

**PROJECT
MANAGEMENT
GUIDELINES**

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Introduction

The purpose of this User's Guide is to provide the reader with the thought processes and methods of documentation necessary to complete a project successfully. For the purposes of this guide, a successful project meets these three criteria:

- Delivers a quality solution (one that performs well and meets the requirements of the client)
- Completes on time
- Meets budgetary objectives

This guide is to be used on all I/S related projects; those initiated by I/S and those initiated by our clients. While the thought process for an application project and an infrastructure project is basically the same, it is virtually impossible to define documentation standards that would be useful for both. Therefore, the Methodology describes the types of INFORMATION that should be gathered during each phase of the project. The formal documentation that would be required is dependent on many factors and usually decided by the Project Manager and his/her management, and the Sponsor.

The Guide tries to provide the reader with sample questions and ideas that would help in managing a project. It is impossible to document questions and ideas that meet every situation. Therefore recognize that what is written here is not all inclusive but should be used as a tool to stimulate the thought process.

Additionally, the Guide stresses the importance for the integration of organizations and clients. Getting the right people involved early in the project improves its chances for success.

This User Guide provides a detailed explanation and describes the tasks within each phase of the Project Methodology. The Project Methodology consists of five phases which are comprised of activities, which are further broken down into tasks. The five phases are:

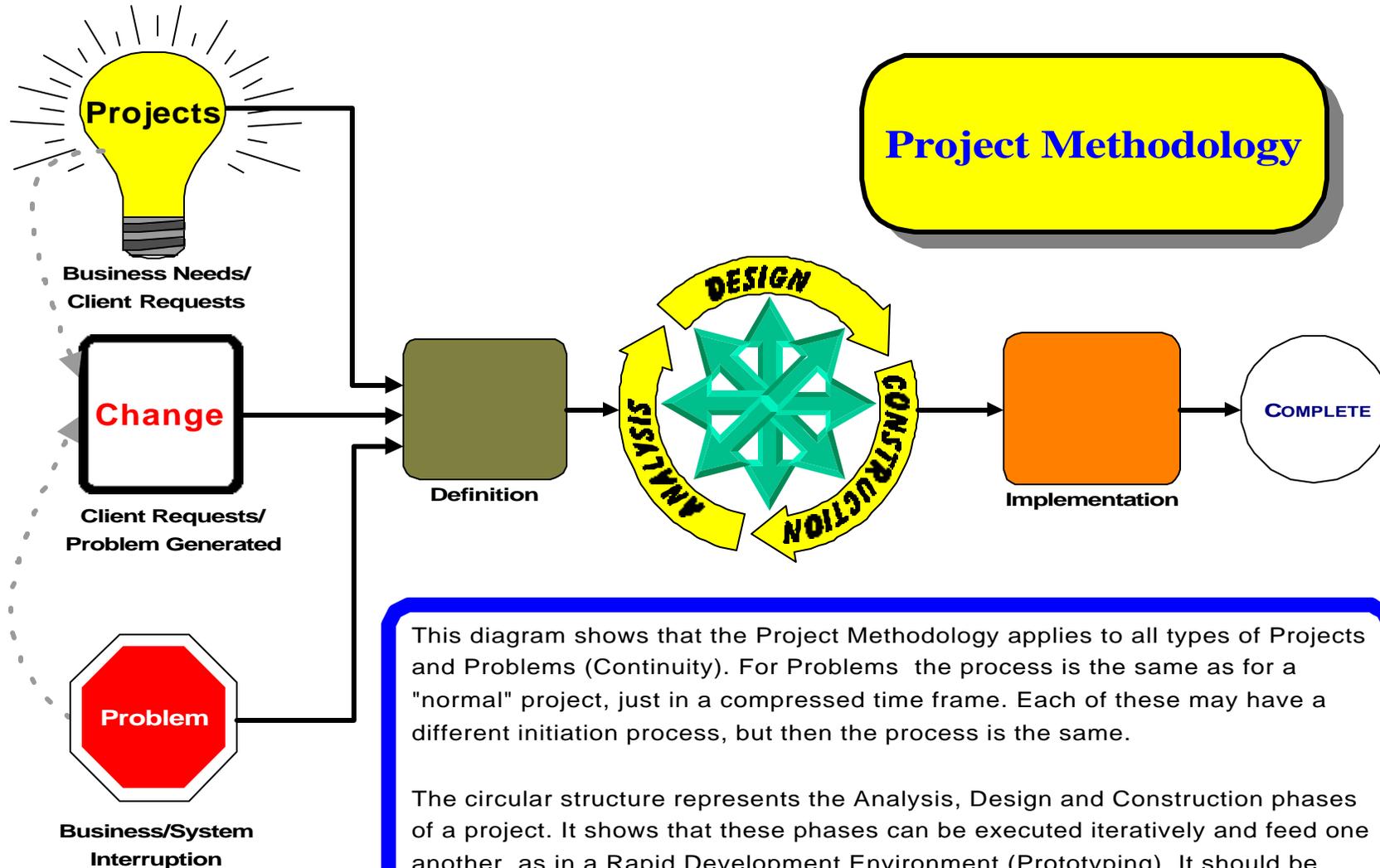
- **Definition Phase.** Identify the who, what, when and why for the project at a high level.
- **Analysis Phase.** Gather detailed client requirements that are then used as the basis for identifying alternative solutions for this project.
- **Design Phase.** Based on the client requirements, develop the system design specifications. Vendor supplied packages are evaluated during this phase
- **Construction Phase.** Using the design specifications, assemble/construct and test the system/solution. Develop system documentation and end-user training.
- **Implementation Phase.** Ready the production system and train end-users in the use of the system.

In addition to the five phases, there are five overarching activities described. These are: Project Organization, Project Plan, Communication, Success Metrics and Measurements, and Change Control. These tasks are revisited in each project phase following the Definition Phase.

The Guide contains two Appendices: a glossary of terms, and example worksheets. The glossary of terms provides definitions for terms used in this Guide, as well as terms used in Project Management. The worksheets have been provided to help initiate the process of using the Methodology. They are, however, just examples and may or may not be used. They may be modified based on the information and communication needs of your project.

