

# Ann Arbor IT Project Life Cycle Methodology

**Developed for internal use by the City of Ann Arbor's Information Technology Services Unit to document the processes used to define, manage and control the execution of IT projects.**

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**1<sup>st</sup> DRAFT** July 2005

### Introduction

#### Purpose

A Gartner study discovered that 30% of IT projects never completed, and that 51% exceeded their budget by an average of 189% while delivering only 74% of the intended functionality. The Project Life Cycle Methodology was developed to provide consistent and repeatable project processes to help guarantee project success as measured by project completion on-time and on-budget according to a pre-defined project plan.

While recognizing that formal methodology is not always possible or practical in emergency situations, it should be stressed that conforming to “best practices” whenever possible provides heightened communication, increased control, defined expectations, improved tracking and a greater likelihood of project success.

#### What is an IT Project?

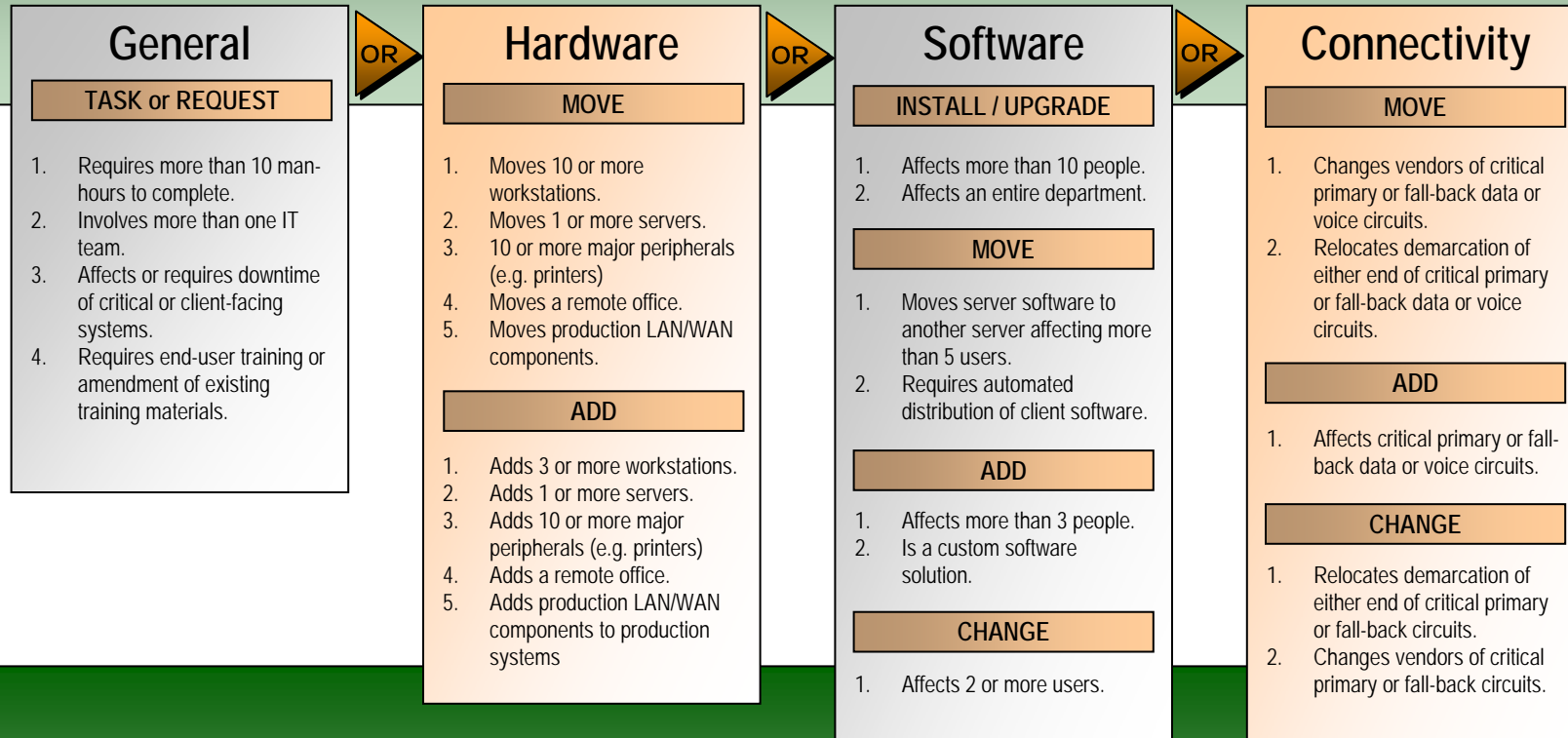
For the purposes of this methodology, an IT Project is defined as a technical proposal, request, assignment, task or group of tasks that requires a level of effort beyond a minimum threshold thereby requiring additional tracking, documentation, communication, prioritization and/or management. IT staff must conform to the Project Life Cycle Methodology whenever any of the following thresholds is exceeded:

