closure*: Completing and settling each contract, including the resolution of any open items, and closing each contract applicable to the project or project phase.

The Project Procurement Management processes involve the contracts that are legal documents between a buyer and a seller. A contract is a mutually binding agreement that obligates the seller to provide the specified products, services, or results, and obligates the buyer to provide monetary or other valuable consideration. A contract is a legal relationship subject to remedy in the courts. The agreement can be simple or complex, and can reflect the simplicity or complexity of the deliverables. A contract includes terms and conditions, and can include other items such as a sellers proposal or marketing literature, and any other documentation that the buyer is relying upon to establish what the seller is to perform and provide. It is the Project Management Team's responsibility to help tailor the contract to the specific needs of the project. Depending upon the application area, contracts can also be called agreements, subcontracts, or purchase orders. Most organizations have documented policies and procedures specifically defining who can sign and administer such agreements on behalf of the organization.

ix) Project Stakeholder Management

Project Stakeholder Management includes the processes required to identify the people, groups, or organizations that could impact or be impacted by the project, to analyze stakeholder expectations and their impact on the project, and to develop appropriate management strategies for effectively engaging stakeholders in project decisions and execution. Stakeholder management also focuses on continuous communication with stakeholders to understand their needs and expectations, addressing issues as they occur, managing conflicting interests, and fostering appropriate stakeholder engagement in project decisions and activities. Stakeholder satisfaction should be managed as a key project objective.

Below is an overview of the Project Stakeholder Management processes that include the following:

- *Identify Stakeholders*: Identifying the people, groups, or organizations that could impact or be impacted by a decision, activity, or outcome of the project; and analyzing and documenting relevant information regarding their interests, involvement, interdependencies, influence, and potential impact on project success.
- *Plan Stakeholder Management*: Developing appropriate management strategies to effectively engage stakeholders throughout the project lifecycle, based on the analysis of their needs, interests, and potential impact on project success.
- *Manage Stakeholder Engagement*: Communicating and working with stakeholders to meet their needs/expectations, address issues as they occur, and foster appropriate stakeholder engagement in project activities throughout the project life cycle.
- *Control Stakeholder Engagement:* Monitoring overall project stakeholder relationships and adjusting strategies and plans for engaging stakeholders.

Every project will have stakeholders who are impacted by, or can impact, the project in a positive or negative way. While some stakeholders may have a limited ability to influence the project, others may have significant influence on the project and its expected outcomes. The ability of the Project Manager to correctly identify and manage these stakeholders in an appropriate manner can mean the difference between success and failure.

x) Project Integration Management

The Project Integration Management Knowledge Area includes the processes and activities needed to identify, define, combine, unify, and coordinate the various processes and project management activities within the project management group. In the project management context, integration includes characteristics of unification, consolidation, articulation, and integrative actions that are critical to project completion, successfully meeting customer and other stakeholder requirements, and managing expectations. Integration, in the context of managing a project, is making choices about where to concentrate resources and effort on any given day, anticipating potential issues, dealing with these issues before they become critical, and coordinating work for the overall project good. The integration effort also involves making trade-offs among competing objectives and alternatives. The project management processes are usually presented as discrete components with well-defined interfaces while, in practice, they overlap and interact in ways that cannot be completely detailed in the PMBOK guide.

Most experienced project management practitioners know there is no single way to manage a project. They apply project management knowledge, skills, and processes to different order and degrees of rigor to achieve the desired project performance. However, the perception that a particular process is not required does not mean that it should not be addressed. The Project Manager and project team must address every process, and the level of implementation for each process must be determined by each specific project.

The integrative nature of projects and project management can be better understood if we think of the other activities performed while completing a project. For example, some activities performed by the project management team could be to:

- *Develop Project Charter*: Develop the project charter that formally authorizes a project or a project phase.
- *Develop Preliminary Project Scope Statement*: Developing the preliminary project scope statement that provides a high level scope narrative.
- *Develop Project Management Plan*: Documenting the actions necessary to define, prepare, integrate, and coordinate all subsidiary plans into a project management plan.

- *Direct and Manage Project Execution*: Monitoring and controlling the processes used to initiate, plan, execute, and close a project to meet the performance objectives defined in the project management plan.
- *Integrated Change Control*: Reviewing all change requests, approving changes, and controlling changes to the deliverables and organizational process assets.
- *Close Project*: Finalizing all activities across all of the Project Management Process Groups to formally close the project or a project phase.

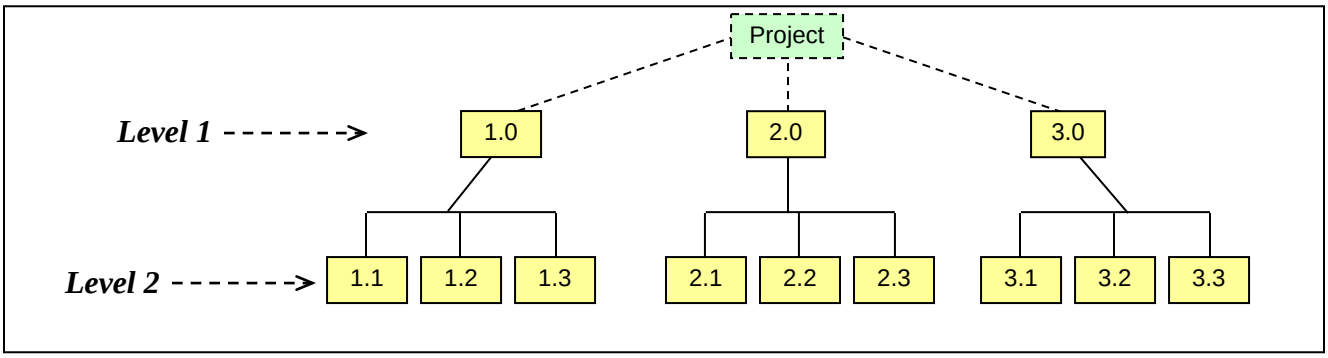
Appendix B Development of the Work Breakdown Structure

Introduction

Creating a Work Breakdown Structure (WBS) is an integral part of planning, estimating, scheduling and managing for all projects. Quite simply, the definition of a WBS is the detailing of a project's scope so that a clear understanding of customer's expectations, agreed outcomes/results, and a valid definition of project deliverables are achieved. This process acts as a starting point for understanding the work requirement to create the deliverables that will achieve the project goals.

This *detailing of a project's scope* is the decomposition of the project to identify specific project phases (level 1), and this must be followed by the deliverables required by each phase. Once each project phase's deliverables are identified (level 2), each deliverable is continued to be decomposed into sub-deliverables (levels 3, 4, 5) until further decomposition arrives naturally at the tasks needed to complete each sub-deliverable. The WBS is arranged in a logical hierarchy with each level of the hierarchy representing an increasing or decreasing amount of granularity or detail. Project *milestones* are also defined in the WBS as major events or points in time against which progress is measured.

The figure below depicts a Work Breakdown Structure graphically and illustrates the typical WBS numbering convention. This graphic technique can also be referred to as a *Deliverable Decomposition Diagram*.



For example, if part of a project's scope is to deliver a System Design Document, sub-deliverables associated with this document may include, for example, Preliminary Design. Decomposing this section of the document further would not be useful – but listing the tasks needed to create that section of the document would be useful. The task list could be as follows:

- Establish Specific Section Objectives
- Design Section Layout and Format
- Define Concepts, Contents and Topic Sequence of the Section
- Test Concept, Contents and Topic Sequence of the Section (if necessary)
- Write Draft Section
- Technically Review and Edit Section
- Correct Draft Section
- Submit Section to Manual Editor

From a practicality point of view, when doing a WBS, do not focus the team too much on whether something is a deliverable, a sub-deliverable, or a sub-sub-deliverable. What is important is getting to a

TASK LIST in a rational, orderly fashion. The number of levels is also not too important, so keep going until CLARITY and UNDERSTANDING are achieved.

The Planning Process

To begin the planning of your project you will need to gather all members of the project team that will be responsible for the major areas of the project effort (for example; Lead Engineers, Test/Production/Manufacturing Managers, QA, etc.). Next, select a WBS template using the "Alternate Work Pattern Selection Process" as defined in Chapter 13 of the SDLC manual.

You may also want to gather the following documentation that will be used as reference material when planning your project and developing your WBS:

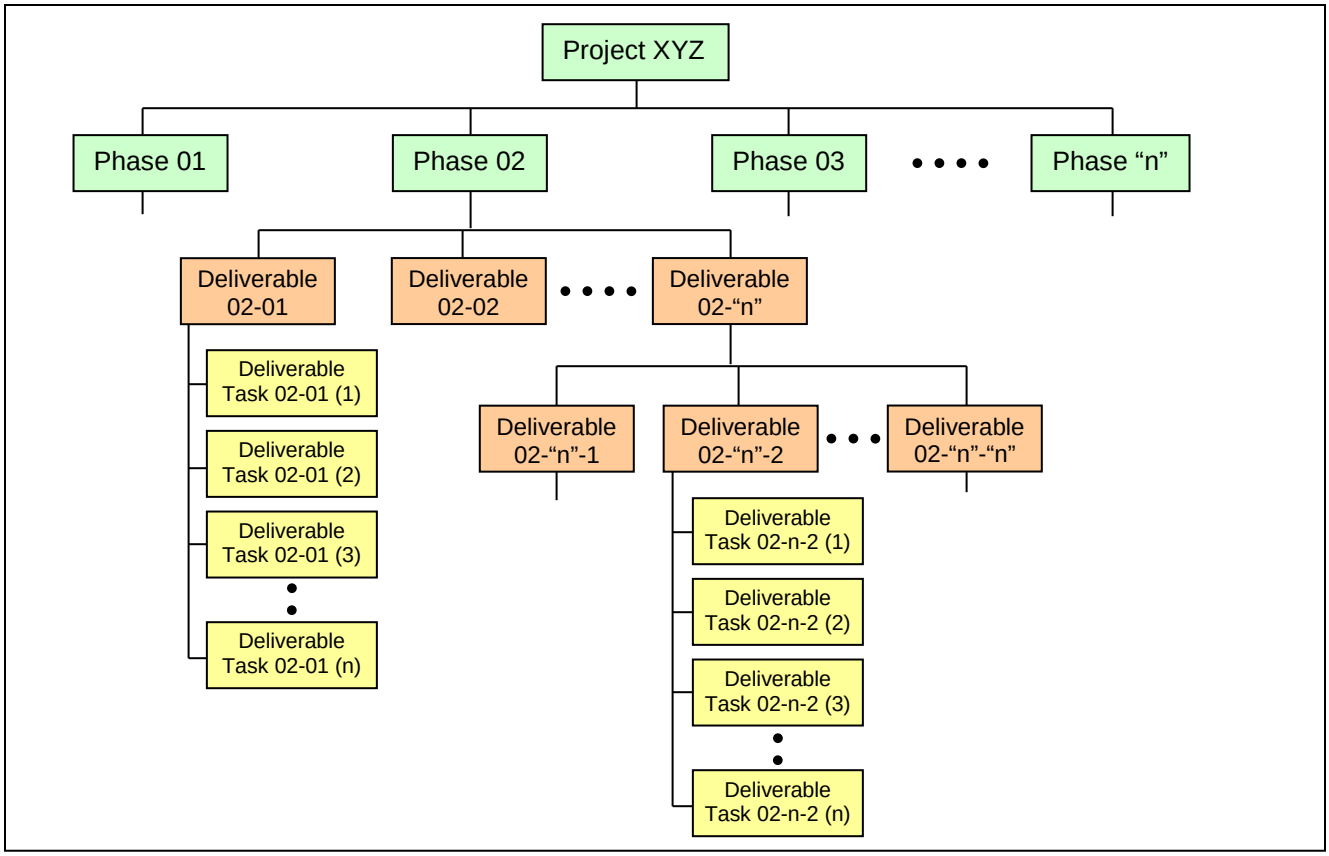
- Documentation that defined the need and started the Concept Development Phase
- System Boundary Document
- Cost Benefit Analysis
- Feasibility Study
- Risk Management Plan
- System Design Life Cycle Guidance Document

If you will be using all the elements contained in the WBS template you select, then you may proceed to the next section "Creating the WBS". If you will not be using all the elements that are contained in the WBS template you selected, then you must document the reasons for deleting those elements from the template. This information may be requested during a review of your project WBS.