The diagram on the next page is a graphic representation of the Project Methodology described in this Guide. Note that while some of the activities and tasks appear linear, this does not imply that they may not overlap or that they cannot be revisited throughout the project. Gathering the necessary information is the key.

Project Methodology (Illustration)



This diagram shows that the Project Methodology applies to all types of Projects and Problems (Continuity). For Problems the process is the same as for a "normal" project, just in a compressed time frame. Each of these may have a different initiation process, but then the process is the same.

The circular structure represents the Analysis, Design and Construction phases of a project. It shows that these phases can be executed iteratively and feed one another, as in a Rapid Development Environment (Prototyping). It should be noted that this does not preclude approaching the phases in a linear fashion.

Any additional tasks necessary for other processes can be merged with the tasks of this Methodology.

The dotted lines indicates that a Project or a Problem can generate a Change.

Overarching Tasks

Purpose

The purpose of this section is to describe repetitive tasks that need to be revisited throughout the Analysis, Design, Construction and Implementation phases of the project. The only exception is Change Control which starts at the beginning of the Design Phase. Below are these overarching tasks:

- Project Organization
- Project Plan
- Communication
- Project Success Factors
- Change Control

Activities/Tasks

The table below outlines tasks to be considered throughout the phases of the project.

Activity	Task	Page
Overarching	Determine Project Organization	5
	Create/Update Project Plan	6
	Communicate	6
	Monitor Project Success Metrics	7
	Implement Change Control Process	7

Activity: Overarching

Task: Determine Project Organization

Getting the right people involved in your project at the right time is a key factor in a successful project. The following items should be considered regarding the project organization:

- Identify the I/S Decision Maker at the outset of the project. This person is responsible for resolving conflicts between the client and I/S, conflicts within I/S regarding project direction, and issues regarding availability of resources.
- Determine people resources needed for the project and enroll them in a timely manner. Required resources may change from phase to phase of the project. Consider resources needed for the following levels of participation within a project:
 - ◇ Actively participates as a team member (client, I/S, consultants)
 - ◇ Provides information to the team (client, I/S, vendors, consultants)

- ◇ Provides services and/or time commitments to the project (client, I/S, consultants, vendors)

Below are examples of functional areas that should be considered for involvement in your project.

Applications Development	Legal
Client Services	Networking
Computer Systems Availability	Records Retention
Contract Administration	Security
Database Administration	Training
Internal Audit	Validation
IT Purchasing	Workstation Management

- If external consultants or contracted resources are required, contact the Contract Administration department early on to allow time for obtaining these resources.

Task: Create/Update Project Plan

Once approval has been given to proceed with the Analysis Phase, the project should be added to the Project Integration Database. Begin putting together your project plan at this time.

A Project Plan is a tool for tracking the progress of a project. The format and detail of the Project Plan is determined by the Project Manager and is usually based on the magnitude and complexity of the project. A Project Plan should be a “living” document which identifies and monitors the following information:

- “What” needs to be done?
- “Who” is going to do “what”?
- “When” will “what” be done?

Those associates who are responsible for performing the actual work should provide input to the Project Plan as to the specific tasks to be performed and the timing of these tasks.

Task: Communicate

Communication is the key ingredient when managing a project. You should identify all affected groups (client and I/S) to whom project status information should be given. Once they have been identified, determine the frequency and format for the status reporting.

Depending on the impact to end-users, you may want to develop a Communication Plan as part of the overall project plan. The Communication Plan would identify key information that needs to be

communicated to I/S as a whole and/or to the end-user community. The Plan would then identify when and in what format the communication would be presented to the identified audience(s).

Task: Monitor Project Success Metrics

As part of the Approval activity in the Design Phase, the Project Manager and Sponsor(s) should review the metrics that will be used in measuring the success of the project. These should then be revisited, at a minimum, as part of the Approval activity for each subsequent Phase. This would allow for a checkpoint by both the Sponsor and Project Manager as to how well they feel the project is doing after each phase. The closer the project gets to implementation, the more often these checkpoints should be held.

A final evaluation of the metrics would occur at the “Document Lessons Learned” task within the Implementation Phase. Below are some examples of questions to consider when determining metrics for the project:

- How well did the project meet the client requirements?
- Were the end results traceable back to the requirements? Validated?
- Was the project on time and within budget?
- How accurate were the initial resource estimates?
- Were there major changes in the scope of the project? How effectively was the Change Control Process managed?
- Were formal approvals to proceed obtained throughout the project?
- Was there good communication between all impacted areas?
- Were ancillary groups (such as client support, training, etc.) enrolled in a timely manner?
- How many support calls were received once the solution was implemented?
- Was there unintended impact to other production systems and/or other in-process projects?
- Is the client satisfied with the new system? If not, why?

Task: Implement Change Control Process

Change control is the process used to handle changes (e.g., scope, solution, etc.) to the project in an orderly and controlled manner. This process defines the procedures for requesting a change, evaluating the impact of the change to the project, and communicating approval or non-approval of the change.

The Change Control Process is usually introduced into the project at the beginning of the Design Phase.

Phase 1: Definition

Purpose

The purpose of the Definition Phase is to identify the who, what, when, and why for the project. The Definition Phase gives I/S the opportunity to evaluate new requests at a preliminary level without major commitments of people or monetary resources.

This phase is very short in duration. It usually consists of a single meeting with the client to define scope and then time to organize information for the approval to proceed. Note that for I/S initiatives (e.g., technology driven projects), the Project Manager may provide the information for the Definition Phase.

Activities/Tasks

The table below outlines the activities and tasks that comprise the Definition Phase.

Activity	Task	Page
Define Project and Scope	Identify Sponsorship & Business Objectives	9
	Identify Benefits of Doing Project	10
	Identify Impact	10
Obtain Approval	Obtain Approval from Client & I/S Management	11

Activity: Define Project and Scope

The purpose of this activity is to determine the following items within the project:

- **Who?** Sponsor, key clients, and impacted clients
- **What?** Brief description of project and reasons for doing the project
- **When?** Desired time frame
- **Why?** Benefits of doing the project

Task: Identify Sponsorship and Business Objectives

Below are examples of questions to consider when determining client relationships:

- Who is the sponsor for this project?
- Who are the key clients and/or contacts? Who will be interviewed when gathering requirements in the Analysis Phase?
- Who will be the decision-maker within the client area should conflicts/problems arise during the project?