- A general task or request requires more than 10 man-hours to complete, involves more than one IT team, affects or requires downtime of critical or client-facing systems, or requires end-user training or amendment of existing training materials.
- A hardware move that affects 10 or more workstations, 1 or more servers, 10 or more major peripherals (e.g. printers), a remote office or production LAN/WAN component.
- A hardware add of 3 or more workstations, 1 or more servers, 10 or more major peripherals, a remote office or production LAN/WAN component to production systems.
- A software install or upgrade that affects more than 10 users or an entire department.
- A software move of server software to another server affecting more than 5 users or requires automated distribution of client software.
- A software add affecting more than 3 users or that is a custom software solution.
- A software change affecting more than 2 users.
- A connectivity move that changes vendors of critical primary or fall-back data or voice circuits or relocates demarcation of either end of critical primary or fall-back data or voice circuits.
- A connectivity add that affects critical primary or fall-back data or voice circuits.
- A connectivity change that relocates demarcation of either end of critical primary or fall-back circuits or changes vendors of critical primary or fall-back circuits.

Conforming to this methodology is optional for anything falling below the minimum threshold defined above.

# Minimum Project Requirements

Follow Project Life Cycle Methodology if a ...



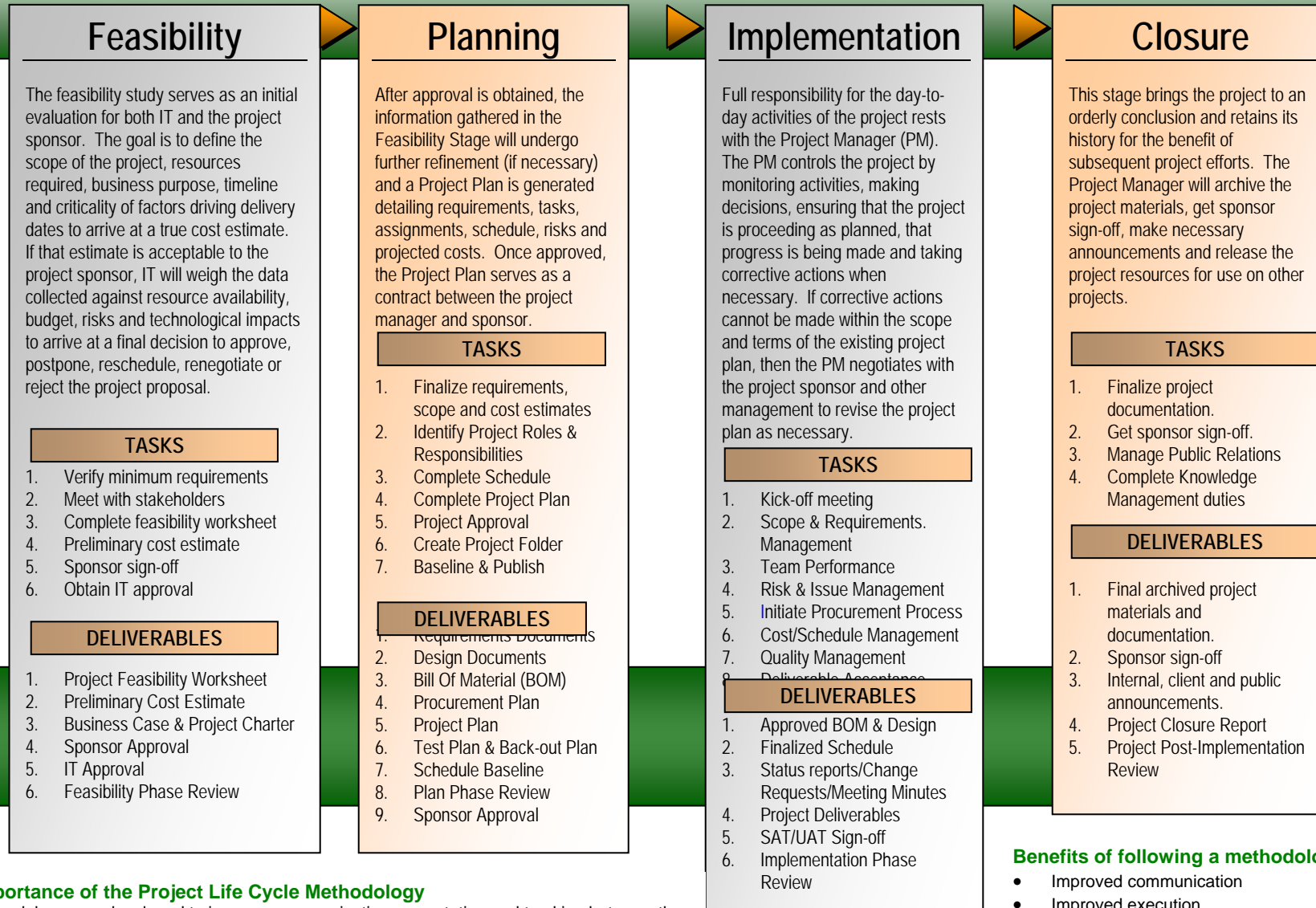
## Understanding Minimum Project Requirements

These minimum requirements were developed to define the thresholds beyond which a task or group of tasks is considered to be a project and should follow the formal Project Life Cycle Methodology. Requests failing to satisfy the minimum criteria should be treated as tasks.