Creating the WBS

Using Post-It® Notes as a medium for building the WBS provides a large degree of flexibility. The Post-It® Notes can be moved around easily which allows a planner to adjust and modify the WBS as it is being developed. The WBS will be planned and built in a segregated room such as a Conference Room or War Room using a wall, whiteboard or large sheets/rolls of paper. Using multiple-colored Post-It® Notes can also help improve visibility and communication. Use one color (e.g., green) as Project Phases; another color (e.g., orange) for Deliverables, Sub-Deliverables, Sub-Sub-Deliverables, etc. until the deliverables are fully decomposed; then use another color (e.g., yellow) for the deliverable Activities (tasks).

Using this approach, the WBS might look like the illustration shown below:



Step 1: Decompose Each Deliverable Document:

Review each deliverable document listed in the WBS template chosen. Keeping within the context of the project being planned, break down each document into sub-documents, sub-sub-documents, etc. until each document (sub-document) is a low enough level where activities (tasks) would be logically used at the next level down. Most documents in the template will require no additional sub-document breakdown. However, some documents (e.g., the System Design Document) will be broken down further into sub-document, sub-sub-document, etc. as shown below:

Sample 1

0.0 Project ABC
Phase → 4.0 Design Phase
...
Document → 4.8 System Design Document
Sub-Document → 4.8.1 Preliminary Design
Sub-Sub-Document →
4.8.1.1 Windows 2000 Server Design
4.8.1.2 Windows 2000 Client Design
4.8.1.3 Exchange 2000 Design
4.8.1.4 …etc.
4.8.2 Detailed Design
4.8.2.1 Windows 2000 Server Design
4.8.2.2 Windows 2000 Client Design
4.8.2.3 Exchange 2000 Design
4.8.2.4 …etc.

Once this step is completed, the additional summary level WBS elements have been created. With the summary elements of the WBS completed, the next step will be to create the work activities (tasks) required to develop each of the documents, sub-documents, sub-sub-documents, etc.

Step 2: Decomposing Summary Elements into Tasks:

This step is probably the most critical of all the steps in the process. With the entire summary element WBS's defined, begin to define *all* the tasks that will logically result in the completion of the document or sub-document that is at the next level up in the WBS. When defining each task, try to follow the following guidelines.

- Attempt to keep the size of the task to one that can be completed within 1½ -to- 2 weeks in duration. By trying to maintain task durations within a range of 60-80 hours you allow for simple and accurate communication of the task. Keeping within this range also keeps the task levels small enough that they can be easily understood and accomplished by the team. ***This range is also subjective –*** sometimes tasks are clear and accurate enough when they have durations of 140–160 hours, whereas other instances may require task durations of 8 hours or less to properly list the required activities.
- Each activity (task) will be listed in the format of VERB+OBJECT, so that it is obviously a task. If the activity does not contain a verb, it implies not *doing anything*; hence it is *not* a task. Creating the activities in this format will automatically set the team's thinking on the right track. Sample 2 below demonstrates this process.

Sample 2

0.0 Project ABC
Phase → 4.0 Design Phase
…
Document → 4.8 System Design Document
Sub-Document → 4.8.1 Preliminary Design
Sub-Sub-Document → 4.8.1.1 Windows 2000 Server Design
Activities (Tasks) →
4.8.1.1.1 Activity 01
4.8.1.1.2 Activity 02
4.8.1.1.3 Activity 03
4.8.1.1.4 …etc.
4.8.1.2 Windows 2000 Client Design
4.8.1.3 Exchange 2000 Design
4.8.1.4 …etc.
4.8.2 Detailed Design
4.8.2.1 …etc.
…
Document → 4.12 Training Plan
Activities (Tasks) →
4.12.1 Activity 01
4.12.2 Activity 02
4.12.3 Activity 03
4.12.4 …etc.

Step 3: Assigning Resources and Defining Work:

Once the activities (tasks) are defined, the next step is to assign resource(s) to the activities and establish the amount of "work" for each resource required to complete the activities. Assigning one or more resources to an activity is done through listing the actual person who will be performing the activity or assigning the resource type (i.e., Senior Engineer, Technical Writer, etc.) to the activity. Resource assignments may also include non-people types, such as vehicles, lab facilities, testing equipment, etc. Essentially, a resource is anything that is required to complete the activity and could potentially not be available when needed, which would cause a delay in completing the activity (e.g., access to limited lab facilities or to test equipment).

After the resources are assigned, the level of "work" required by each resource must be established. The work for a task is defined as the amount of effort (in hours) required by each resource assigned to that activity to complete that activity. This is different than duration because duration is the total calendar time required to complete an activity. An example of this difference is illustrated by 2-people assigned to a 1-week task. The duration is 40 hours whereas the work may be 40 hours for Joe and 24 hours for Jane (64 hours total). At this point, the Post-It® Notes for each activity will look similar to the following:

WBS No. 2.5.3.4	Est. Activity Duration 40 hours
<Activity Name>	
Assigned Resources Joe: Jane:	Est. Activity Work 40 hours 24 hours

Step 4: Defining/Documenting the WBS Dictionary:

The WBS Dictionary is used as a reference document for the project structure. When developing a Work Breakdown Structure for the project, the WBS Dictionary will also be developed. The dictionary lists each element of the WBS and defines the following:

- The work to be accomplished.
- The resource(s) assigned and their effort (in hours) required accomplishing the work.
- The activities that must be completed before the work can start.
- The reference materials planned to be used in performing the work.

The WBS Dictionary will be revised and updated throughout the life of the program to reflect changes in the program activities and elements.

Step 5: Completing the WBS Development:

The final step in developing your WBS is to perform a detailed walk-through of the completed WBS with all developers, project team members, appropriate customers/clients and management personnel. It is very important to make sure that all involved parties "buy off" on the WBS that was developed during this planning stage of the project before any actual work begins.

Appendix C Creating the Project Schedule

Introduction

The next step in managing your project to a successful completion is creating the master project schedule. Creating and maintaining a comprehensive master schedule for your project will ensure timely and accurate reporting to your management, shareholders and clients. The master schedule will also provide open communication of the project plan and work scope to your project team members so everyone will be aware of their responsibilities on the project. You will use the Work Breakdown Structure (WBS) that was already developed to aid in developing the project schedule. The scheduling software being described in this tutorial is Microsoft Project and the user of this tutorial must have a basic working understanding of that software. (Your organization may authorize you to use a different scheduling software package.) Note that before you begin working with the scheduling software you need to complete the planning stage of your project.

Completing the Project Planning Stage

To complete the planning stage and begin setting up your schedule you need to identify any and all task interdependencies (also known as Links, Predecessors and/or Successors) as well as any known task constraints. To perform this planning exercise you will once again need to assemble your project team and go back to the Post-It® Notes WBS that was set up earlier.

Identifying Task Interdependencies

When you developed your WBS, you were instructed to go down to the level of detail that was necessary to create a list of tasks to complete each element in the WBS. At that time you were also instructed to assign the appropriate resources to the identified tasks as well as the amount of work each resource would be budgeted for each task. Now it is time to place those tasks into a time-phased orientation and to identify any and all relationships between the tasks. You will use the Post-It® Notes from your WBS development to accomplish this activity.

As in the WBS creation, you will assemble all necessary team members into a conference room and use a wall, whiteboard or large sheets of paper to lay out your tasks. Each task you identified in your WBS will reside on a separate Post-It® Note so it can be placed in the appropriate location on the timeline. Each task Post-It® Note will also contain the resource(s) required to complete the task as well as the amount of work assigned to each resource on the task. Begin by identifying the timeline for your project (will it run 3 months, 6 months, etc.) and place this timeline along the top of your whiteboard or large sheets of paper. Be sure to leave yourself the appropriate amount of room between the units (months) of your timeline to accommodate the number of task Post-It® Notes that you need to place. The timeline for your project does not have to be completely accurate at this point because once all of the project details are laid into the schedule you will know exactly when your project will end. You simply need a starting point to begin the time phasing of your tasks. If you are planning a long-term project, you may need to perform this activity in several iterations due to the detail and scope of the project, or possibly a limit in the amount of space you have to lay out your tasks in a time phased fashion.

With your entire project team participating (as necessary), place all of your tasks along the project timeline where you and your team members think they will occur. You may want to use a Post-It® Note for each summary task you identified in your WBS in order to keep some clarity and continuity to your tasks as you time phase them.

After you and your team members have completed time phasing your tasks, you need to identify the relationships, or interdependencies, between all tasks in your project. You will perform this activity right on the whiteboard or sheets of paper that you just used for time phasing. The best way to proceed with this activity is to start at the beginning of your timeline with Task #1 and identify any relationship(s) it has with any other task in your project. For example: does Task #1 need to be completed in order for any other task in the schedule to begin (does the completion of Task #1 drive the start of another task)? If yes, this is known as a "Finish to Start (FS)" relationship, which means Task #X cannot start until Task #1 is complete. You will physically draw a line (arrow) from Task #1 to Task #X to signify the relationship. You may want to mark the arrow with an "FS" to signify the relationship as a "Finish to Start." There are several common task relationships that you may need to consider when performing this activity and they are as follows:

- **Finish to Start (FS)** – Completion of Task 'X' drives the start of Task 'Y'
- **Start to Finish (SF)** – Start of Task 'X' coincides with the completion of Task 'Y'
- **Start to Start (SS)** – Task 'X' and Task 'Y' must start at the same time
- **Finish to Finish (FF)** – Task 'X' and Task 'Y' must finish at the same time

After identifying all of the relationships for Task #1, move on to Task #2 and perform the same process. Work your way through all of the tasks across the entire timeline and identify all the relationships between the tasks. Mark up your whiteboard or sheets of paper as you go along.

Identifying Date Constraints

If Task #1 did not have a relationship to any other task in the timeline, then perhaps there is a constraining date for that task. In other words, maybe the task has to occur on a certain date. Maybe the task cannot start before a certain date in our project or must be completed by a certain date in our project. To accommodate these types of situations, we will set date constraints on the tasks that fit these criteria. Generally, the first task in your schedule will start on the Project Start Date that you entered earlier and will drive the start of another task and so on throughout the schedule. However, some tasks may require a date constraint and that is okay. These tasks are usually things like meetings and reviews that are known to occur at a given date and may or may not be driven by other factors in your schedule. It is important to be reserved when setting date constraints in your schedule and be careful not to abuse the feature. The common types of date constraints are listed below:

- Must Start On
- Must Finish On
- Start No Earlier Than
- Start No Later Than
- Finish No Earlier Than
- Finish No Later Than
- As Late As Possible
- As Soon As Possible (Default selection – Task is driven by predecessors)

Once again, work your way through all tasks in your timeline and designate any date constraints for the appropriate tasks by marking the type of constraint and the date on the Post-It® Notes.

This will be an iterative process and may take several days depending on the size and scope of your project. You and your team members may also discover some additional tasks that need to be added to

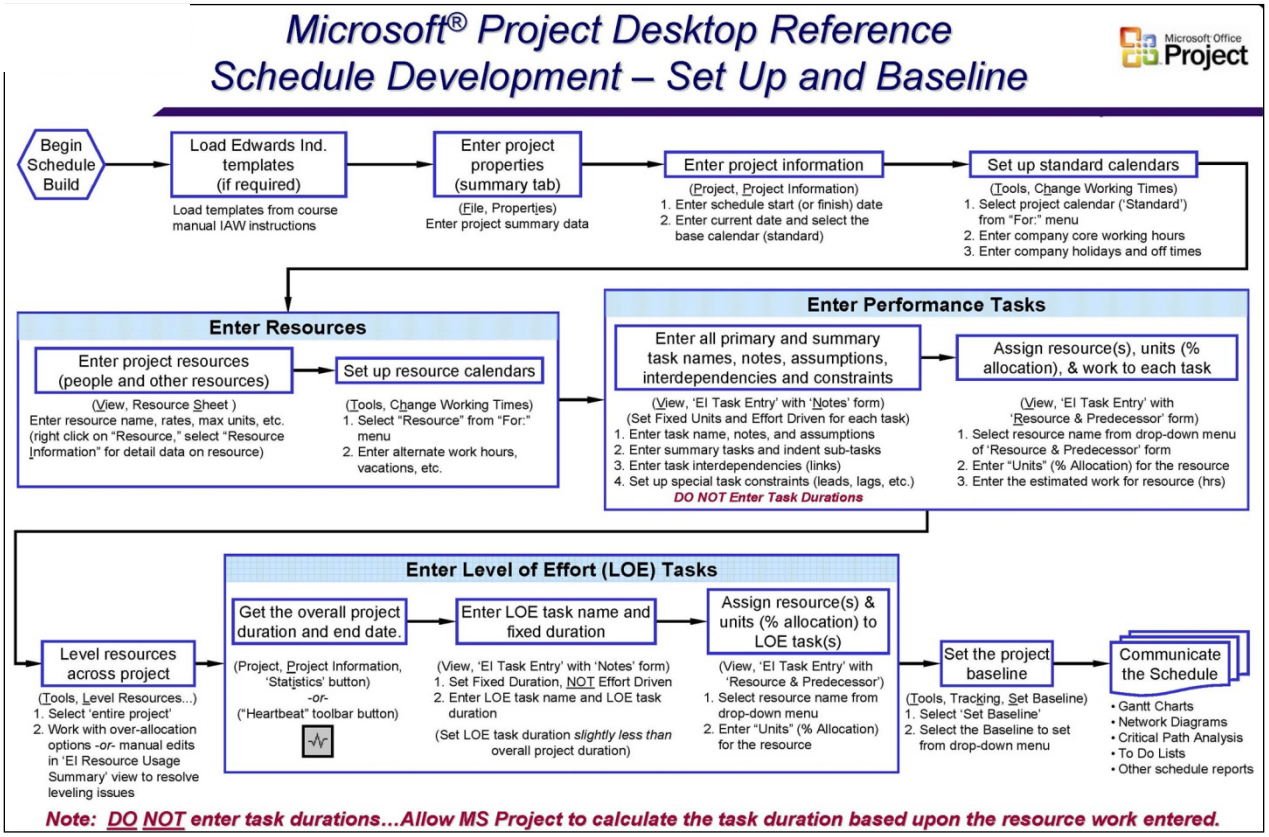
the WBS and schedule during this activity. Don't be afraid to make any changes and corrections that are deemed necessary by the project team. Remember that you are in the planning stage of your project and that this is the time to ask questions, make changes and to build a schedule that will accurately reflect the day-to-day activities on your project.