Below are examples of questions to consider for determining business objectives:

- What are the technological, industry, corporate strategies, or business opportunities driving this project, if any?
- What is the current situation to be changed?
- Which current business problems or constraints will this project address? **Not** address?
- Is this project impacted by external groups (e.g., government agencies, vendors, suppliers, other pharmaceutical companies, contracted agencies, etc.)?
- What assumptions are being used?
- What is the desired time frame for this project?
- What is the maximum budget the Sponsor will approve for this project?
- How would the Sponsor prioritize this project within the functional area?

Task: Identify Benefits of Doing Project

Below are examples of questions to consider for determining benefits:

- What are the consequences to the business if the project is not performed?
- What are the tangible benefits (those for which a dollar value can be reasonably determined) that will be derived from the project?
Examples: productivity gains (both time savings and headcount), increased revenue, cash flow, strategic business advantage, reduced support costs, etc.
- What are the intangible benefits (those that may be quantified in units other than dollars or those that can only be described subjectively) that will be derived from the project?
Examples: improved customer service, improved continuity/reliability, improved quality of life, support of future growth, reduced complexity, quicker decisions, technological currency, etc.

Task: Identify Impact

Below are examples of questions to be considered for determining the impact to the client community if this project is implemented:

- What is the magnitude of the project — local, regional (which sites), global?
- How might this project impact departmental, divisional, and corporate policy issues?
- How many end-users will be affected, directly and indirectly, by this project?
- Do you anticipate any resistance to this project? Why? From whom?
- What other business processes, data, systems, and projects would be affected by this project?

Activity/Task: Obtain Approval from Client & I/S Management

The Approval activity facilitates a documented decision by the client and I/S management to approve, modify, or terminate the project. A communication regarding the decision should be sent to those involved during the Definition Phase.

The Project Manager and Sponsor should do the following:

- Review the metrics that will be used in measuring the success of the overall project. Refer to the task entitled “Monitor Project Success Metrics” in the Overarching section of this document for more information regarding metrics.
- Agree upon the documentation approach for the project.

Phase 2: Analysis

Purpose

Whereas the Definition Phase was an initial gathering of information at a high level, the Analysis Phase gathers detailed client requirements that are then used as the basis for identifying alternative solutions at a conceptual level. The better job you do in defining requirements up front, the less likelihood of scope changes or re-design, and the better job of meeting client expectations.

Another purpose of the Analysis Phase is to propose alternative solutions. From these alternatives, a recommendation will be made as to the preferred alternative.

Input should be solicited from **all** impacted client areas and **all** impacted I/S groups. When gathering information about the relationships between processes and systems, group meetings with representatives from all affected areas may yield better results than one-on-one interviews.

Activities/Tasks

Note: Review and perform the Overarching tasks as they apply to this phase of the project.

The table below outlines the activities and tasks that comprise the Analysis Phase.

Activity	Task	Page
Gather Client Requirements	Define Current State & Integration Points	14
	Define Future State & Integration Points	14
	Identify Client Requirements (gaps between current and future states)	15
Determine Project Feasibility	Identify Alternatives (including advantages & disadvantages)	15
	Determine Impact of Each Alternative (Business, I/S, Financial & Validation)	15
	Recommend Preferred Alternative(s)	16
	Identify Project Success Factors of Preferred Alternatives(s)	16
Obtain Approval	Obtain Approval from Client & I/S Management	16

Activity: Gather Client Requirements

This activity begins the process of gathering the detailed information regarding:

- Where we are today (current state)

- Where we want to be (future state)
- What is required to get from the current state to the future state (requirements)

Task: Define Current State & Integration Points

The first component necessary for the identification of requirements is an understanding of where we are today — current state. This may include such items as:

- Manual and automated business processes
- Integration with other systems, processes and departments
- Technical infrastructure, platform, capacity, etc.
- Software, hardware, workstation configurations, etc.
- Data and data flow, security

One method of obtaining information is to review all existing manuals, schematics, procedures, Standard Operating Procedures (SOPs), data models, forms, etc. relating to the current system. Identify integration points within the current environment, as well as integration points to external systems.

Another method for gathering information is to talk to clients to gain an understanding of their perceptions regarding the strengths and weaknesses of the current system. You may want to walk through the current business and system processes (both manual and automated) with the client to help identify issues and problems at various points within the environment. As part of this walk-through, you may also discover issues and problems that exist but will not be addressed within this particular project. Useful outputs from the walk-through might be flow charts and/or schematics of the current state.

Task: Define Future State & Integration Points

The second component necessary for the identification of requirements is an understanding of where the client wants to be — future state. This may include descriptions of items not currently available and/or changes to the current state, such as:

- New functionality
- Integration capabilities
- Data sharing within and across business units and with external customers
- New reports and/or data
- System portability and/or remote access
- Capacity, security, network connectivity, system redundancy, etc.
- Automation of manual processes
- Compliance with data and records management requirements (online and archived)

Task: Identify Client Requirements

The requirements are those items that need to be performed to bridge the gap between the current state and the future state. Take into consideration the strengths and weaknesses of the current system to help determine the specific requirements for the new system.

Each requirement should tie back to a documented project objective in the Definition Phase. Any requirement that does not tie back to a project objective needs to be evaluated as to whether or not it is truly within the scope of this project.

Activity: Determine Project Feasibility

The purpose of this activity is to derive a high-level estimate (low, medium, high, major) of resources and expenditures needed for this project. As part of the approval process, management will weigh the estimated impact against the previously defined business objectives and benefits.

Task: Identify Alternatives

Based on the findings in the previous activity, propose conceptual alternatives to address the business requirements. These conceptual alternatives identify the new environment's probable technical environment, operational characteristics, functions and features. Consider the following questions to help determine potential alternatives:

- Can alternative be an enhancement/upgrade to the existing system?
- Can alternative be developed utilizing existing technologies and infrastructure within the corporation?
- What platform(s) (Mainframe, Client/Server, Intranet, Unix, etc.) would work for this project?
- Is the alternative (software & hardware) commercially available and proven to be reliable?
- Will alternative be compatible with existing architectures and standards?
- Are there any companies who have done this before?
- Can alternative be outsourced?