## Benefits of following a methodology:

- Improved communication
- Improved execution
- Improved tracking
- Repeatable results
- Successful completion

# Project Life Cycle Methodology



## The Importance of the Project Life Cycle Methodology

This methodology was developed to improve communication, expectation and tracking between the IT department and project requestors thereby improving service and increasing the probability of successful project completion -- on time and on budget. By archiving project documents, future efforts can benefit from prior experiences and lessons learned to encourage continual process

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Following this methodology ensures that requirements and deliverables are clearly defined, that appropriate resources are assigned to delivering those requirements and deliverables, that impacts to all IT teams and technologies are evaluated, and that the relationship between the project team and the project sponsor is clearly defined.

An IT Project is divided into 4 stages: Feasibility, Planning, Implementation and Closure.

## 1. Feasibility Stage

Note: If the project is already approved, skip this stage and proceed directly to the Planning Stage.

The Feasibility Stage serves as an initial evaluation mechanism for both the IT project manager and the project sponsor. The goal of the Feasibility Stage is to define the scope of the project, resources required, business purpose, and criticality of factors driving the proposed delivery dates to arrive at a true cost estimate. If that cost estimate is acceptable to the project sponsor, the IT division managers will evaluate the data collected against current resource availability, budget, risks, and technological impacts to provide a final decision to approve, postpone, reschedule, renegotiate, or reject the project proposal.

The following checklist can be used as a guide to completing the feasibility study:

- Verify that the proposal qualifies as a Project**  
Consult the Minimum Project Requirements Guideline to verify whether the proposal requires Project Management control. If it fails to meet minimum requirements as a project, this process is optional.
- Verify that the project is not already approved**  
If the project is already approved and need not undergo a feasibility assessment, you go directly to preparing the Project Plan in the Planning Stage.
- Meet with project sponsors and stakeholders**  
A project sponsor must be identified for any project under consideration. The project sponsor must have decision-making power over the project. Valid project sponsors for projects originating from the IT division include the CIO, a department director, a group manager, or a team lead. For projects originating outside IT, a sponsor can be a lead attorney, department manager, or group supervisor. The meeting should be attended by at least one technical representative from the IT division. The purpose is to gather the information needed to complete the IT Project Feasibility Worksheet.
- Complete the IT Project Feasibility Worksheet**  
The following explains the fields on the form:
  - ✓ **Project Name** - short, unique name by which the project is to be referred
  - ✓ **Date Proposed** - date project proposal was first made

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- ✓ **Current Project Phase** - select from: Requirements - project is in requirements gathering stage; Assessment - project is in process of being assessed for approval; On Hold - project is on hold, this includes projects already begun that were stopped for any reason; and In Progress - project is already in progress
- ✓ **Desired Start and Required By Dates** - these are justified/explained in subsequent worksheet fields
- ✓ **Criticality** - High, Medium or Low
- ✓ **Project approval status** - to be completed by IT management only. Select from Approved - project has been approved by IT; Denied - project has been denied by IT; and Postponed until - project has been postponed for consideration (neither approved or denied) until the date listed (if any).
- ✓ **Worksheet prepared by:** - the person completing the worksheet, either directly, or on behalf of another party include contact information (phone/email) in case further clarification is needed.
- ✓ **Requestor** - the person making/representing the request, may or may not be the same as the project sponsor or 'form prepared by' party.
- ✓ **Budgeted/Not Budgeted** and amount (if available)
- ✓ **Requesting department(s)** - department making the project proposal, or departments sharing responsibility for the request
- ✓ **Description** - short description of the project background and purpose.
- ✓ **Business justification** - describe the value of this project and why it should be undertaken in business terms, such as cost savings, increased efficiencies or process improvements. This is where the project proposal is sold to those holding the purse strings.
- ✓ **In Scope/Out of Scope** - list the objectives and requirements of the project proposal being as complete as possible. Good initial scope definition is critical to successful project completion on time and on budget. It is equally important to define what the project does NOT touch (out of scope) to avoid ambiguity when enhancements are suggested after the project is underway. See Appendix A: Guideline for Requirements Gathering.
- ✓ **Deliverables** - these are the very reason for the project. Typically there are several deliverables besides the final system implementation such as the Business Case, Project Charter, Project Plan, the Requirements Document, End-user Documentation, Proof-of-Concept, etc. List as many as are currently known.
- ✓ **Assumptions** - all project proposals are based on a set of assumptions. It is best to acknowledge all assumptions in advance to clarify the cost estimate, and in case any assumption proves to be false. For example, it might be assumed that a routine software upgrade will operate on current server hardware. If it is later discovered that a hardware upgrade (added cost) is also necessary, having stated that assumption up front helps prevent misunderstandings.
- ✓ **Scheduling Considerations** - projects timelines are typically driven by some external date, be it a start date, due date, or deliverable date. Perhaps resources are only available on a certain dates, implementations must happen before the end of an accounting period, product lead times are long, or there are overriding political pressures. These are communicated here to the people planning and prioritizing the project.