Now that you have completed the time phasing of your tasks, as well as identifying all task interdependencies and constraint dates, you have all the information that is needed to complete the setup of your comprehensive project master schedule. You will need to have access to the whiteboard or sheets of paper that were used for the planning activities because that is where all the information is now captured. This is why it is usually best to perform the planning activities on large sheets of paper because they can be rolled up and transported very easily.

Set Up and Baseline Schedule

Now that your planning exercises are complete it is time to develop your project master schedule. Follow the steps in the Desktop Reference below, which goes into detail on the process to follow. It consists of:

1. Set-up steps
2. Initialization of information about the project resources
3. Task entry of the basic tasks of the project, derived from the WBS
4. Task entry of ongoing tasks such as project management



Appendix D Establishing the Project Baseline

Introduction

Setting the project baseline is an important step in the overall schedule development process and, in most cases, signifies the transition between the planning stage and the tracking stage. The baseline established in the project schedule represents the contractual or binding commitment between the project manager, the project team, the organization and the customer or stakeholder. As such, the project baseline is taken very seriously and never changed arbitrarily. There must be strict criteria to be met in order to set the initial project baseline and also strict criteria surrounding the circumstances under which the baseline may be cleared and re-set. The specific criteria surrounding setting and/or re-setting the baseline may vary between organizations. We now discuss setting the specific criteria and provide guidelines.

Project Baseline

After the project planning processes are completed, a *finalized* schedule is created representing the *best estimate* of how the work associated with the project will be performed and when it will be completed. This project schedule is only considered *final* because it represents the final product of the initial planning efforts and the best estimates of the project team. A copy of this *finalized* schedule is then made and set aside for future reference. The copy made of this finalized schedule represents the baseline and is then used to compare against the actual project performance. All performance metrics stemming from the data in the Microsoft Project schedule are based upon a comparison between the baseline data and the actual project performance data generated during the tracking process discussed in Appendix H - Updating the Project Schedule.

As work progresses on the project, there will be situations where you will need to modify the originally scheduled activities in response to changing circumstances or as a result of new or changed information. Resource availabilities can change, activity work or duration estimates can change, and so on. In addition, as you begin to record the actual performance on the project with actual start dates, actual finish dates and actual work and durations for tasks, in many cases this data will differ from the originally stated (or baseline) data. As you enter these actual dates, Microsoft Project will reschedule successor activities and milestones to reflect the changed circumstances. Establishing the baseline in the project schedule enables you to monitor exactly how much this entered performance data differs from the original plan.

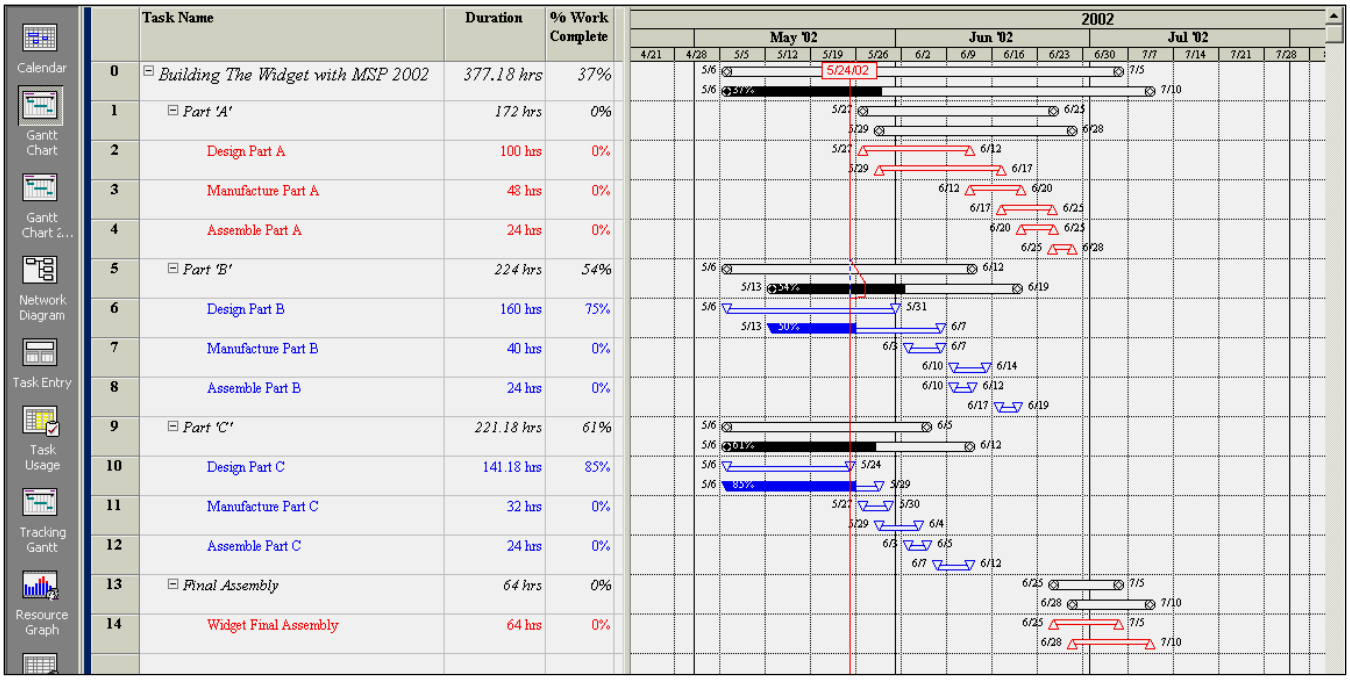
Special Note:	There is sometimes reluctance to setting the baseline in a project schedule for fear that the plan is not perfect yet and something will change. The fact of the matter is the only perfectly planned project is one that is done with "actuals" after the project is over. No project will execute exactly how it was originally planned. Things will happen, both good and bad, which will affect the way in which the project executes. A resource will get sick or leave the project, a piece of ordered equipment will be delivered late, the work required to complete an activities will be under or overestimated, etc. These types of things will cause some activities to be extended while shortening other. It is then the job of the Project Manager to balance these things out such that the overall project stays within the established scope, time, cost and quality constraints. For these reasons alone, the baseline is captured at the beginning or early into the project execution and certainly **before** any performance tracking data is collected. With the baseline set, these slips, as well as the effect of these changes on other dependent activities and milestones and delays, can be seen early on. This allows the Project Manager to react to the

situations created by the changes and make changes to the execution of the project early and thus avert catastrophic problems later.

Use of the Project Baseline

With Microsoft Project, the project baseline is an electronic copy of the project schedule from the conclusion of Appendix D – Establishing the Project Schedule and used for comparison to the current schedule. With the electronic copy of the finalized (baseline) schedule set, you can than generate and print reports in Microsoft Project that show variances or differences between the planned dates and the actual dates, the planned amount of work and the actual amount of work, and the planned cost verses the actual cost. This enables the computer to perform the comparisons to show how work is progressing, how well the plans are being realized, and how likely you are to meet the project goals.

You can also view the differences between the baseline and the current plan through the Tracking Gantt view in Microsoft Project, or you can create your own custom view to show both the baseline information and the current information as shown below.



By using the NEW button on the *More Views* dialog screen (Views, More Views), a custom Gantt Chart view can be created to show both baseline and current task information together on the Gantt (see above). In this custom generated Gantt view, the top Gantt bar (row 1) for each task or milestone represents the baseline information, whereas the bottom Gantt bar (row 2) represents the current schedule and current status. From this view of the schedule, those tasks that started late, those that will finish late as a result of the current status, and those that are projected to start late based upon being *pushed-out* by predecessor tasks can all be clearly seen when compared to the original schedule (the baseline).

After the project baseline is captured and set, you can then use Microsoft Project to predict the project end date as well as interim task and milestone dates by implementing procedures such as the following:

- *Track actual events on your project.* – Recording facts about what actually happened in the project on a task-by-task basis is important, especially if your projects have critical dates within them.
- *Examine the revised schedule to identify potential problems*. – As in the example shown in the figure above, if variations between the current schedule and the baseline schedule can be seen, then potential problems can be identified. If you can identify problems early enough in the process, you can make adjustments in the schedule to possibly mitigate the problem or keep the problem from getting bigger.
- *Modify the schedule to adjust for events that are throwing the project off track.* – If the entire project executes exactly as it was planned during the planning process, then there is no need to reschedule subsequent tasks. If the actual finish dates for tasks differ from the planned dates, however, Microsoft Project can use the real dates to reschedule the remaining tasks in the project.

Additionally, the data stored in the project baseline is used to generate many of the project metrics discussed in Section 2.3.6, Perform Status Reporting.

Timing for Setting the Baseline

Setting the project baseline is a major step in the execution of the project. Once the schedule is completed, it will be reviewed by, and discussed with all senior managers, directors and other stakeholders accountable for the success of the project. The Project Manager will present the following information on the project schedule and plan.

- The goal and definition of the overall project
- The start date, finish date, duration and cost of the overall project
- The start date, finish date, duration, cost and definition of each project phase
- The date and definition of each major project milestone
- The resources assigned to the project and each resource's function
- The project organizational structure
- The project Work Breakdown Structure (WBS)
- Project master schedule (in a Network Diagram format if possible)
- All project assumptions, conditions and factors used in the basis of estimates for tasks, work assignments and work efforts

The information required for this presentation material will be readily available from the project master schedule and the project plan document.

Conditions for Changing the Baseline

Since, as previously discussed, the project baseline represents the contractual or binding commitment between the Project Manager, the project team and the customer, as well as all other stakeholders, modifying this data should never be done arbitrarily. There are times, however, when the project baseline does need to be updated or changed. These situations typically include:

- *Substantial changes or modification directed by the customer or stakeholders*. In this situation, the customer or other project stakeholder is requesting the change to the project and the schedule. There will be a contractual modification or a written agreement associated with the change that has been agreed to by all parties discussed in the section above, Timing for Setting the Baseline.

The procedure to follow in approving the modified baseline would remain the same as when the baseline was established originally.

- *When the project has changed in scope or execution by more than 10% from the original baseline*. Under this situation, the baseline would only change if ALL parties (Project Manager, senior managers and directors, customer and all other stakeholders) agree to the changes. The change here will also be supported by a formal contractual modification or written agreement discussed and approved by all parties. The procedure to follow in approving the modified baseline would remain the same as when the baseline was established originally.

Refer to the *IT Investment Baseline Management Guide* [see References, #1] for definitive guidelines on re-baselining.

Special Note:	Regardless of the situation driving the need to update or change the project baseline, the portions of the project schedule containing information on the actual performance "Actuals" will never be changed. Only update or change the baseline for those sections of the project where work has not yet been performed.

Appendix E DOJ Guide for Managing Project Risk

DOJ Guide for
Managing Project Risk

Appendix F Contracting Officer Representative Responsibilities

Justice Acquisition Regulation Subpart 2801.70, *Contracting Officer Representative (COR)*, prescribes general DOJ policies and procedures for selection and appointment of CORs. As an appointee of the Contracting Officer (CO) and nominee of the program office, the COR is an essential member of the acquisition team. The COR serves a vital role in linking program management and technical requirements of the organization to the business needs. PMs and/or one or more members of their staff may be designated to serve as COR on a contract. Some have described the COR as the "eyes and ears" of the CO during contract performance.