Once proposed alternatives have been identified, evaluate the high level advantages and disadvantages of each alternative. When evaluating alternatives, keep in mind that the Corporate strategy is to **Buy vs. Build** when feasible.

Task: Determine Impact of Each Alternative

For each alternative, assess the overall high-level impact (business, I/S, financial, Validation, etc.). This may include such items as:

- People resources (number, skill sets)
 - ◊ Client & I/S

- ◊ External consultants & contracted resources
- Training of project team, support associates, and end-users
- Anticipated organizational or policy changes
- Infrastructure (platform, stability of technology, workstation configuration, etc.)
- Hardware/software (upgrades, capacity, networking, ability to interface with other existing systems, ongoing support, vendor reputation and performance, etc.)
- Financial and legal (depreciation, maintenance agreements, capital expenses, budget, etc.)
- Validation considerations
- Number of hours/days of effort to implement alternative (high-level estimate)

Task: Recommend Preferred Alternative(s)

Based on the findings above, select the feasible alternative(s) for accomplishing this project. Rank the alternatives and select a preferred alternative.

Task: Identify Project Success Factors of Preferred Alternative(s)

Project success factors are those items that will significantly impact the project completion and/or the acceptance of the final alternative. These factors are specific to the project, can be both internal and external to the organization, and are normally not within the direct control of the Project Team.

This may include such items as:

- Software/hardware availability from vendor
- Management support
- Other projects
- Capacity considerations
- Resource availability

Activity/Task: Obtain Approval from Client & I/S Management

The Approval activity facilitates a documented decision by the client and I/S management to approve, modify, or terminate the project. A communication regarding the decision should be sent to those involved during the Definition Phase.

At this time, determine the level of involvement, if any, the Internal Audit group will have in this project. Also, the Sponsor and Project Manager should perform a checkpoint to determine how well they feel the project is doing based upon the success metrics. This allows for early identification of possible problems within the project.

Phase 3: Design

Purpose

The requirements from the Analysis Phase are used as input into the development of system design specifications. The design specifications become the blueprint for the Construction Phase. Vendor supplied packages will be evaluated during this phase.

Activities/Tasks

Note: Review and perform the Overarching tasks as they apply to this phase of the project.

The table below outlines the activities and tasks that comprise the Design Phase.

Activity	Task	Page
Investigate Vendor Packages	Develop Evaluation Criteria	18
	Develop Request for Proposals	18
	Evaluate Vendor Proposals/Packages	19
	Select a Package(s)	19
Develop Specifications	Configure & Customize Environment	19
	Determine User/System Interfaces	20
	Define System Elements	20
	Define Process Flows	21
	Define Data Needs	21
	Develop Test Plan	21
	Develop Conversion/Contingency Plans	22
Develop Training Plan	Develop Training Plan (with Consultation with I/S Training & Education)	22
Obtain Approval	Obtain Approval from Client & I/S Management	22

Activity: Investigate Vendor Packages

This activity is performed if the Preferred Alternative(s) calls for the purchase of vendor packages. Identify the criteria that will be used in the evaluation of vendor packages. Solicit information from those vendors who have products or services that will most likely meet the needs as defined in the requirements. Information received from the vendors will be rated using the evaluation criteria; and one or more packages will be selected for further study.

Task: Develop Evaluation Criteria

This task includes the development of standard criteria that will be used to measure each vendor package or service. These criteria will be based on the client requirements. The following are examples of possible criteria:

- **Objectives** - How well the package or service matches the client requirements
- **Architectural Fit** - Compatibility with the organization's existing IT architecture and standards
- **Tailoring** - Amount of internal development effort needed to meet requirements
- **Skill Sets** - Amount of training that would be required for I/S to be able to install, maintain, and support the package and/or availability of outside consultants to help
- **Technical Design Features** - Design features such as control procedures and audit trails, help functions, ease and flexibility of operation, straightforward programming techniques, and recovery processing
- **Flexibility/Expandability** - Ability to accommodate changing client requirements, portability, and decision support requirements; as well as increases in production volumes and frequency of operation
- **Documentation/Training** - Quality of vendor-supplied documentation — operations, technical and user documents, source code, and program documentation
- **Vendor Support** - Level of support for installation, maintenance, enhancements, and availability of telephone support in the event of problems
- **Vendor Reputation** - Assessment of the risk of vendor business failure and quality of vendor personnel
- **RFP Response** - Quality of the RFP response, as it is a likely indication of the vendor's attention to client desires

Task: Develop Request for Proposals

When investigating vendor supplied packages, the following methods may be used to obtain vendor information: Request for Proposal (RFP), Request for Information (RFI), or Request for Quote (RFQ). It is recommended that IT Purchasing be involved in the development of these requests. Research existing vendor relationships and value-added-reseller relationships and determine whether they have products that will meet our needs.

The requirements should be spelled out within the request so the vendors can provide sufficient information within their proposal. Someone from the project team should be available to respond to vendor questions.

Oftentimes to evaluate a vendor package, a contract has to be agreed upon by both parties. In these situations, provide enough lead-time for the Legal Department to complete their review of the contract(s).

Task: Evaluate Vendor Proposals/Packages

Once vendor responses have been received, the project team uses the Evaluation Criteria to assess each vendor package. Generally, this evaluation uses a process that weight each criteria based on its relative importance to the other criteria.

Once the overall vendor ratings have been determined, the team will also perform an analysis of all costs related to each of the packages. These might include costs for:

- Purchase or lease price of the basic package
- Additional package options
- Multiple locations and/or concurrent usage of package
- Additional hardware/software required to use the package
- Projected maintenance charges

Task: Select a Package(s)

Considering the overall ratings and pricing, select one or two vendor packages that best meet the needs of the project. These packages will be further evaluated during the next activity, Develop Specifications.