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- ✓ **Preliminary cost estimate** - complete the form fields for hardware, software, circuits, materials and labor required for the project. Calculations are automatically performed. Quotes and lengthy itemizations can be attached separately. This is only a preliminary cost estimate used to evaluate whether the project has sufficient merit vs. the capital outlay. A more detailed cost estimate is part of the Project Plan.
- **Feasibility Phase Review** - Schedule a review meeting with Project Sponsor, Stakeholder and IT Manager for the purpose of reviewing project progress, any issues, issue resolutions, and to gain approval to move to the next phase of the project.
- **Get Project Sponsor signoff on IT Project Feasibility Worksheet** - The Project Sponsor should review and verify that the IT Project Feasibility Worksheet accurately reflects the intended scope, includes all requirements and that the preliminary cost estimate is within budget.
- **Obtain IT management approval** - After approval by the Project Sponsor, the IT Project Feasibility Worksheet is submitted to the Department Manager in charge of the project proposal area. The Department Manager then accepts, rejects or renegotiates the scope, schedule or requirements of the project proposal. It is the responsibility of the Department Manager to contact the Project Sponsor with the final decision.

### 2. Planning Stage

The Project Planning Stage begins immediately following approval of a project. A project's success is largely determined by the quality of the Project Plan. Once approved by the project sponsor, the revised project plan, including the detailed budget and schedule, serves as a contract between the project manager and the project sponsor. This contract defines the scope of the project and what is required, the anticipated benefits, deliverables and the resources required. The purpose of the contract is to commit the project manager, the project team, and the project sponsor to the terms of the project plan. This includes understanding the potential risks and the actions that are necessary to manage them.

- ❑ **Finalize requirements and scope** - In smaller projects this may only require an attempt to clarify some of the assumptions identified in the Feasibility Stage. In larger projects it could require formal requirements documents and specifications. Some of the possible deliverables of this stage include:
  - **Requirements Document** - A document that categorizes and lists all requirements of the new system or application. One simple format is an outline-numbered list of requirements enabling individual line-items to be referred to by number in review sessions and progress reports. To assist in this process, refer to Appendix A: Guideline for Requirements Gathering.
  - **Initial proof of concept (POC) or Conceptual Design** - Proof of concept may be required to verify the compatibility of hardware, software and other technologies before a full-fledged development effort is launched. Larger Web and database development projects may require a Conceptual Design or Prototype to fully develop the project requirements list. This process is a continuation of the scope assessment performed in the feasibility stage above.
  - **Functional Specification** - Used primarily for software development. Functions are defined as application capabilities that satisfy a set of business requirements and are made up of one or more processes (See Process Specification below). These are commonly the product of JAD (Joint Application Design) sessions. JAD sessions typically include the project team, actual users and the project sponsors. The JAD purpose is to negotiate the design of the delivered application against the available resources, time constraints and technical feasibility to arrive at an acceptable Functional Specification.
  - **Process Specification** - Each process performs a portion of a function (See Functional Specification above). The Process Specification defines the specific business rules each module must satisfy.
  - **Program Specification** - The Program Specification defines the program design that meets the process specification.
  - **Test Plan/Back-out Plan** - The Test Plan documents the plan for ensuring the program meets the requirements. It should contain all planned test cases (including the back-out plan) that will be executed as part of the business systems testing effort. This includes unit, integration, system and acceptance test cases.
  - **Vendor evaluation and selection** - Sometimes proof-of-concept must proceed from consultation with vendors directly. In other cases, POC may best be demonstrated using vendor references, labs and/or resources.
  - **Architecture Diagram** (system design and requirements) - This is typically a Visio® diagram of the combined software and hardware design. Ideally it should address connectivity types/speeds and bandwidth requirements. The final Bill of Material (BOM) is the output of this activity, and once approved is used to initiate the Procurement Process for hardware, software and other material required to complete the work of the project.
- ❑ **Complete Detailed Work Plan/Schedule**

MS Project is used to create the Work Plan/Schedule. The Work Plan/Schedule is attached to the Project Plan to provide detail of the labor estimate as well as the project schedule. The Work Plan/Schedule is often updated in larger projects to reflect changes in the project schedule and resources.