The section below provides basic information about CORs and their duties in the acquisition process. Its goal is to help individuals assigned to this role understand the responsibilities associated with that function, and the competencies they can develop to perform those responsibilities well.

CORs designated to oversee technical and administrative performance of JMD contracts must meet the training requirements detailed in the Chart of COR Duties below:

Chart of COR Duties

The chart included below contains the 18 most essential functions and duties performed by the COR.

Duty	Duty Summary	Duty Standards
Duty 1 – Work Package	As the individual assigned to initiate the acquisition of the Government's requirement for a service or supply, the program or other authorized official is required to develop a Purchase Request Work Package for transmittal to the Contracting Officer.	The duty is successfully completed when the authorized official had provided sufficient documentation to support the current, complete, and accurate information needed to proceed with the procurement.
Duty 2 – Government Property	As the individual identified as the Property Administrator, the COR recommends whether to provide Government property to the Contractor.	The duty is completed successfully when the COR correctly recommends the use of Government property for a purposed procurement. Justifications provided fully support recommendation.
Duty 3 – Technical Assistance	As the individual assigned to assist with proposed procurement or contract program, the official may be required to provide pre-award technical assistance when requested by the CO.	The duty is completed successfully when technical assistance is provided sufficient to support actions taken by the CO. Solicitations-award phase assistance is in accordance with any source selection procedures established for the procurement and actions taken did not exceed any delegated authority.
Duty 4 – COR	As the individual officially	A COR Workplan is measured as

Duty	Duty Summary	Duty Standards
Workplan	delegated contract responsibilities by the CO, the COR will need to prepare a COR Workplan and establish and maintain appropriate record-keeping files.	a success when: • Assigned tasks are clearly defined. • Assignments are workable. • Concerns are identified. • Milestones related to takes are clearly flagged.
Duty 5 – Post-award Orientation	When requested by the CO, the COR will assist and participate in the Post-award orientation.	At the completion of an orientation, success is measured when: • The contractor is correctly informed of all Post-award rights, duties, and milestones of both parties that effect substantial performance. • All potential issues that may affect substantial performance are identified and resolved. • The resolution of each issue is fully documented in the Post-award report. • The Contracting Officer is notified of any issues that were not resolved after subsequent effort. • The contractor is advised of procedures, including rebuttal rights, for documenting performance in the agency Past Performance File.
Duty 6 – Administer Government Property	As the individual delegated contract responsibilities by the CO, the COR may be required to: • Monitor the acquisition, control, and distribution of Government Property by Government personal and by the contractor. • Assess contractors for any loss, damage, or destruction of property.	This duty is considered successfully completed when any damage, loss, or destruction has been accurately documented, the CO has been notified, and assessment of costs has been made.
Duty 7 – Monitor Contractor Performance	As the individual delegated contract responsibilities by the	Successful monitoring occurs when:

Duty	Duty Summary	Duty Standards
	CO, the COR may be required to: • Perform monitoring actions as authorized by the Contracting Officer. • Document contractor performance.	• All potential problems on performance and delivery requirements are reported to the CO. • Any non-compliance with other terms/conditions of the contract are identified and reported to the CO. • Sufficient documentation of a contractor's performance exists to support payments under the contract. • Technical analysis is sufficient to support Contracting Officer's negotiations and final decision issued.
Duty 8 – Inspections and Acceptance	As the official delegated by the CO, the COR performs inspection and acceptance actions and informs the CO when rejecting or accepting non-conformance.	Inspections and acceptance are measured as successes when: • Supplies or services tendered by contractors meet contract requirements. • Non-conforming supplies or services are rejected or otherwise resolved.
Duty 9 – Document Past Performance	As the official delegated by the CO, the COR may be required to document a contractor's performance in the agency's Past Performance File.	Past performance documentation will fairly characterize the contractor's actual performance. Past performance information is complete and sufficient for application in pre-award source selections.
Duty 10 – Modifications	As the official delegated contract responsibilities by the CO, the COR will be required to: • Review and recommend contract modifications requests. • Prepare a technical evaluation to support a determination that the change is not outside the scope of the contract.	Assisting the CO with changes to the contract is successfully completed when COR has provided: • A technical evaluation addressing quality, quantity, price, and other factors impacting contract performance. • Any other necessary documentation supporting the actions taken by the CO to resolve the

Duty	Duty Summary	Duty Standards
		modification request.
Duty 11 – Options	As the official delegated contract responsibilities by the CO, the COR may be required to: • Recommend, in writing, to the CO whether an option should be exercised under the contract (given a contract awarded with options and an options clause). • Submit market research data to the CO to support the recommendation to exercise the option.	An option is processed successfully when: • The option is exercised within the time frame established in the contract. • Relevant market research data is submitted to support the recommendation to exercise the option. • The option represents the most advantageous offer available from the commercial market.
Duty 12 – Delays	As the official delegated contract responsibilities by the CO, the COR is required to notify the CO about a delay in the delivery or performance schedule under the contract.	The COR should be able to correctly identify delays in contract delivery or performance schedule. The technical analysis should be sufficient to support the action taken by the CO to remedy the delay.
Duty 13 – Stop Work	As the official delegated contract responsibilities by the CO, the COR may be asked to assist in administering Stop Work Orders.	This duty is completed successfully when the COR: • Can identify and determine the necessity of a Stop Work Order. • Administers a Stop Work Order to avoid unnecessary costs. • Minimizes Government risk.
Duty 14 – Claims	As the official delegated contract responsibilities by the CO, the COR will be required to assist the CO in analyzing a claim, recommend settlement position, and participate in the resolution process.	The COR has successfully completed this duty when: • The validity of a claim is correctly determined. • A proper and complete report is prepared and fully supports the CO's determination. • The Government's interests are protected while treating the contractor fairly and equitably within the terms of the contract.

Duty	Duty Summary	Duty Standards
Duty 15 – Remedies	When a breach of contract has been identified, the COR should provide the CO: • Sufficient evidence of a breach of contract remedy. • Assistance in evaluating contractor response.	At the end of this duty, the COR should be able to successfully: • Provide remedy notification that is adequate, timely, and will support the CO's final decision. • Suggest the remedy that will best minimize the impact of the contractor's performance problems on the requirements, delivery, schedule, and cost.
Duty 16 – Termination	As the official delegated contract responsibilities by the CO, the COR may be required to assist the CO in determining whether to terminate a contract.	This duty is completed successfully when the COR identifies termination situations and procedures and can recommend a Termination for Convenience or Termination for Default (or Cause) when necessary.
Duty 17 – Payment	As the official delegated contract responsibilities by the CO, the COR will have to recommend to the CO whether to authorize payment against an invoice in full, in part, or not at all.	This duty is completed successfully when the COR can recommend to the CO whether to authorize payment against an invoice in full, in part, or not at all.
Duty 18 – Closeout	A COR's final duty as the individual delegated contract responsibilities by the CO is to perform contract closeout.	This duty is completed successfully when the contractor and Government have fulfilled their obligations in a timely manner, all outstanding contract administration issues have been resolved, and all records are correctly disposed.

Appendix G Project Management Plan Template

{Program/Project Name}

Project Management Plan (PMP)

Project Name

Author: _____

Creation Date: _____

Last Updated: _____

Version: _____

*This Project Management Plan skeleton document **is not intended as a rigid framework to be adhered to at all times, but rather a flexible framework to be used intelligently**, but with the general layout and style ideally being maintained.*

All instructional text (like this paragraph) should be overtyped or removed prior to the document being issued. Its purpose is to provide you, the author, with guidance on completing the document. Some of the examples (tables, etc.) can be suitably modified for your project.

The instructions in this document are not meant to be a Project Management methodology. Please refer to your organization's Project Management methodology, which is likely integrated and consistent with this template.

US DOJ / OCIO / PPS / ITIM Team

TABLE OF CONTENTS

EXECUTIVE SUMMARY

Project Description

Describe the proposed project or release. Briefly explain key features, how these features benefit the business unit and how they depend/interact with other business unit functions. Include a summary of the scope and expected deliverables.

Background Information

Describe the project history. Include information such as: previous initiatives, business environment changes (may be related to competition, regulation, resource availability) and the impetus and rationale for the project. Describe, in essence, how the project came about.

Business Goals and Objectives

Goals and Objectives are defined as follows:

- *Goal* – A goal is an aspiration of the organization that states a direction in which the organization will focus its efforts in support of its mission(s).
- *Objective* – Objectives are short-term targets (typically 12-24 months or less) of defined, measurable achievement.

Identify the corporate goals and objectives that the project intends to support, as well as how they are measured. Some typical business objectives are:

- Decrease costs, errors or rework by a specific percentage
- Decrease processing or turnaround times by a specific percentage
- Increase productivity or capacity by a specific percentage
- Eliminate backlogs by a specific percentage
- Reduce risk by a specific percentage
- Comply with legislative and/or regulatory requirements (avoid fines or penalties)
- Provide better access to data needed for decision making

Project Goals and Objectives

Identify and explain project goals and objectives. Examples include:

- Deliver Accounts Payable application two months before fiscal year end.
- Capture customer address requirements from the business units utilizing the billing sub-system.
- Select an order entry application package that meets customer business requirements.
- Develop required Employee Information System enhancements while maintaining data integrity with the Financial Information System.
- Effectively transition the new Procurement System to customer IT support staff during the Transition stage of the project.

Benefits and Costs

Briefly state the benefits and costs associated with the project and, if necessary, include a reference to Attachment G-4 – Cost Benefit Analysis. Various Benefit categories to consider are:

- Cost Reduction
- Revenue Growth

- Cost Avoidance
- Productivity Increase
- Risk Reduction
- Boundary Redesign
- Mission Effectiveness

Various Cost categories to consider are:

- Non-Recurring Costs:
  - ♦ Business Process Reengineering (BPR) and System Requirements
  - ♦ Project Development and Testing Costs
  - ♦ Project Piloting Costs
  - ♦ Project Management Costs
  - ♦ Other Non-Recurring Costs
- Recurring Costs:
  - ♦ Labor Costs
  - ♦ Material Costs
  - ♦ Service Costs
  - ♦ Overhead Allocation Costs
  - ♦ Other Recurring Costs
  - ♦ Capital Costs

The items listed in the table below are just examples.

Benefits	Description
Web-Enabled Self-Service Employee Benefits Administration	•
Reduced Operating Cost	•
Reduced Maintenance Cost	•
Improved System Availability	•
Costs	**Description**
Labor	•
Hardware	•
Software	•
Training	•
Other	•

SCOPE DEFINITION

Scope Description

State specifically the work that will be accomplished as well as the parts of the enterprise, application, technical infrastructure, etc. that will be included in the project. If the project is part of a phased approach, it may include deliverables from the previous stage. Identify these deliverables and the additional work to be done. In addition, determine which criteria constitute maintenance of the product. Maintenance typically falls outside the scope of an implementation project. This will help prevent the occurrence of "scope creep" and unnecessary project extensions.

In Scope

The following chart includes sample categories for defining project scope. Add or delete rows as necessary for your project.

Categories	Description
Contract Labor	•
Customer Loaded Labor	•
Outside Services	•
System Hardware	•
Software	•
Connectivity	•
Training	•
Other	•

Out of Scope

State what aspects of the work are not in the project's scope. For example, a project team may be required to utilize processes for Payroll developed by a vendor and during the project determine that those processes lack certain procedures and should be updated. The activity of updating those procedures would be out of the scope of the project and would require the submission of a Change Request form. Changes in scope typically result in project extensions and additional funding requirements.

APPROACH

Explain how the delivery methodology, project management approach, change management approach, technology, and task structure will be used to meet the requirements and objectives of the project. State which development path was chosen to complete the project, and the reason for its selection. Identify the "character" of the project (standard, pathfinder, demonstration, etc.). Discuss any key technology to be used on the project to meet the requirements and objectives of the project.

ASSUMPTIONS, DEPENDENCIES, AND CONSTRAINTS

Assumptions

Briefly describe any assumptions about the project. Assumptions should be specific and measurable and include both business and technology issues. Possible assumption items include:

- Resources
- Scope
- Expectations
- Schedules
- Business Milestones
- Legislation
- Products and Services
- Geographies
- Customers
- Timeframes
- Application architecture
- Technology architecture
- System software architecture
- Telecommunications infrastructure
- Development environment

Constraints

Describe the principal constraints and limitations of the project's environment or parameters (timeframes and deadlines, funding, skill levels, resource availability, etc.). Examples include:

- Department has already selected packaged application.
- Only two Developer resources will be available during project.
- Additional funding not available if the project timeline is extended.