Activity: Develop Specifications

Regardless of whether the preferred alternative(s) is build or buy, the requirements from the Analysis Phase need to be expanded into detailed specifications. These specifications will be the blueprint for the Construction Phase of the project. Specifications are organized around logical processing and should include:

- Purpose/function of the design element in relation to the overall project
- Key design assumptions or decisions
- References back to the original requirements in the Analysis Phase
- Enough detail to be used in the Construction Phase

Task: Configure and Customize Environment

Whether the alternative(s) being considered consists of vendor packages or is an internally engineered system, the technical environment needs to be designed. When possible, that environment should be configured and/or customized so that vendor packages and/or engineered systems can be installed and tested. Other items to consider at this time are I/S standards and the availability of commonly used subroutines, copy code, etc.

For new systems, a determination should be made as to how many separate environments will be required to support the system (i.e., test/development, production, acceptance/staging, training). When possible, the test/development environment should be a complete copy of the production environment and used for testing all components of the system. For some systems, it may be

necessary to have a staging (pre-production) environment for movement from test to production. Also take into consideration whether a separate environment is needed for training purposes, or whether training can occur within one of the other environments.

Once a determination is made regarding the separate environments, develop the procedures that will be followed to facilitate the orderly movement of hardware and software between the various environments.

Task: Determine User/System Interfaces

This task considers the direct interaction of the end-user with the system, as well as any manual processes. All of the items identified in this task will ultimately impact user documentation and/or training.

If an application is being built internally, screens and reports will initially be designed. For both vendor software and/or built applications, screens, reports and functionality are reviewed with the client to determine that the requirements are being met. For those requirements not being met, identify what system modifications are needed.

For infrastructure projects and/or upgrades to existing systems, identify all changes that will directly impact the way the user interacts with the system. This might include changes to logon procedures, navigation through the system, security, file maintenance, printing, screens, data, etc.

Task: Define System Elements

This task defines the physical elements of the system such as:

- **Infrastructure** – physical networks, hardware, cabling, servers, and workstation configuration, DASD, memory, etc.
- **Data** – where and in what form data will reside (data base design), Data Dictionary requirements, data retention and purge requirements, application tables, copybooks, volume data, etc.
- **Software** – what software (programs, JCL, CLISTS, scripts, etc.) will be needed and how they interface with each other, the data, and other systems
- **Input/Output** – names/numbers of screens, reports, graphics, transactions, tables, and menus; printing requirements; frequency and timing of inputs/outputs; etc.
- **Operation Turn-In Requirements** – scheduling of batch jobs, special handling, administrative setup, automation, merge procedures, etc.
- **Security** – set up of system accesses, protection of data, etc.

Task: Define Process Flows

Define networking, process flow, workflow, and/or information flow requirements (both manual and automated). A graphical representation may be useful in understanding the system integration. These definitions may depict the detailed steps within a single process. They may also illustrate dependencies and interfaces between and across processes and/or systems.

Task: Define Data Needs

As part of the Analysis Phase for application projects, data requirements were gathered. It is recommended that a Database Administrator be involved in this task. The following are examples of items to consider when defining your data (information) needs:

- Does the data exist within the current system or within another system? Do different data sources need to be merged?
- If data does not currently exist, how will the data be captured?
- How often is the data gathered and reported?
- Will the data be needed for decision support?
- Does data have to be summarized to meet different reporting needs?
- Do key data values need to be translated into user friendly values (i.e., a code is translated to the values it represents)?
- Who will be the data owners and are there security requirements?
- What data must be retained and for how long? How will expired data be purged?

Each data element will be assigned a unique name and description. Relationships with other data elements will be documented. A project data model will be of benefit in documenting and defining data needs.

Task: Develop Test Plan

A test plan should be developed for unit testing, system integration testing, and/or acceptance testing. The purpose of a test plan is to provide a structured methodology for making sure that the system performs in a manner consistent with the client and system requirements. The plan will reflect what data is to be used, the processes and procedures to be tested, and the expected results. The test plan should be designed so it can be used after implementation to test subsequent modifications to the system.

Unit Testing involves the testing of an individual program, software function, or hardware component.

System Integration Testing involves the testing of the interaction of programs within a system, interaction between systems, data flow between systems, and interaction between hardware components.

Acceptance Testing involves the testing of the system by the client to verify that business and Validation requirements have been met.

Task: Develop Conversion/Contingency Plans

It may be necessary to develop special processes or programs to:

- Assist in the conversion/movement of data from the old system to the new system during implementation
- Re-establish the original environment in the event of a failure of the new system

Activity/Task: Develop Training Plan

There are two audiences to be addressed by the Training Plan: technical support and end-user. If new technologies, vendor packages, or programming languages are to be utilized in the project, training for the project team and for those providing technical services may be required. End-user training and/or documentation will be required any time the project impacts how the user interacts with the system. It is highly recommended that the I/S Training and Education Department be involved in the training effort (especially end-user training).

Key tasks in developing a training plan include:

- Perform needs analysis (identify audiences, including number of associates, and tasks they will perform)
- Investigate and evaluate vendor-supplied training, if any is available
- Determine training media/format
- Develop appropriate documentation and/or training materials
- Schedule training and reserve training rooms

Activity/Task: Obtain Approval from Client & I/S Management

The Approval activity facilitates a documented decision by the client and I/S management to either approve, modify, or terminate the project. A communication regarding the decision should be sent to those involved during the Design Phase.

At this time, the Sponsor and Project Manager should perform a checkpoint to determine how well they feel the project is doing based upon the success metrics. This allows for early identification of possible problems within the project.

Phase 4: Construction

Purpose

Unlike the previous phases, the primary deliverable of the Construction phase is not just information, but the actual project solution. This is done using the specifications from the Design Phase.

Activities/Tasks

Note: Review and perform the Overarching tasks as they apply to this phase of the project.

The table below outlines the activities and tasks that comprise the Construction Phase.