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- ❑ **Review knowledge base for similar project effort/template** - the project tracking/collaboration system should be checked for a project template or previously completed project of the same category in the IT Project Knowledge Base.
- ❑ **Task definition** - In-scope requirements should be decomposed into the individual tasks that are required to complete the project. It is best to simply list all the tasks without including any other information at this time. Indenting line items creates a hierarchy of tasks and creates a summary timeline for that heading.
- ❑ **Task sequencing** - Tasks are linked to identify predecessors (tasks which must happen first) and successors. Tasks can be linked in four possible ways:
  - ✓ Finish to Start (default) - the task can only begin after the linked task is completed. This is the link used most commonly.
  - ✓ Start to Start - both linked tasks begin at the same time
  - ✓ Finish to Finish - both linked tasks end at the same time
  - ✓ Start to Finish - the linked task can only begin after this task is completed.
- ❑ **Task duration** - Each task is assigned a duration -- the number of hours or days of actual work required to complete the task. If the task requires lead time (such as when ordering equipment), create a separate task called Lead-time as a successor to the ordering task.
- ❑ **Resource list** - Create a list of the resources needed to complete the project. These should be the same as listed on the Project Plan. This is called a "Resource Sheet" in MS Project and can include hourly rates and specific calendar considerations for vacation time, weekend work, etc.
- ❑ **Task assignments** - Resources are assigned to each task together with the number of units. The units value is typically a percentage of the resource's total amount of time available to completion of the task. The duration compresses as additional resources are added to the task and is calculated automatically.
- ❑ **Schedule adjustments** - After resources are assigned, a picture emerges of the total time required to complete the project. When this does not conform to the project requirements, adjustments need to be made to bring the Project Plan into relationship with the externally defined dates. A few ways of doing this are adding resources, renegotiating dates, adjusting estimates and redefining scope.
- ❑ **Complete the Project Plan**

The Project Plan is a template similar to the Project Feasibility Worksheet, but focuses more on deliverables, responsibilities and cost detail. It can be found in Appendix B of this document. Much of the information from the feasibility study can be reused and expanded upon in the Project Plan document. Instructions for completing each field are as follows:

- ✓ **Project Name** - The project name. The project name should be unique, descriptive and should be used consistently in all documentation referring to the project.
- ✓ **Project Manager & Phone/email** - The name and contact information for the Project Manager assigned to this project.
- ✓ **Project Sponsor, phone/email, title & department** - The name and contact information for the Project Sponsor.
- ✓ **Project Objectives** - Provide a brief description of the problem to be solved, the opportunity to be grasped, and/or the general requirement to be met.
- ✓ **Project Requirements** - Space is provided here for a listing of Project Requirements for smaller projects. For larger projects, a Requirements Document should be attached.

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- ✓ **In Scope/Out of Scope** - list the objectives and requirements of the project being as complete as possible. Good initial scope definition is critical to successful project completion on time and on budget. It is equally important to define what the project does NOT touch (out of scope) to avoid ambiguity when enhancements are suggested after the project is underway. Use Appendix A: Guideline for Requirements Gathering to assist in defining scope.
- ✓ **ITS Responsibilities** - List the general activities and tasks that the IT department needs to perform in order to complete the project deliverables listed below.
- ✓ **Project Sponsor Responsibilities** - List the general activities and assistance that needs to be provided by the Project Sponsor team in order to complete this project.
- ✓ **Project Assumptions** - all projects are based on a set of assumptions. It is best to identify all assumptions in advance to clarify the cost estimate, and in case any assumption proves to be false.
- ✓ **Project Team** - Names, contact information and roles for all people on the project team. This can include vendors and project sponsor team members.
- ✓ **Acceptance Criteria** - By what criteria is the project considered complete? Defining acceptance criteria can help avert disagreements when the final deliverables are presented for sign-off.
- ✓ **Scheduling Considerations** - Does the project have to be done by a certain date? Are resources only available for a limited time? Describe any critical time constraints and/or any factors driving the dates including start, completion and deliverables dates.
- ✓ **Milestones and Deliverables** - List the major milestones and deliverables for the project.
- ✓ **Project Cost Estimate** - List the project costs (hardware, software, circuits, materials, labor, etc.) including on-time costs and recurring annual costs for service, maintenance, upgrades, and additional support FTE's. The fields automatically calculate the totals.
- ✓ **Project Risks** - It is important that all risks to the successful completion (on-time/on-budget) of the project be identified and quantified. The project risks will change throughout the life of the project as milestones are met and new contingencies appear. Typically the top 6 risks will be tracked and updated by the Project Manager throughout the project.
- ✓ **Project Acceptance** - The Project Manager, IT Manager and Project Sponsor agree to the terms of the Project Plan with their approval by signature.
- ❑ **Get Sponsor Approval** - The Project Sponsor and Project Manager must agree to the Project Plan by signature before work can proceed. The Project Plan serves as a contract between the two parties.
- ❑ **Create Project Folder** - A project folder should be created in DOCS Open to contain all documents generated by the project.
- ❑ **Baseline and Publish the Project** - The Project Plan should be placed in the Project Folder accessible to the project team and project sponsors as read-only. Only the Project Manager should have the ability to edit any of the protected documentation since any modification to the requirements from this point onward must undergo the Project Change Management Process detailed below. Failure to adhere to the change process can put the entire project timeline and budget at risk.
- ❑ **Plan Phase Review** - Schedule a review meeting with Project Sponsor, Stakeholder and IT Manager for the purpose of reviewing project progress, any issues, issue resolutions, and to gain approval to move to the next phase of the project.