Related Projects

List other projects that are impacted by the proposed project. Describe the expected and potential impacts. Examples include:

- The Accounts Payable System will be non-functional during the testing phase of this project.
- The SQL database for this project will utilize 100MB of disk space on TIVOLI database server. Performance degradation or disk space allocation problems should be evaluated.

Critical Dependencies

Identify any other projects or systems that are dependent on the proposed project. Describe each relationship. Account for these dependencies in the project management plan's Risks section and develop contingency plans to circumvent problems arising from inter-project dependencies. Examples include:

- Additional user resources are required to run the old system and the new system in parallel for 3 months after the new system is deployed.
- Project completion is dependent upon an additional frame relay connection between the corporate and field office.
- The development server must be secured prior to the start of the development phase.

Impacted Business Areas

Identify business areas that are impacted during the duration of or after the completion of the project. State how each component is impacted. For example, if the project is an application development project, some organizations may have to perform processes manually until the new automated process is implemented. If a business area cannot function at all during the course of the project, the project timing should be of high priority. Other business areas that may be impacted include other projects, initiatives, infrastructure, networks and other systems.

Impact Item	Impact Result
Customer address updated to handle multiple addresses	• All interfaces to customer address table must be updated to accommodate new structure.
New order process requires approval from credit department	• Current credit check is manual. Automated credit check must be developed before implementation. Work around should be developed before system deployment.
Purchase of dedicated server.	• Contact IT network staff to determine specs for hardware and where new server can be located

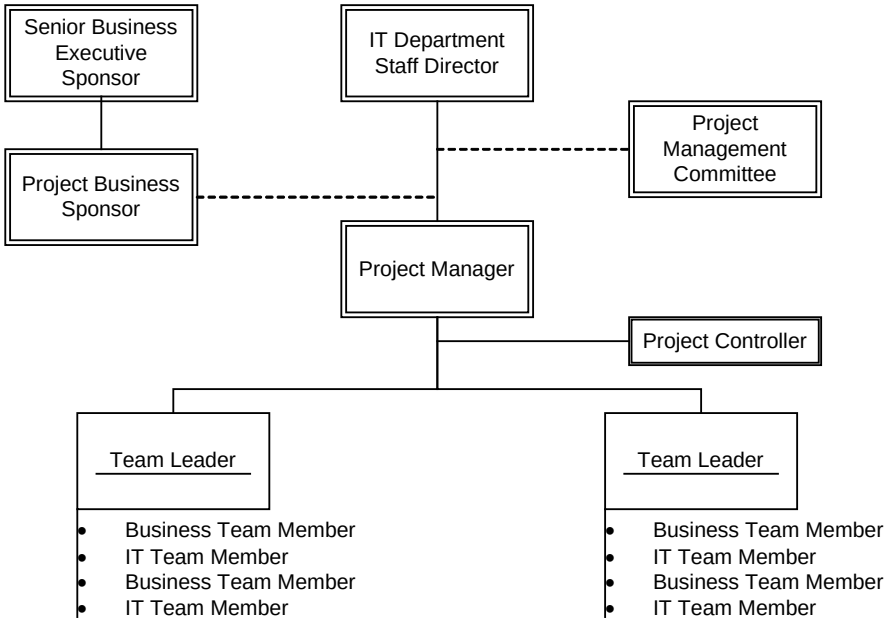
PROJECT ORGANIZATION

Roles & Responsibilities

Identify the required project roles and the responsibility of each role. Project roles may vary depending on project size, complexity and scope. Add or delete project roles as appropriate for your project. For large projects, specify what and who will be the key Team Leaders.

ROLE	RESPONSIBILITY
Senior Business Executive Sponsor	A senior business executive overseeing the business sponsor who commissions the project. The senior business executive ensures that the project is aligned within the organization's priorities and strategic business goals, facilitates funding for the project, and resolves and mitigates enterprise-wide risks, issues, and problems associated with the project involving the customer business community.
IT Department Product Manager	The manager within Information Technology overseeing the Project Manager as part of a Product Area responsibility within the IT Department. The Product Manager is responsible for communicating and monitoring goals and objectives, assures that all projects are technically aligned within IT strategic goals, and resolves and mitigates IT Department-wide risks, issues, and problems associated with the project.
Project Management Committee	Management personnel (Project Business Sponsor, IT Department Product Manager, PMO Director, etc.) who approve the project management plan and its objectives and attend regular review meetings on project progress. The committee has authority over the project finances and reviews all cost/benefit statements. The committee resolves and mitigates risks, issues, and problems associated with the project that are elevated by the Project Manager.
Project Business Sponsor	The Project champion from the customer business community who directly commissions the project. The sponsor ensures that the project is funded and that all necessary resources are in place to ensure project success. The business sponsor resolves and mitigates risks, issues, and problems associated with the project involving the customer business community.
Project Manager	The Project Manager is responsible for the project with regard to time, budget and quality. The Project Manager may be responsible for one or more projects. For small projects where only a small number of people are involved, the project manager might also be a team leader who is directly working with the team members.
Project Controller	A team member reporting to the Project Manager who is responsible for various project planning and control activities: project planning and estimating, project scheduling, progress measurement and monitoring, financial tracking and analysis, time tracking, and project reporting.
Team Leader	Team leaders are team members who have the lead responsibility for one or more areas on the project such as: Business Analysis; Data Conversion; External Interfaces; Testing; Training; and Transition to Production.
IT Project Team Member	IT Project Team leaders and members include database administrators, developers, documentation specialists and other resources with skills required for completion of the project. They are responsible for the design, construction, documentation and training for the new system.
Business Project Team Member	Business Project Team members include subject matter experts, application users and functional area management. They work with the IT Project Team to provide business requirements, business rule information, project deliverable QA, project deliverable validation and application testing assistance.

Organizational Chart



Communications Strategy

Describe how the project will communicate its plans and progress to all stakeholders. It may be convenient to sub-divide stakeholders into groups such as Project Team, Business Sponsor, Users, IT Product Manager, etc. It may also be appropriate to separate out methods of communication such as newsletters or rolling demonstrations which will be generally available. If it is a large project, or one that involves significant change for the organization, a separate Communications Plan document should be considered.

Project Team Training Plan

List courses needed by the team members to enable them to complete the project. This will cover courses on:

- Use of new technology
- Personal skills
- Specific product training

These costs should be reflected in the Costs section.

PROJECT PLAN

Deliverable Planning Matrix

Project Deliverables may include documentation (e.g. Business Requirements) or other types of project outputs (e.g. software; installed hardware; trained users). Quality Management of project deliverables consists of two parts: Quality Control and Quality Review. Quality Control pertains to the project team's control of deliverable quality *prior* to delivery. Quality Review pertains to the review of deliverables *after* delivery, by business, management, and technical personnel and experts. In all cases, the objective of deliverable reviews is to verify completeness, consistency, and correctness.

- **Quality Control (QC) Approach**

For Quality Control, an approach should be established with deliverable standards and guidelines. Depending on the size of the project, the following should be provided to the project team prior to deliverable development:

- Templates for production of team deliverables, preferably based on organization standards
- Generic quality criteria for deliverables, preferably based on organization standards
- High-level, and then detailed, outlines of what each project deliverable is expected to contain (i.e. *completion criteria*)
- Specific *quality criteria* for review and evaluation of each project deliverable

The Quality Control approach can also describe:

- Who will be providing business or technical expertise (i.e. Subject Matter Expert (SME)) review of deliverables *prior* to delivery);
- What type of quality review techniques will be used, such as:
  - **INSP** : Inspection/walkthrough of deliverable
  - **EXP** : Technical or business SME review
  - **DEMO**: Demonstration or presentation of deliverable
  - **PEER**: Peer review
  - **TESTING:** Compare and verify actual results against expected results or established standards in an objective manner

- **Quality Review Approach**

For Quality Review, a plan is detailed for how each major deliverable will be reviewed *after* delivery: by whom, when, whether an Outline and/or Draft will be delivered and/or reviewed first, and whether a Meeting to discuss the deliverable is needed upon delivery.

Deliverable Reviewers should be given a ***minimum of 2-3 days to review*** most average deliverables; Business Sponsor personnel should be given a ***minimum of 5 days to review*** most average deliverables (unless the relationship with the Business Sponsor permits a quicker turnaround). For best results, notify the deliverable reviewers in advance of their responsibility for assigned deliverables, what the expected turnaround time is, and any changes in the expected delivery dates.

For aggressive projects or important deliverables, some of the reviewers should be asked to review and/or participate in development of the *completion criteria* (i.e. detailed Outlines) and *quality criteria* (i.e. key expectations) being used as guidelines for the project team. This is important since the reviewers can provide valuable suggested additions, changes, and comments *before* the deliverables are developed and delivered for review.

Include a list of all Deliverables for the project in the following table (see Deliverable Planning Matrix template example), along with the following information, as it applies:

- **Deliverable Number** [Optional]: Consider assigning a number to each Deliverable for easier tracking and reference. Consider using the format 'D01, D02, D03, etc.' to distinguish the Deliverables from other Milestones
- **Deliverable Title**
- **Deliverable Description**
- **Assigned To:** who on the team is the primary lead for completing the deliverable; this is either delegated to someone on the team or, by default, is the Project Manager
- **OUTLINE Due Date** [Optional]: *if* an Outline is formally planned for the Deliverable, then the planned Due Date for the Outline. Outlines are useful because they help firm-up a Deliverable's *completion criteria* by documenting in advance what the Deliverable will contain for all to agree.
- **Internal QC Responsibility [Before Delivery]**: who on the team is the primary lead for QC of a project deliverable *prior to* its delivery outside the team; this is generally the Project Manager unless it can be delegated to someone either on the team or from the Project Manager's management

- **Sign-Off Participants [After Delivery]**: who associated with the project will be the reviewers, inspectors, and/or approvers of a project deliverable *after* its delivery by the project team; these individuals are generally the Business Sponsor staff, IT Department Managers, identified SMEs, and/or assigned Quality Assurance (QA) Department personnel.
- **DRAFT Due Date** [Optional]: *if* a Draft is formally planned for the Deliverable, then the planned Due Date for the Draft. Drafts are useful because they help to speed review, finalization, and acceptance of the 'Final' Deliverable by having 'Sign-Off Participants' (and/or other project team members) provide input earlier in the Deliverable life-cycle. Drafts are also useful because they can provide information 'in advance' that may be needed for other, dependent Deliverables.
- **DRAFT Review Comments Due Date** [Optional]: *if* a Draft is formally planned for the Deliverable, *and* the Draft is to be formally reviewed by individuals other than those who developed it, then the planned Due Date for Comments on the Draft. Identifying a Due Date for receipt of Comments back helps the project team plan its work and meet its schedule commitments.
- **DRAFT Review Meeting Needed?** [Optional]: *if* a Draft is formally planned for the Deliverable, *and* the Draft is to be reviewed by individuals other than those who developed it, then whether or not the project team should plan for a meeting to be held to introduce, overview, and/or walkthrough the Draft with the reviewers. Identifying whether a Review Meeting is needed can help speed a better quality review of the Draft for comments.
- **FINAL Due Date**: the planned Due Date for delivery of the official Final version. This is generally the Milestone delivery of the Deliverable. Project Managers should consider and plan how they will manage the delivery of the Final: some will target a version that can be almost definitely be 'signed-off' or approved (perhaps through the use of an Outline and/or Draft beforehand); others will expect Comments on the Final before it can be completely finalized; etc.
- **FINAL Review Comments Due Date** [Optional]: *if* a Final is to be formally reviewed by individuals other than those who developed it, then the planned Due Date for Comments on the Final. Identifying a Due Date for receipt of Comments back helps the project team plan its work and meet its schedule commitments.
- **FINAL Review Meeting Needed?** [Optional]: *if* a Final is to be reviewed by individuals other than those who developed it, then whether or not the project team should plan for a meeting to be held to introduce, overview, and/or walkthrough the Final with the reviewers. Identifying whether a Review Meeting is needed can help speed a better quality review of the Final for comments.

The following table is a template for the Deliverable Planning Matrix. It also contains an example of deliverables in the table. ***These are sample deliverables only.*** Add or delete rows and expected deliverables as needed for your project.