Activity	Task	Page
Construct & Test Solution	Develop Acceptance Test Criteria	23
	Write/Modify Software and/or Build Physical Environment	24
	Perform Unit Testing	25
	Perform System Integration & Acceptance Testing	25
Prepare System Documentation	Develop Documents for I/S Operations, Technical Support, End User	25
Perform Pilot	Provide Training for Pilot Participants	26
	Monitor and Fine Tune System Performance	26
Obtain Approval	Obtain Approval from Client & I/S Management	26

Activity: Construct & Test Solution

Construction includes final installation, configuration and/or creation of all hardware, software, programs, databases, networks, interfaces, etc. required for the system to operate. Testing encompasses unit testing, system integration testing, and acceptance testing. The development of End-User training materials should occur in conjunction with the construction and testing.

Task: Develop Acceptance Test Criteria

This task adds the detailed test criteria to the Test Plan developed in the Design Phase. These detailed criteria **are required for Validated** systems, and are recommended for all systems. There are three types of acceptance test criteria: Scripts, Installation Protocol Qualification (IQ), and Operating Protocol Qualification (OQ) .

Script refers to the sequential instructions required to verify the accurate operation of a satisfied requirement. A script can take many forms and may include screen images to assist in data entry. Items to test may include exception testing, authorization rules, auditing and control procedures, security, etc.

Each script should be aligned to a specific requirement identified in the Analysis Phase. Scripts should contain the following information:

- Test description and expected results
- Data setup
- Test steps and outcomes
- Exception comments
- Approval (validated scripts only)

Installation Protocol Qualification (IQ) refers to the validated procedures that are executed when installing or upgrading a physical device (hardware). The following are required for a Validated system, and should be considered for all systems:

- Protocol approval that describes the installation process including equipment, location, asset number and manufacturer
- Installation qualification checklist which further describes the environmental characteristics of the device
- Final Report Approval which documents the acceptance of the results from the executed installation
- In some instances, a schematic or technical diagram may be helpful in describing the validated element

Operating Protocol Qualification (OQ) refers to the validated procedures that are executed when verifying critical operating parameters associated with a physical device (hardware). The following are required for a Validated system, and should be considered for all systems:

- Protocol Approval that describes the testing process including assigned protocol number, equipment, location and manufacturer
- Listing and description of operational tests that will be performed to validate the protocol
- Details of each test including acceptance criteria and results
- Final Report Approval which documents the acceptance of the results from the executed protocol

Task: Write/Modify Software and/or Build Physical Environment

Based on the design specifications, build the various components of the required technical environment(s)—production, test/development, acceptance/staging, training. This includes the installation and/or configuration of all hardware, software packages, databases, networks, cabling, interfaces, etc. required for the system to operate. Write and/or modify programs, JCL, Exits, CLISTS, Execs, scripts, etc. to meet business requirements.

In the Design Phase, procedures were developed to facilitate the orderly movement of hardware and software between the test and production environments. Refine these procedures as testing is performed.

Task: Perform Unit Testing

Execute and/or test each logical system element to ensure that the results of the element matches the design specifications. System elements to test might include hardware, software packages, programs, databases, networks, cabling, etc. For system upgrades, note changes and differences for purposes of training and communication.

An element cannot be considered thoroughly unit-tested until the two stages of unit-testing have been successfully completed:

- **Prove that the element works.** Present the element with normal and valid inputs, and check the outputs in detail to prove that the internal processes are operating correctly.
- **Prove that the element will not fail.** Present the element with invalid inputs to ensure that the component's internal error detection and handling mechanisms are operating properly.

Task: Perform System Integration & Acceptance Testing

Whereas unit testing is intended to identify and correct the logic errors in individual elements, system testing is intended to identify and correct errors that occur in the interaction between individual elements and/or systems. Stress testing of the system should also be performed at this time. The client, to verify that business and Validation requirements have been met, performs Acceptance testing.

Execute all batch, background, and interactive transactions or steps based on the test criteria. Check the outputs against the expected test results to verify that the system is acting as anticipated. Errors or problems must be identified, corrected and fully re-tested, including unit testing. Acceptance testing for Validation requires a final approval of the results of all protocols and scripts.

Activity/Task: Prepare System Documentation

The objective of this activity is the development of documentation materials required for future reference for maintenance and use of the system. Consider the following types of documentation for your project.

Operations Documentation is targeted for the computer operations staff and consists of that information necessary to operate the system. Specifically, it includes operational start-up procedures, shutdown procedures, and automated recovery and restart procedures.

Technical documentation is targeted for the system support staff and contains the information necessary to ensure successful maintenance of the system. It can include process specifications and source listings of each of the programs and procedures in the system, logical and physical models of the system, listings of file and database descriptions, data dictionary contents, system schematics, equipment lists, etc.

User Documentation is designed to answer the “how to” questions typically asked by users of the system. This can be produced on paper (usually as part of the training materials), or online as a “help” system.

Activity: Perform Pilot

A pilot is the operation of the production system for a specified period of time with a limited number of users. This allows for more strenuous testing of system performance and capacity, as well as further testing of the system as a whole. It also allows for the evaluation of training curriculum and materials. A pilot is not always feasible, but is recommended whenever possible.

Task: Provide Training for Pilot Participants

This task provides an opportunity to evaluate the effectiveness of the End-User training. All pilot participants, including Client Services support personnel, should attend the pilot training. Feedback will be solicited from the participants and used to further refine training curriculum and materials prior to actual rollout.

Task: Monitor and Fine Tune System Performance

During the pilot period, system performance is closely monitored with regard to capacity and response time. Fine-tune the system to provide better performance.

Activity: Obtain Approval from Client & I/S Management

Once all testing has been completed, obtain a documented client and I/S management sign-off to proceed with the implementation of the system. The implementation should be agreed upon at this time. The Sponsor and Project Manager should perform a checkpoint to determine how well they feel the project is doing based upon the success metrics.

Phase 5: Implementation

Purpose

The purpose of this phase is to turn the system into the production system and to train the user community in the use of the system. As part of this phase, a post-implementation review will be performed to resolve issues and to document lessons learned.

Activities/Tasks

Note: Review and perform the Overarching tasks as they apply to this phase of the project.

The table below outlines the activities and tasks that comprise the Implementation Phase.