### 3. Implementation Stage

Full responsibility for the day to day activities of the project rests with the project manager. The project manager controls the project, monitoring activities, making decisions, ensuring that the project is proceeding as planned and progress is being made, and taking corrective actions when they are necessary. If corrective actions cannot be made within the scope and terms of the existing project plan, then the project manager negotiates with the project sponsor and other management to revise the project plan as necessary.

#### 3.1. Project kick-off meeting

The project kickoff meeting should include all team members and vendor participants, if practical. The meeting is an important step toward acquainting the project team with each other, the project goals, and the project processes. Agenda of the meeting should include:

- **Team organization and reporting** - Team members and roles should be defined. Communicate the expectations in terms of the mechanism, level and frequency of project status reporting .
- **Task assignments** - Project tasks from the project plan need to be assigned and communicated to individual team members.
- **Project communications and documentation** - Such subjects as calling meetings, team communications, document repositories, electronic discussion forums, shared folders, etc. should communicated to the team.
- **Standard terminology/definitions** - To avoid confusion, the project should have a single common name as should any major components. For example constituent software products should not be referred to interchangeably by the product name and the manufacturer name. With software and database development projects standard, formal naming conventions should be established. For large projects, it is helpful to maintain a project glossary of terms to speed acclimation by new project members, especially when the project is long and turnover is likely.
- **Meeting schedule** - All regular team meetings should be defined and the agenda submission procedure explained (if any).
- **Escalation procedures** - Standard paths and methods for escalating problems and issues should be explained.
- **Progress/time reporting** - The vehicle and expectation for time and progress reporting for billing and tracking purposes needs to be defined.
- **Change management review** - The importance of adhering to the project requirements document needs to be emphasized to all team members. Any and all requests for modifications to the agreed-upon scope need to undergo Project Change Management review. Also, any Production Change Management requirements of the organization need to be communicated to the team.

#### 3.2. Manage Scope and Requirements - Change Requests

The primary tools for managing project scope are a well defined Project Plan and a good Change Control Process. The Project Plan contains the detailed scope and requirements of the project. Any proposed change to either needs to be handled formally to maintain control over the project schedule and budget. A Change Request is a formal request to add, delete, or modify the agreed-upon terms of the Project Plan. The template can be found in Appendix B. The Change Request form should be completed whenever the following would be affected by a proposed change:

- Project Scope
- Project Deliverables [Design, BOM, Charter, etc.

- Project Timeline
- Project Budget

The Project Manager regularly reviews Change Requests to assign ownership, review decision dates, and monitor progress. It is the duty of IT management to review and recommend approval or rejection of change requests and to present budgetary and schedule impacts to management or project stakeholders.

### 3.3. Manage Team Performance

Managing team performance is managing the marriage of resources to tasks with the goal of meeting the project schedule and budget with maximum quality.

- **Assign Responsibilities** - The project manager assigns tasks to the team members including both the tasks from the Project Work Plan and the action items that arise as a result of team meetings and normal progression of project activities.
- **Meet with Team** - The project manager should organize and lead team meetings a minimum of once weekly to report progress on tasks, milestones and action items as well as to air new issues and risks. Critical or short timeline projects might meet more frequently in order to increase feedback and maintain a quicker response to new issues. The agenda should include progress updates on action items from the last meeting, milestones achieved, new/current issues, new/current risks and assignment of action items for the next period.
- **Communicate Project Information** - Information originating from within the team needs to reach those external to the team, and vice versa. The project manager is the vehicle for this communication.
  - Meeting minutes should be recorded, distributed and stored in the team repository for future reference -- as soon after the meeting as possible. It is important to document the decisions made as a group, especially when the project sponsor and/or vendors are part of the decision-making process to prevent future disagreements regarding what was decided. It is remarkable how quickly memories can fade and the trouble that can cause for a project.
  - The project manager is responsible for seeing to it that all new documents authored by project members are recorded in the project repository folder.
  - News items affecting the project team, deliverables, schedule or budget should be communicated to the team in the regular weekly meetings and through email distribution groups.
- **Manage Resources & Development** - The project manager is charged with managing the human resources of the project including vacation time, sick time, performance reviews (if applicable), training, coaching when other supervisors and managers are not already providing this oversight.