DELIVERABLE PLANNING MATRIX							DRAFT (Optional)			FINAL		
#	Deliverable Title	Deliverable Description	Assigned To	OUTLINE Due Date (Optional)	Internal Team QC Review	Sign-Off Participants (After Delivery)	Due Date	Draft Review Comments Due Date (Optional)	Draft Review Meeting Needed?	Due Date	Final Review Comments Due Date (Optional)	Final Review Meeting Needed?
D01	Project Management Plan (PMP)	• Detailed project plan in Project Management Plan (PMP) template format	T. Carnahan (Project Manager)		Product Manager (J. Smith)	• Business Sponsor (J. Crew) [Final only] • PMO Oversight Manager (R. Brown) • Product Manager (J. Smith) • Technical Architecture (D. Mattice) • Data Base Administrator (D. Beeay) • QA Department (A. Vincent) • Operations (J. Merlin)	6/29/11	7/6/11	Yes	7/13/11	7/20/11	Yes

DELIVERABLE PLANNING MATRIX							DRAFT (Optional)			FINAL		
#	Deliverable Title	Deliverable Description	Assigned To	OUTLINE Due Date (Optional)	Internal Team QC Review	Sign-Off Participants (After Delivery)	Due Date	Draft Review Comments Due Date (Optional)	Draft Review Meeting Needed?	Due Date	Final Review Comments Due Date (Optional)	Final Review Meeting Needed?
D02	Business Requirements Documentation	• Definition of business requirements in Business Requirements template format • Document is organized by business function and covers each function and feature in detail. • Data model (Customer subject area only) • Process models (as necessary)	S. Reeves	7/27/11	T. Carnahan (Project Manager)	• Business Sponsor representatives (F. Barner; M. Moss) • Product Manager (J. Smith) [Final only]	8/03/11	8/10/11	Yes	8/17/11	8/22/11	No
D03	Installation and Testing of Baseline Hardware and Software	Installation and Testing of Baseline Hardware and Software: System Software Layers, Hardware (if applicable), and the Application Software Suite with Proprietary Development & Reporting Tools: • Server #1 Environment (Development, Test & Train); • Server #2 Environment (Production); • Server #3 Environment (Backup); • Server #4 Environment (Intranet).	K. Koustias		T. Carnahan; D. Burgess (Technical Platform Leader)	• Operations Department representative (<name to be provided>) • IBM Senior Systems Engineer (J. Crowley)				7/27/11	7/31/11	No
D04	System Security Plan	Strategy, approach, roles, and responsibilities for establishing and maintaining system security structures needed to support the application package implementation for the various layers of security: • NT Operating System via the Network; • Login Access to the application; • Environmental and Department Security within the application; and • DDE and OLE functions and permissions within the Oracle database.	E. Georgatos	7/27/11	T. Carnahan; G. Connell	• Operations Department representative (<name to be provided>) • IBM Senior Systems Engineer (J. Crowley) [Final only] • Systems Security Specialist (G. Mengers) [Final only]	8/03/11			8/17/11	8/22/11	No

DELIVERABLE PLANNING MATRIX							DRAFT (Optional)			FINAL		
#	Deliverable Title	Deliverable Description	Assigned To	OUTLINE Due Date (Optional)	Internal Team QC Review	Sign-Off Participants (After Delivery)	Due Date	Draft Review Comments Due Date (Optional)	Draft Review Meeting Needed?	Due Date	Final Review Comments Due Date (Optional)	Final Review Meeting Needed?
D05	Plan and Deliver Project Team Training	Plan and deliver project team training for: • Application Package (Level 1 Certification training); • Business Process Reengineering using IDEF modeling; • Casewise Corporate Modeler; • Team Play project/process management toolset.	S. Wagner	7/27/11	T. Carnahan	• {Company ABC} Account Manager (M. Ducharme) • Product Manager (J. Smith)	8/03/11			8/17/11	8/22/11	No
D06	Develop Data Conversion Plan	Data Conversion planning document defining the application's conversion needs and identifying the following: • Conversion scope • Conversion design/strategy • Conversion timing, schedule, and resources • Account code crosswalks • Conversion rules • Control/reconciliation points	B. Goodwin	8/31/11	T. Carnahan	• Data Conversion SME (N. Onsager) [Draft only] • Product Manager (J. Smith) • Business Sponsor Representative (M. Moss)	9/21/11	9/28/11	Yes	10/05/11		

DELIVERABLE PLANNING MATRIX							DRAFT (Optional)			FINAL		
#	Deliverable Title	Deliverable Description	Assigned To	OUTLINE Due Date (Optional)	Internal Team QC Review	Sign-Off Participants (After Delivery)	Due Date	Draft Review Comments Due Date (Optional)	Draft Review Meeting Needed?	Due Date	Final Review Comments Due Date (Optional)	Final Review Meeting Needed?
D07	Develop Interface Requirements and Specifications	Document defining the inbound and outbound central interfaces with the new application. For each subsystem interface, the conceptual design will be defined, including technical approach, business events to be interfaced, the frequency, account code cross-walk, and other processing parameters. The following interfaces will be defined and specified: • To and from the Financial Accounting System; • Thrift Savings Plan data and payment records to Pension Benefits System; and • Monthly - Transmit a flat file containing new employee data to the Social Security Administration' s "Vital Information Systems Network" (VISN).	D. Richards	T. Carnahan	T. Carnahan	• Business Sponsor Representative (F. Barner) • Payroll Manager (J. Jones) • IT Department HR/Payroll System Manager (F. Stassi) • Headstrong External Interface SME (N. Onsager)	9/21/11	9/28/11	Yes	10/05/11	10/10/11	No

The entries in the table are just examples – each project, and each deliverable, needs unique consideration by the Project Manager, and upper management, for what is appropriate (e.g. whether to deliver an Outline first; whether to deliver a Draft for Review prior to the Final; etc.). Factors contributing to these decisions include:

- Is the criticality of the Deliverable, and/or deadlines for the project, high enough priority that additional measures are desirable to ensure delivery of a high quality, timely product?
- Has the Deliverable been produced before?
- Is the Deliverable the output of a pre-defined System Development Lifecycle (SDLC) process?
- Has the Project Team delivered this Deliverable on a previous project?
- Does the Project Team have a similar Deliverable to reuse and/or reference?
- Is there time for delivery and review of an Outline, or Draft, prior to delivery of the Final?
- Can the project afford not to deliver an Outline, or Draft, first, and thus the Risk of problems with completeness, consistency, and correctness of the Final?
- Are there reviewers available, willing, and able to review an advance Outline or Draft?

Work Plan Assumptions

List the planning assumptions being made in producing this plan. These will be the tactics you are assuming will work for this project (e.g. that the business process being used is the same as the one used in another part of the Group).

Work Breakdown Structure Summary

List the high level tasks from the Work Breakdown Structure (WBS) of stages and tasks for the project. For example, for a Commercial-off-the-Shelf (COTS) Package implementation:

PROJECT MANAGEMENT
- Plan Project
- Activate Project
- Control Project
- End Project

INSTALLATION AND TESTING OF BASELINE HW AND SW
- Certification of Installed HW & SW (Development, Test, & Production)
- System Documentation

PRE-PRODUCTION SYSTEM MANAGEMENT PLANNING
- Develop System Security Plan
- Develop Configuration Management Plan and Procedures

GAP ANALYSIS
- Functional Requirements Analysis
- Technical Requirements Analysis
- Develop System Specifications and Estimates for Alternatives
- Develop Overall Strategy Plan for Implementation

PACKAGE CUSTOMIZATION
- Customize and Unit Test Software
- Conduct Prototyping Sessions (Conference Room Pilots)

DATA CONVERSION
- Develop Data Conversion Plan
- Specify Conversion Routines
- Gather and/or Load Necessary Data
- Design, Construct, and Test Conversion Routines
- Perform Automated Conversions

EXTERNAL INTERFACES
- Identify Interface Elements
- Develop Interface Requirements
- Develop Interface Specifications
- Construct and External Interfaces

TRAINING
- Develop Pre-Implementation Training Plan and Materials
- Schedule and Conduct Pre-Implementation Training
- Functional 'How To' Guides
- Develop a Training Development Workplan

TESTING
- Develop Overall Test Strategy, Approach, and Plan
- IV&V Integration and System Testing Phase
- Parallel Processing Testing Phase

TRANSITION TO PRODUCTION
- Develop Plan for Transition to Production
- Perform Pre-Production Activities

POST IMPLEMENTATION SUPPORT
- Post Implementation Planning
- Post Implementation Audit and Report

Include a listing of the full WBS of stages and tasks for the project in Appendix A: Work Breakdown Structure.

Regardless of SDLC used, be sure to include required tasks, as applicable, for:

- **Initial Privacy Assessment (IPA), Privacy Impact Assessment (PIA), and System of Record Notice (SORN) compliance,**
- **Supply Chain Risk Review,**
- **Section 508 compliance,**
- **Records Management compliance, and**
- **Security Certification and Accreditation (C&A).**

Organizational Change Management Strategy

The purpose of Organizational Change Management is to successfully support the processes, people, and culture surrounding the implementation of new systems or new technology. Usually the technological change on an IT project does not cause the major impact on the organization as does the managerial, operational, and social changes accompanying the new technology. For this reason, it is important that each project plan include tasks that help to facilitate the necessary change in the organization to successfully enable proper implementation and use of the new technology associated with an IT project.

Questions the Project Manager and sponsors should ask when planning the project:

Management (Vision, leadership, Strategy)	**Social** (Organizational and human aspects)
What business results do you expect to achieve when you are successful?	How will solving this concern affect your organization and key people such as employees, suppliers, and customers?
What do you expect to be different when you are done?	Are there communications channels available to support needed project publicity and awareness?
How will solving this concern affect your management team?	Is there any reason why everybody should not know about this initiative?
Will you need to make changes in management incentives?	What will be the changes in skills, roles, and responsibilities for staff members as a result of this initiative?
Will you need to restructure management hierarchy?	Are there changes in benefit policies and formal job descriptions inherent in those changes?
Is a different style of management needed?	What is your current skill level to support this project?
Is the management team in agreement with the purpose of the project?	What provisions currently exist for staff development and specialized training needed to deploy the project results?
Have there been previous attempts to complete the project?	What do you see as the most important responsibilities of the project team?
What are the management challenges in this effort?	
Operational (Procedures and project-level management)	**Technical** (Hardware, Software, Communications, Facilities)
What will need to be different about your current operational processes and work flow?	What technical issues must be successfully addressed in order to solve the business concern?
Is there a business model? Are current processes defined? Is there an operational manual?	Is the technical infrastructure in place to support the project?

How do you measure current performance?	What must be done to prepare for anticipated technical changes?
Are there other initiatives currently in place or anticipated that will affect this project?	Do you have a formal technical architecture and strategy?
What are the procedures for improvement of current processes?	
What procedures exist to manage the technical environment?	

Some of the Organizational Change Management activities you may want to consider including in your project plan are:

- Communications Planning and Delivery
  - Developing a communications strategy and plan for the project
  - Publicizing the project to stakeholders
  - Developing and delivering Management and End User presentations
  - Facilitating a system naming or logo contest
  - Developing and issuing Management and End User Newsletters
  - Developing a project Web Site
- Monitoring User Training and Empowerment
  - Compiling post-training surveys
  - Monitoring training attendance and evaluations
  - Benchmarking and monitoring Help Desk support
  - Monitoring knowledge-transfer to system users
  - Monitoring knowledge-transfer to technical operations support staff
- Monitoring and Managing User Expectations
  - Establishment of a Pilot user working group
  - Establishment of an organization-wide User Group
  - Organizing User Conferences
  - Establishment of direct two-way communications between one-or-more user liaisons on the project team and the various user communities regarding problems, issues, and concerns