Activity	Task	Page
Perform Client Training	Perform Training and/or Send Out Education Materials	27
Migrate to Production	Execute Conversions	27
	Initiate Production Operation of System	28
Perform Post-Implementation Review	Resolve Post-Implementation Issues Until System is Stable	28
	Document Lessons Learned	28

Activity/Task: Perform Training and/or Send Out Education Materials

The training of clients in the use of the new system is performed at this time. Training may consist of classroom training, one-on-one training, awareness sessions, demos, and/or sending out documentation. The timing of this training should be as close to the actual implementation date as possible to maximize its effectiveness.

Activity: Migrate to Production

The purpose of this activity is to “turn on” the new system and make it a routine and ongoing part of daily operation. There are two tasks within this activity.

Task: Execute Conversions

Execute programs to perform required data conversions from legacy systems into the new system. Verify that the converted data is accurate and accessible by the new system.

Task: Initiate Production Operation of System

Upon the successful completion of data conversions, and at the predetermined time defined in the project plan, the operation of the new system is formally initiated. The following items should be considered as part of this task:

- Finalize the back-out plan
- Define post implementation on-call support
- Schedule turn-on, including down-time, with operations and client
- Coordinate activities with appropriate Change Management Process
- Test the production environment
- Set up security (user accesses to production system)
- Obtain production sign-off (go, no go decision)
- Finalize obsolescence plan for systems and/or applications being replaced

Activity: Perform Post-Implementation Review

Even though the system has been turned on, there are still two tasks that need to be addressed. The time commitment for these tasks should be built into the project plan to ensure the availability of resources. The first task will be to resolve post-implementation problems and issues until such time as the system is considered to be stable. The other task is a final review of the entire project to document lessons learned.

Task: Resolve Post-Implementation Issues until System is stable

Once the system goes live, there will undoubtedly be some bugs and problems that will occur. The project team members need to be available for a period of time to resolve issues and to stabilize the system.

Task: Document Lessons Learned

All projects should be reviewed so as to gather information on the overall success of the project, “what things worked well” and “what things could have been improved.” This information will be helpful to future projects. The information should be gathered in a meeting attended by a representative from all areas involved in the project.

Below are examples of items to consider in the review. Note that many of these items are repeats of the project success metrics in the Overarching section of this manual.

- Does the new system meet the client requirements gathered in the Analysis Phase? If not, why not?
- Were the end results traceable back to the requirements? Validated?
- Was the project on time and within budget?
- How accurate were the initial resource estimates?
- Were there major scope changes during the project? How effectively was the Change Control Process managed?

- Were formal approvals to proceed obtained throughout the project?
- Was there good communication between all impacted areas?
- Were ancillary groups (such as client support, training, etc.) enrolled in a timely manner?
- How many support calls were received once the solution was implemented?
- Was there unintended impact to other production systems and/or other in-process projects?
- Is the client satisfied with the new system? If not, why?
- Was the Project Methodology followed? Was the project adequately documented?
- What are some lessons learned that could be of help to another project team? What worked well? What could have been improved?

Appendix A - Terms & Definitions

Definitions

Many of the words defined here have broader, and in some cases different, dictionary definitions. All the words in this Glossary have meaning in the area of Project Management. The words in **Bold Type** are those used in this Methodology.

Acceptance Testing	Testing done primarily by a client to determine if the system runs properly and meets their requirements.
Activity	An element of work performed during the course of a project. An activity normally has an expected duration, an expected cost, and expected resource requirements. Activities are often subdivided into tasks.
Activity Definition	Identifying the specific activities that must be performed in order to produce the various project deliverables.
Activity Duration Estimating	Estimating the number of work periods that will be needed to complete individual activities.
Actual Finish Date (AF)	The point in time that work actually ended on an activity. (Note: in some application areas, the activity is considered “finished” when work is “substantially complete.”)
Actual Start Date (AS)	The point in time that work actually started on an activity.
Administrative Closure	Generating, gathering, and disseminating information to formalize project completion.
As-of Date	See data date.
Backward Pass	The calculation of late finish dates and late start dates for the uncompleted portions of all network activities. Determined by working backward through the network logic from the project’s end date. The end date may be calculated in a forward pass or set by the customer or sponsor. See also network analysis.
Bar Chart	A graphic display of schedule-related information. In the typical bar chart, activities or other project elements are listed down the left side of the chart, dates are shown across the top, and activity durations are shown as date-placed horizontal bars. Also called a Gantt chart.
BC - Basis	System Administration, Database Administration. ABAP/4 Development Workbench, Business Engineering Workbench
CA - Cross Application	Document Guide, Interface, Application Link Enabling (ALE)
Calendar Unit	The smallest unit of time used in scheduling the project. Calendar units are generally in hours, days, or weeks, but can also be in shifts or even in minutes. Used primarily in relation to project management software.
Change Control	(1) During a project, the identification and formal approval of changes to scope and/or requirements. (2) After implementation, the management of enhancements and fixes to a system.
CO - Controlling	Overhead Cost Controlling, Product Cost Controlling, Profitability Analysis
Communications Planning	Determining the information and communications needs of the project stakeholders.
Contingency Planning	The development of a management plan that identifies alternative strategies to be used to ensure project success if specified risk events occur.
Contract Administration	At an organization, the department responsible for obtaining Contracted Resources.
Cost of Quality	The costs incurred to ensure quality. The cost of quality includes quality planning, quality control, quality assurance, and rework.