### 3.4. Manage Issues

Project issues must be identified and resolved in a timely manner for the project to be completed successfully. An issue log should be maintained in the project repository folder. A template can be found in Appendix B. Anyone on the project team can identify and log an issue. The project manager can assign one or more resources to work on an issue. The Project Manager monitors the progress of issues resolution and helps to determine issue resolutions. A Change Request is logged for issues that require a change in the Project Plan for items that affect the project budget, scope and/or schedule.

### 3.5. Manage Risk

All projects involve some risk. It is important to acknowledge and regularly revise a list of factors that could negatively impact the project plan. These are commonly factors outside the control of the project team. By communicating these risks you add credibility to the project commitment. For example, if I said I would be at work by 9:00 tomorrow and didn't show, my credibility would be in question. On the other hand, I could have said I would be at work by 9:00 tomorrow provided I didn't encounter any commute problems, my alarm clock worked properly, and there were no other unforeseen contingencies. In that case, my failure to show still could be within all acknowledged risk parameters thereby maintaining credibility. Project risks are delineated in the Project Plan and should be maintained on the weekly status report. At least 6 potential risks should be identified and tracked for every project.

### 3.6. Manage Cost and Schedule Performance

Costs and schedules established in the Project Work Plan need to be monitored and updated. Techniques to assist with monitoring cost and schedule performance are:

- **Individual Status Reports** - Team status should be collected from each team member in the weekly team meeting, compiled and communicated to IT management as required. The template for project status reporting is found in Appendix B.
- **Weekly Status Reports** - The weekly status report is the primary vehicle for updating management on project progress, risks and issues. A template for the Project Status Report can be found in Appendix B.
- **Work Plan/Schedule Updates** - For longer projects (8 weeks or longer), progress on specific tasks and adjustments to the schedule should be maintained on the Project Work Plan with the current version stored in the project repository.

### 3.7. Manage Quality

Ultimately it is the project manager who is responsible for the quality of the final product. The Project Plan should contain some checkpoints for monitoring quality. The types of checks depend upon the type of projects, but the acceptance of deliverables by the Project Sponsor is one place to gauge success. Ongoing quality of project delivery is achieved by Continuous Process Improvement -- the act of updating the Project Life Cycle Methodology with improved processes and techniques. Project managers should suggest changes to this methodology any time improvements can be achieved. System Acceptance Test (SAT) / User Acceptance Test (UAT) sign-off is a requirement to ensure quality of the system and products of the project.

### 3.8. Manage Deliverable Acceptance

The project isn't done until all deliverables have been delivered and meet with the satisfaction of the Project sponsor. The project manager is in charge of delivery and acceptance responsibilities. This is done by signature using the IT Deliverable Acceptance form (Appendix B) when formal acceptance is necessary.

### 3.9. Implementation Phase Review – Schedule/conduct a review meeting to understand and communicate project progress, issues, change requests and to gain approval to move to the next phase of the project.

### 4. Closure Stage

This stage brings the project to an orderly conclusion and retains IT history for the benefit of subsequent projects. The project manager will archive the project materials, get sign-off, make necessary announcements and release the project resources for use on other projects. Activities of this phase include:

- **Deliverables sign-off** - If not already done, the Project Sponsor may need to accept the final deliverables by signature. The necessity of this step is determined by the Project Manager and IT management.
  - **Finalize documentation** - All documentation for the project should be updated and completed.
  - **Public Relations** - The marketing department should be contacted in the event that any client announcements or press releases should be made. Announcements to the firm's employee base should be performed by IT management only.
  - **Knowledge Management** - The project folder should be retained for the benefit of future project efforts.
- 4.1. Post-Implementation Review** – Complete Project Closure Report and forward to team and Sponsor for review at the closure meeting. Schedule/conduct meeting to review issues, issue resolution, change requests and lessons learned during the life cycle of the project. Close the project and submit Project Survey Document for feedback on Project product, service, and implementation performance.

## Appendix A

### Guideline for Requirements Gathering

A thorough and complete definition of project scope and requirements is fundamental to the success of any project. When gathering requirements for the Project Feasibility Worksheet, Project Plan, or Requirements Document the following questions can assist with the discovery process.