Project Milestones

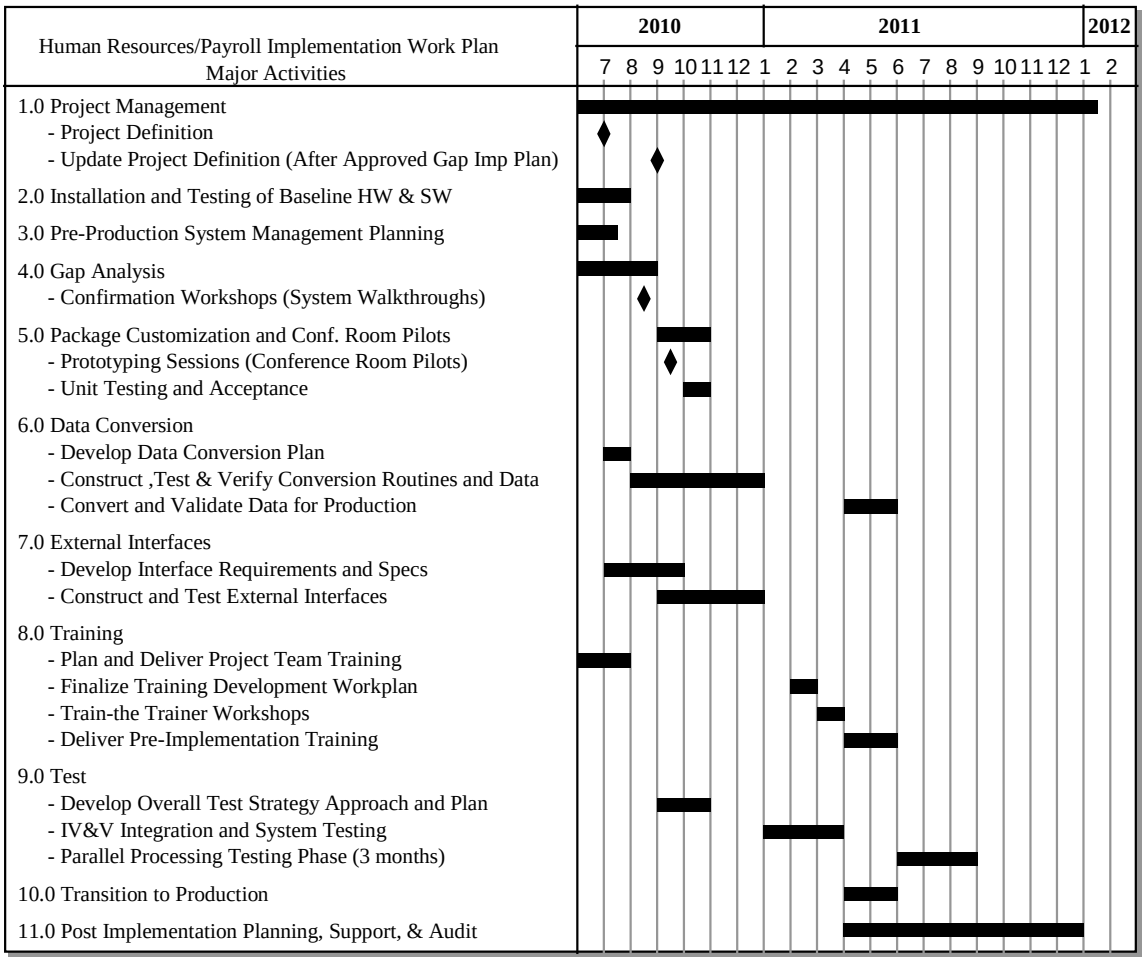
Include a listing of the project's key milestones. This could be done in a Word table or copy and pasted from any number of formats (PowerPoint, Excel, MSP, etc.). Depending on the SDLC being used, this could include Phase Completion Milestones. Below is an example:

Milestones	Planned Date
Estimated Project Start Date	6/1/10
Project Definition	6/1/10
Installation and Testing of Baseline Hardware and Software	6/1/10
Plan and Deliver Project Team Training	6/1/10
Develop Data Conversion Plan	7/1/10
Confirmation Workshops (System Walkthroughs)	8/1/10
Update Project Definition (After Approved Gap Analysis)	8/1/10
Prototyping Sessions (Conference Room Pilots)	9/1/10
Develop Interface Requirements and Specifications	7/1/10

Develop Overall Test Strategy Approach and Plan	9/1/10
Unit Testing and Acceptance	10/1/10
Construct, Test, and Verify Conversion Routines and Data	8/1/10
Construct and Test External Interfaces	9/1/10
Finalize Training Development Workplan	2/1/11
IV&V Integration and System Testing	1/1/11
Conduct Train-the-Trainer Workshops	3/1/11
Convert and Validate Data for Production	4/1/11
Deliver Pre-Implementation Training	4/1/11
Transition to Production	4/1/11
Parallel Processing Testing Phase	6/1/11
Post Implementation Audit	12/1/11
Project End Date	1/15/12

Project Timeline

Include a high level extract of the project's detailed schedule. This could be done in any number of formats (PowerPoint, Excel, MSP, etc.) and copy and pasted into the document. Below is an example:



Project Schedule

Attach a copy of the detailed project schedule, generated from Microsoft Project, or an equivalent scheduling tool, in Appendix B: Project Schedule.

Work and Cost Estimate for Tasks and Resources

Attach a copy of the detailed work and/or cost estimate, by task, by resource, in Appendix C: Work and Cost Estimate for Tasks and Resources. These could be in the form of standard or customized reports generated from the Microsoft Project scheduling tool, an estimating spreadsheet, or both.

Developing a good cost estimate begins with an accurate scope definition, followed by a well-structured and comprehensive WBS, ideally based on a proven SDLC or methodology. All related hardware, software, training, implementation, and organizational change management costs also need to be included. Your project's business case and/or alternatives analysis should have built-out the major assumptions and factors for your cost estimate. Your PMP and its project schedule then factors in additional information, such as resources assigned to the project, to develop the cost estimate that management expects will be met for final delivery of the specified solution. For more information on good cost estimating, please visit the Project Management Center of Excellence site at (https://itim.doj.gov/ProjectManagement/Home.aspx).

Progress Measurement and Monitoring

Describe what actions will be taken for the measuring and monitoring of projects. The measurement and monitoring is obtained by comparing, for all the project activities in the appropriate stage, the actual progress against the planned progress. The planned effort is detailed in the project task and resource work estimate. Actual effort can be recorded at the WBS level in weekly, bi-weekly, or monthly spreadsheets, a timesheet system, and/or via contractor invoices.

Identify the frequency of tracking and the way in which the actual effort and cost-to-date will be registered against the plan to show progress and reflect level of completion. Describe how variations in time and/or cost against the plans (either through re-estimation or through requirement changes) will be handled.

Configuration Management

Identify what project deliverables will be under configuration management. Identify if a configuration management repository is to be used to hold technical specifications and how this is to operate.

Identify if a configuration management system and tools are to be used to maintain application code under version control. State where the code library is to be stored, its control, and its access. Identify any other items to be maintained under configuration control.

Project Support Requirements

Describe what technology and other support the project requires.

- *Development Environment Requirements*: If applicable, detail the separate development environment needed during the build of the new system.
- *Test Environment Requirements*: If applicable, detail the test environment needed during the build of the new system. Specify whether the organization's IT Quality Assurance department is expected to be involved in the testing and in what capacity.

- *Production Environment Requirements*: If applicable, detail the environment needed during the operation of the new system.
- *Other Requirements*: If applicable, detail other important support requirements, especially if they may be unique to your project.

RISK MANAGEMENT PLAN

Risk Management provides a proactive and collaborative means of augmenting program management on a program by addressing risk factors before they become program problems. The purpose of Risk Management is to ensure that risks associated with an IT program are well understood so they can be managed, planned for, and mitigated during the execution of the program. A risk is any factor that may potentially interfere with the successful completion of the program. Use of Risk Management illuminates and attacks the threats to a program as early as possible in order to allow for a successful outcome.

There are various areas that can affect a program and its projects, including: the technology used on the program, the environment in which the program is executed, relationships amongst team members, how well the program fits the culture of the enterprise, and how great a change will result from the program. All of these factors exist, in varying degrees, with any average-sized program or project.

The purpose of a Risk Management Plan (RMP) is to:

- Define the approach, processes, and procedures for managing the program's related risks;
- Describe the organizational framework and participants involved in managing program risks, and define key roles and responsibilities; and
- Establish standard tools and techniques to be used in evaluating, classifying, and reporting on risks so they may be managed in a consistent and integrated manner.

If your organization does not have a specific Risk Management Plan process or template to use, then a good generic Risk Management Plan Template can be found in the DOJ IT Project Manager Guide, v 1.0, November 2014, Appendix E (*DOJ Guide for Managing Project Risk*).

ATTACHMENTS

Attachment G-1 – Work Breakdown Structure

This should be the full Work Breakdown Structure (WBS) of activities and tasks for completing the requirements and objectives of the project. It is the basis for creating the roles, work estimates, schedule, and delivery dates for milestones and deliverables for the entire project. The level of planning should not be too high-level, yet not too detailed that it is too burdensome to use and maintain.

In this example, the project follows a commercially-available PACE (Plan, Activate, Control, End) task structure for the Project Management activity (Activity 1.0). As a general rule of thumb, the Project Management activity (Activity 1.0 equivalent) tasks should comprise approximately 12-15% of the estimated effort on a project. The WBS can be developed and/or presented in any number of formats (spreadsheet, MSP, project/process management tool set, etc.). Below is an example:

Work Breakdown Structure: HR/Payroll Implementation Project
1. PROJECT MANAGEMENT
Plan Project
Define Project
Determine Project Objectives
Define Project Scope
List Project Products
Determine Project Constraints
Select Project Approach
Determine Project Standards
Assess Project Risks
Make Project Plan
Define Work Breakdown Structure (WBS)
Determine Activity Dependencies
Define Project Milestones
Determine Project Organization
Estimate Effort
Allocate Resources
Schedule Activities
Develop Budget
Assess Project Risks
Obtain Project Approval
Assemble Project Plan Definition
Present Project Plan Definition
Agree to Project Plan Definition
Activate Project
Publicize Project
Inform Stakeholders
Brief Participants
Manage Expectations
Equip Project
Acquire Facilities
Install Equipment
Check Equipment and Facilities
Train Project Team
Identify Needed Skills
Identify Training
Schedule Training
Obtain Training
Control Project

Assign Project Tasks
Resolve Resource Conflicts
Coordinate Shared Objects
Monitor Open Issues
Obtain Resources
Assign Resources to Activities
Motivate Project Participants
Promote Individual Development
Create Incentives for Teamwork
Monitor Performance
Acknowledge Performance
Track Project Progress
Assess Project State
Diagnose Situation
Determine Corrective Actions
Report Project Progress to Sponsor
Revise Project Plan Definition
Evaluate Alternatives
Assess Project Risks
Prepare Plan Revisions
Obtain Approval for Revisions
End Project
Prepare Completion Report
Turn Over Results
Release Project Resources
2. INSTALLATION AND TESTING OF BASELINE HARDWARE AND SOFTWARE
Certification of Installed HW & SW (Development, Test, & Prod.)
Installation of Hardware and Systems Software: Primary (#1) Server
Installation of Backup (#2) Server: Test and Production Environments Only
Load and Configure Infrastructure Setup Tables
Conduct and Report Operational Test of Installed Hardware and Software
System Documentation
Deliver Copy of Baseline Source Code
Deliver User, Systems, and Operations Documentation
Document and Deliver Standard Operating Procedures
3. PRE-PRODUCTION SYSTEM MANAGEMENT PLANNING
Develop System Security Plan
Develop Configuration Management Plan and Procedures
Review or Establish Backup and Recovery Process and Procedures
4. GAP ANALYSIS
Functional Requirements Analysis

	Review Requirements Documentation
	Develop Event Dependency (Workflow) Model for HR/Payroll
	Develop Event-to-Procedure (Software) Mapping
	Develop Event-to-Business Rule (Data) Mapping
	Conduct Confirmation Workshops (System Walkthroughs)
	Finalize Process Analysis and Process Mapping Report
	Develop Business Process Change Plan and Work Flow Design Document
	Develop Recommendations for Solution Alternatives to Address Functional Gaps
Technical Requirements Analysis	
	Survey User Offices
	Document Systems Architecture (Package, Systems, Interfaces, and Data Stores)
	Perform Infrastructure Gap Analysis
	Develop Recommendations for Solution Alternatives to Address Infrastructure Gaps
Develop System Specifications and Estimates for Alternatives	
	Review and Specify Application Package Changes
	Review and Specify Changes to Current Systems (Exter.Interfaces,etc)
	Review and Specify Technology Changes
Develop Overall Strategy Plan for Implementation	
	Finalize Recommendations to Address Gaps [Gap Analysis Report]
	Review and Validate Gap Analysis Report with SMEs
	Develop Recommended Release Strategy
	Document Overall Strategy Plan for Gap Analysis Implementation
5. PACKAGE CUSTOMIZATION	
Customize and Unit Test Software	
	Determine Package Standards
	Define Security and Authorization
	Develop Detailed Systems Specifications [Including Approved Gap Solutions]
	Configure, Customize, and Unit Test
	Update System Design and Specifications
Conduct Prototyping Sessions (Conference Room Pilots)	
	Human Resources Module
	Payroll Module
	Benefits Module
	Personnel Module
6. DATA CONVERSION	
Develop Data Conversion Plan	
	Define Agreed Scope of Conversion
	Inventory (Locate and Define) Potential Sources of Data
	Map Target Data Model to Data Sources
	Develop Conversion Strategy and Approach

Document and Finalize Conversion Plan
Specify Conversion Routines
Identify Reusable Conversion Routines
Develop Remaining Conversion Routine Specifications
Gather and/or Load Necessary Data
Gather (Obtain and/or Correct) Source Data
Populate Remaining Infrastructure Tables
Design, Construct, and Test Conversion Routines
Design Remaining Conversion Routines
Construct and Unit Test Remaining Conversion Routines
Integration Test Conversion Routines
Reconcile and Fix Data
Perform Automated Conversions
Execute Conversion Routines
Review and Validate Data with SMEs
Reconcile and Fix Data
7. EXTERNAL INTERFACES
Identify Interface Elements
Data Required From Package
Data Required By Package
Develop Interface Requirements
Determine Functional and Technical Requirements for Each Interface
Map Exchange of Data Between Systems
Develop Interface Specifications
Determine Implementation Approach for Each Interface
Develop Design Specifications for Each Interface
Construct and Test External Interfaces
Construct and Unit Test Each Interface
Develop External Interface Integration Test Plan
Document External Interface Integration Test Cases
Execute External Interface Integration Test Cases
Fix and Regression Test External Interfaces
8. TRAINING
Develop Pre-Implementation Training Plan and Materials
Schedule and Conduct Pre-Implementation Training
Functional 'How To' Guides
Develop Functional (User) Procedures
Development of Functional 'How To' Guides
Develop a Training Development Workplan

9. TESTING
Develop Overall Test Strategy, Approach, and Plan
Define User Acceptance Criteria
Define Testing Phases
Develop Overall Testing Strategy and Approach
Define Testing Roles and Responsibilities
Develop Detailed Schedule for all Testing Phases
IV&V Integration and System Testing Phase
Develop IV&V Integration and System Test Plan
Prepare IV&V Test Environment and Test Data [and Submit Report]
Document and Execute IV&V Integration Test Cases
Document and Execute IV&V System (Volume, Stress, Performance) Tests
Problem Reporting and Tracking
Fix , Tune, and Regression Test
Report and Obtain Approval on IV&V Integration and System Test Results
Parallel Processing Testing Phase
Develop Parallel Processing Test Plan
Prepare Test Environment and Test Data (and Submit Report)
Prepare and Execute Parallel Testing
Problem Reporting and Tracking
Fix, Tune, and Regression Test
Report and Obtain Approval on Parallel Processing Test Results
10. TRANSITION TO PRODUCTION
Develop Plan for Transition to Production
Develop Strategy and Approach for Transition to Production
Develop Implementation Checklists for Each Department
Develop Systems Readiness Checklist
Develop Detailed Schedule, Roles, and Responsibilities for Transition
Perform Pre-Production Activities
Complete Tasks on Implementation Checklists for Each Department
Update and Deliver Final System Specifications
Establish and Test Emergency Backup Process and Procedures
Perform Systems Readiness Check
11. POST IMPLEMENTATION SUPPORT
Post Implementation Planning
Develop Technical Support Plan
Develop Hotline Support Procedures
Develop and Test Disaster Recovery Plan and Procedures
Develop Plan, Schedule, and Checklist to Cutover Support to Maintenance Staff

Post Implementation Audit and Report

Attachment G-2 – Project Schedule

Attach a copy of the detailed project schedule, generated from Microsoft Project, or an equivalent scheduling tool.

Attachment G-3 – Work and Cost Estimate for Tasks and Resources

Attach a copy of the detailed work estimate, by task, by resource. These could be in the form of standard or customized reports generated from the Microsoft Project scheduling tool, an estimating spreadsheet, or both.

Attachment G-4 – Cost Benefit Analysis

Further define and analyze the benefits and costs associated with the project, as summarized in the Executive Summary, using your organization's template for Business Cases, Cost Benefit Analysis, and/or Alternatives Analysis, as applicable.

Appendix H Updating the Project Schedule

Introduction

Step 3 in managing your project to a successful completion is tracking and analyzing the progress of the project by making routine updates to the master schedule in accordance with actual performance. You will need to have completed some work on your project and have some resource "actuals" to input before continuing with this process. As the Project Manager, you will have to decide on the frequency in which you update your schedule. Ideally, you would like to keep your schedule current on a day-to-day basis. However, that is not always practical or realistic. At a minimum, updates will be performed for each organization-standard reporting period (usually monthly).

Once the actual data is entered for each reporting period, an analysis of project progress will be performed to see if the schedule is still on track or if revisions to the plan are necessary. This part of the project management process, tracking and analyzing, is performed throughout the life of the project. The tracking process includes: a comparison of where you are (current actuals) in relation to where you should be (the baselined plan); re-planning to minimize the effect of variances; and communication of the project progress to the project stakeholders and team members. The tracking capabilities of Microsoft Project and the dashboard provide the tools needed to analyze and communicate project progress.

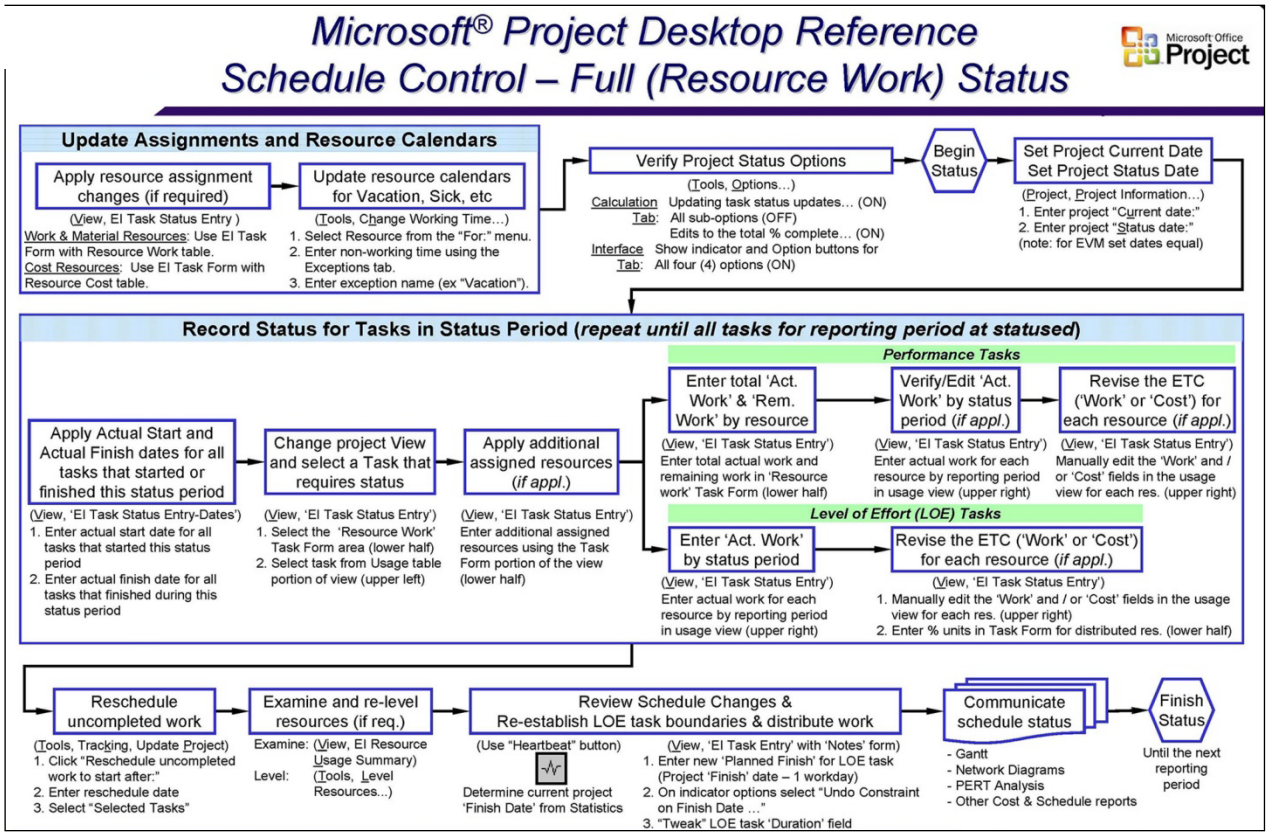
When planning the schedule, you were primarily concerned with the duration of each task (Duration column) and the amount of work necessary to complete each task (Work column). When you move into the performance stage of the project, you are primarily concerned with the actual amount of time someone was performing on each task (% Complete and Actual Duration columns) and the actual amount of work accomplished (% Work and Actual Work columns).

PLANNING STAGE	***TRACKING STAGE***	
Work	% Work (as a percentage of planned)	Actual Work (in hours/days)
Duration	% Complete (as a percentage of planned)	Actual Duration (in hours/days)

Routine Project Updating

Begin by launching the Microsoft Project schedule that you wish to update and then follow the steps in the Desktop Reference below. The basic updating steps in Microsoft Project consist of:

1. Updating resource assignment and resource calendars
2. Verifying the settings for the project status options
3. Updating the current date to today
4. Updating project status date to the date through which there is status data
5. Recording status for each task
6. Rescheduling uncompleted work
7. Re-leveling resources, if necessary
8. Adjusting the level-of-effort tasks



Analyze Project Progress

Once the actual data for the reporting period is entered, an analysis must be made to determine if the project is on track (on time and within budget). The purpose of the analysis is to spot trouble areas (unfavorable variances from the baseline), and take steps to revise the work plan. Analyzing the progress of the project can be accomplished in various ways:

- Project Summary Data
- Project Statistics
- Resource Usage Views
- Task Usage Views
- Exporting Data from Microsoft Project to Microsoft Excel to Chart Earned Value
- Microsoft Project-generated Management Reports
    - Costing and Earned Value
    - To-Do Lists
    - Overdue Tasks
    - Critical Tasks,
    - Etc.

Appendix I Sample Issues Tracking Log Template

ISSUES TRACKING LOG

Funding Number:

Project Name:

Project Manager:

Issue #	Description of the Issue	Impact	Recommended Corrective Action	Action Owner	Planned Completion Date	Actions Taken	Resolution Status	Resolution Date	Associated Risk ID/ Action Item ID

Appendix J Sample Change Request Log Form

<SYSTEM NAME (ACRONYM)>
CHANGE REQUEST (CR)

CR Title: _____ **CR Number:** _____

Requestor's Name: _____ **Requestor's Organization:** _____

Requestor's Phone: _____ **Requestor's E-mail:** _____

Date Submitted: _____ **Target Resolution Date/Event:** _____

Change Type [e.g., New/Add Requirement, Modify Requirement, Delete Requirement, Documentation, Design, Hardware, Software, Firmware, Other (Specify)]: _____

Change Reason [e.g., Legal/Legislation, Policy, Business-Better Understanding, Business-Improve Operations, Performance Tuning, Defect, Other (Specify)]: _____

Priority [e.g., High (Emergency/Critical to mission), Medium (Urgent/Needed but not critical to mission), Low (Routine)]: _____

Version/Release, Requirement, and/or Problem Report Reference(s): _____

Description [include supporting documentation as appropriate]**:**

_____
_____
_____

IMPACT ANALYSIS:

Business/User Impact: **Provided by:** _____

_____
_____
_____

Software/Module(s) Impact: **Provided by:** _____

_____
_____
_____

External System(s)/Interface(s) Impact: **Provided by:** _____

_____
_____

Operations/Site(s) Impact: **Provided by:** _____

Hardware Impact: **Provided by:** _____

Data Impact: **Provided by:** _____

Documentation Impact [include document name, configuration item control number, issuance date, section number, page number, etc., as applicable]: **Provided by:** _____

Training Impact: **Provided by:** _____

Security Impact: **Provided by:** _____

Schedule Impact [e.g., High (More than xx weeks), Medium (xx to xx weeks), Low (Less than xx weeks), None (No Impact)]: **Provided by:** _____

Cost Impact [e.g., High (More than $xx), Medium (Between $xx and $xx), Low (Less than $xx), None (No Impact)]: **Provided by:** _____

Budget Impact: **Provided by:** _____

Level of Effort [include impact on applicable SDLC phases]**:** **Provided by:** _____

Basis of Estimate (i.e., rationale for impact assessment): **Provided by:** _____

Alternate Changes: **Provided by:** _____

Related Changes: **Provided by:** _____

Technical Recommendation: **Provided by:** _____

Miscellaneous Notes/Comments: **Provided by:** _____

FINAL DISPOSITION:

Decision [e.g., Approve, Disapprove, Defer, Request Additional Information, Escalated to <organization/committee name>]: _____

Decision Date: _____

Implementation Priority [e.g., High (Emergency/Critical to Mission), Medium (Urgent/Needed but not critical to mission), Low (Routine)]:

Planned Release [e.g., Schedule, Future/Current Release, and/or Implementation/Deployment Date for the CR]:

Miscellaneous Notes/Comments:

_____

_____

_____

_____

_____

Submitting Organization's Approving Authority:

_____

Signature Printed Name Date Phone Number

_____

Position Title

DOJ's Approving Authority:

_____

Signature Printed Name Date Phone Number

_____

Position Title