- ❑ **Functionality** - What is the application/enhancement/feature/hardware supposed to do? Does software/enhancement have a look-and-feel requirement or is that open to the developer? What are the desired features and functionality of the proposal? Which features/functions are mandatory and which are optional? Are there any disability or multi-lingual accommodation requirements?
- ❑ **Groups affected** - Which departments or users are to be affected? Can the rollout occur in phases, or must it be simultaneous? Will the project costs be distributed among all affected groups?
- ❑ **Support** - Who performs development, support, installation, system administration and training? What service contract levels are available, what is the response time and what are the hours/days of coverage? Do we have the in-house expertise to support all hardware and software changes? Who pays for it? Will dial-up access be required by support personnel?
- ❑ **Personnel impacts** - Will after-hours, weekend, or holiday overtime be required? Does additional personnel need to be hired or contracted to implement or provide long-term support of this proposal?
- ❑ **Travel expenses** - Will travel, lodging and/or meal costs be incurred? How often and for how many? Where, when and for what duration?
- ❑ **Systems affected** - Does the project interface with other systems or data sets? Does the mechanism for interchange already exist? Do modifications need to be made to other systems? Is access provided, or does it need to be obtained? Who is to provide access needed? Are additional licenses required for any affected systems?
- ❑ **Software requirements** - Does the application require a dedicated server? Are any additional applications or licenses required? Does a client application need to be installed on user workstations? Can that be automated? Is a minimum browser type/version required? What about remote users/devices? Is a development platform (IDE) needed? For how many? What are the development platform requirements? Is the software cost accounted for on another budget? Is there a clustering, administrative, monitoring, configuration and/or IDE requirement?
- ❑ **Hardware requirements** - Is additional hardware needed? Are new or minimal peripherals required (e.g. monitor resolution, mouse type, serial ports, modems, digitizer pad or client storage)? Is it provided? If not, does the target server have sufficient bandwidth and resources to support it? Is all hardware and technology compatible with our current systems? What are the minimum specifications? Is redundancy, clustering or high-availability required?
- ❑ **Backup required** - What is the required backup schedule? Is there sufficient capacity and bandwidth with current systems, or will additional capacity be required? Is off-site storage required and will there be an additional charge for those services? What are the Disaster Recovery requirements? Is the system covered under the current DR plan, or does a revision need to be made?

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- ❑ **Environmental** - What is the impact to the current AC cooling system? Will additional capacity be required? Are there special power requirements? Are there sufficient power outlets? Are there sufficient LAN/hub/switch connections. Is UPS or power generator backup required, or will current systems be sufficient? Is there sufficient rack/shelf/desktop space for the new system? Will a KVM be required?
- ❑ **Facilities Requirements** - Will the project require additional office space, meeting rooms, furniture and utilities for on-site or off-site work? Is adequate facility space available for the anticipated team size including employees, vendors and contractors?
- ❑ **Capacity planning** - Is there sufficient bandwidth to handle added network traffic? What are the connectivity types, speeds and impacts on existing systems, traffic patterns and storage systems.? Are additional circuits required? Does support require dial-up or other access? Is there sufficient storage to handle the data requirements? How fast do data/bandwidth needs increase? Can the proposal under consideration scale sufficiently? Should scaling costs for future usage patterns be considered now?
- ❑ **Availability requirements** - Does the system require high-availability? What is the percentage uptime required including hours/days? Can existing maintenance windows be retained? Can regular maintenance windows be established?
- ❑ **Security impact** - Are firewall or other security issues involved? Who has access to the application/hardware? Who administers security clearance/access rights? Are there various levels of access? Who gets which access level? Is access to server by data center personnel an issue? Is remote dial-in required by support personnel?
- ❑ **Documentation** - What documentation is provided with the new system and what will be required? Documentation that should be considered: administrative, user manual, training coursework and technical reference. When is it needed? Staff attrition/rotation should be taken into account when considering the need for documentation. A new hire should be able to get familiar with the system by consulting the provided documentation alone.
- ❑ **Reporting requirements** - What are the reporting requirements? Will static reports provide for present and future needs, or will custom reporting tools need to be designed in. Can off-the-shelf reporting software be utilized? How will custom reporting impact the training curve? Do present reports need to be mimicked, or is the format open to the developers?
- ❑ **Training required** - Is new in-house training coursework, or updates to existing training coursework required? Is outside training required? What are the needed levels of training, the time and number of sessions needed for each level, who is to receive each level of training, and who is to provide that training -- both initially and in the future? The typical training levels to address are:
  - ❑ Support staff/administrative - What is required to support and administer the new system? Is formal training required, or will documentation be sufficient.
  - ❑ Help Desk - What is required for 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> level support? Who will provide those levels? All error numbers/messages should be documented and an escalation procedure provided for questions beyond the scope of each level of support.
  - ❑ Training staff or Train-the-trainer - Will trainers or training staff need training and will coursework need to be developed.
  - ❑ End users - How many need to be trained and for how long? How many sessions will be necessary to accommodate the number of users and schedule conflicts. What are the geographic factors? Is computer-based training an option?

- ❑ **Quality control** - How is successful project completion to be measured? What level of testing is needed? Who provides it? Will production or client-facing systems be affected? Who approves features/deliverables? Are they readily available? Do specific system maintenance windows exist that need to be accommodated in the schedule? Will there be a pilot program? For how many and for how long?
- ❑ **Change management** - What are the impacts to production systems? Will production or client-facing systems be affected? What is the lead-time for Production Change Review and approval? Will downtime be necessary? What time of day/week? For how long?

## Appendix B

### Project Forms

The following forms follow:

- Project Feasibility Worksheet
- Project Plan
- Project Change Request
- Project Status Report
- Issues Log
- Project Closure Report