Critical Activity	Any activity on a critical path. Most commonly determined by using the critical path method. Although some activities are “critical” in the dictionary sense without being on the critical path, this meaning is seldom used in the project context.
Critical Path	In a project network diagram, the series of activities which determines the earliest completion of the project. The critical path will generally change from time to time as activities are completed ahead of or behind schedule. Although normally calculated for the entire project, the critical path can also be determined for a milestone or subproject. The critical path is usually defined as those activities with float less than or equal to a specified value, often zero. See critical path method.
Critical Path Method (CPM)	A network analysis technique used to predict project duration by analyzing which sequence of activities (which path) has the least amount of scheduling flexibility (the least amount of float). Early dates are calculated by means of a forward pass using a specified start date. Late dates are calculated by means of a backward pass starting from a specified completion date (usually the forward pass’s calculated project early finish date).
Data Date (DD)	The point in time that separates actual (historical) data from future (scheduled) data. Also called as-of date.
Decision Support Deliverable	Extracting Information from a system(s) in an Ad-Hoc manner Any measurable, tangible, verifiable outcome, result, or item that must be produced to complete a project or part of a project. Often used more narrowly in reference to an external deliverable, which is a deliverable that is subject to approval by the project sponsor or customer.
Dependency	See logical relationship.
Duration (DU)	The number of work periods (not including holidays or other non-working periods) required to complete an activity or other project element. Usually expressed as workdays or workweeks. Sometimes incorrectly equated with elapsed time. See also effort.
Duration Compression	Shortening the project schedule without reducing the project scope. Duration compression is not always possible and often requires an increase in project cost.
Early Finish Date (EF)	In the critical path method, the earliest possible point in time on which the uncompleted portions of an activity (or the project) can finish based on the network logic and any schedule constraints. Early finish dates can change as the project progresses and changes are made to the project plan.
Early Start Date (ES)	In the critical path method, the earliest possible point in time on which the uncompleted portions of an activity (or the project) can start, based on the network logic and any schedule constraints. Early start dates can change as the project progresses and changes are made to the project plan.
Earned Value (EV)	(1) A method for measuring project performance. It compares the amount of work that was planned with what was actually accomplished to determine if cost and schedule performance is as planned. See also actual cost of work performed, budgeted cost of work scheduled, budgeted cost of work performed, cost variance, cost performance index, schedule variance, and schedule performance index. (2) The budgeted cost of work performed for an activity or group of activities
EC - Enterprise Controlling	Executive Information System (SAP-EIS)
Effort	See Work Effort.

Estimate	An assessment of the likely quantitative result. Usually applied to project costs and durations and should always include some indication of accuracy (e.g., $\pm x$ percent). Usually used with a modifier (e.g., preliminary, conceptual, feasibility). Some application areas have specific modifiers that imply particular accuracy ranges (e.g., order-of-magnitude estimate, budget estimate, and definitive estimate in engineering and construction projects).
Exception Report	Document that includes only major variations from plan (rather than all variations).
FI - Financial Accounting	G/L, A/R, A/P, Configuration, Asset Accounting, Consolidation, Special Purpose Ledger
Finish Date	A point in time associated with an activity's completion. Usually qualified by one of the following: actual, planned, estimated, scheduled, early, late, baseline, target or current.
Finish-to-Finish (FF)	See logical relationship.
Finish-to-Start (FS)	See logical relationship.
Float	The amount of time that an activity may be delayed from its early start without delaying the project finish date. Float is a mathematical calculation and can change as the project progresses and changes are made to the project plan. Also called slack, total float, and path float. See also free float.
Focal Point	May coordinate or in some cases be responsible for the definition of requirements for specific processes within a defined business area
Forward Pass	The calculation of the early start and early finish dates for the uncompleted portions of all network activities. See also network analysis and backward pass.
Free Float (FF)	The amount of time an activity can be delayed without delaying the early start of any immediately following activities. See also float.
Functional Manager	A manager responsible for activities in a specialized department or function (e.g., engineering, manufacturing, marketing).
Functional Organization	An organization structure in which staff are grouped hierarchically by specialty (e.g., production, marketing, engineering, and accounting at the top level; with engineering, further divided into mechanical, electrical, and others).
Gantt Chart	See bar chart.
Gap Analysis	Process used to identify business needs by contrasting the current state with the desired future state
Hammock	An aggregate or summary activity (a group of related activities is shown as one and reported at a summary level). See also subproject and subnet.
Hanger	An unintended break in a network path. Hangers are usually caused by missing activities or missing logical relationships.
IM - Investment Management	Capital Investment, Programs, Measures (Orders/Projects)
Information Distribution	Making needed information available to project stakeholders in a timely manner.
Information Services (I/S)	The organization composed of skills, disciplines and processes which are used to plan, design, build, implement, support and evolve information technology
Information Technology (I/T)	Composed of the products, platforms, interfaces between them and architectures which can be applied to business requirements to provide for automation, communications and end-user enablement
Information Technology (I/T)	Composed of the products, platforms, interfaces between them and architectures which can be applied to business requirements to provide for automation, communications and end-user enablement
Installation Protocol	Abbreviated " IQ ", refers to the validated procedure that is executed when installing or upgrading a physical device, (hardware) that is used within a Validated process.

Integration Point	Person, vendor or system receiving or sending a file, report, verbal communication or written communication
Integration Testing	Testing an individual piece(s) of hardware/software with the rest of the system to insure they run correctly together. Also referred to as System Testing..
Interface	File, report, verbal communication or written communication which is received or sent to a person, vendor or system. An interface may be process or part of a process
Lag	A modification of a logical relationship which directs a delay in the successor task. For example, in a finish-to-start dependency with a 10-day lag, the successor activity cannot start until 10 days after the predecessor has finished. See also lead.
Late Finish Date (LF)	In the critical path method, the latest possible point in time that an activity may be completed without delaying a specified milestone (usually the project finish date).
Late Start Date (LS)	In the critical path method, the latest possible point in time that an activity may begin without delaying a specified milestone (usually the project finish date).
Lead	A modification of a logical relationship which allows an acceleration of the successor task. For example, in a finish-to-start dependency with a 10-day lead, the successor activity can start 10 days before the predecessor has finished. See also lag.
Level of Effort (LOE)	Support-type activity (e.g., continuity, administrative tasks) that does not readily lend itself to measurement of discrete accomplishment. It is generally characterized by a uniform rate of activity over a specific period of time.
Leveling	See resource leveling.
Life-cycle Costing	The concept of including acquisition, operating, and disposal costs when evaluating various alternatives.
LO - Logistics General	Logistic Information System, General
Logical Relationship	A dependency between two project activities, or between a project activity and a milestone. See also precedence relationship. The four possible types of logical relationships are: <ul style="list-style-type: none"> • Finish-to-Start—the “from” activity must finish before the “to” activity can Start. • Finish-to-Finish—the “From” activity must finish before the “to” activity can finish. • Start-to-start—the “from” activity must start before the “to” activity can start. • Start-to-finish—the “from” activity must start before the “to” activity can finish (seldom used)
Milestone	A significant event in the project, usually completion of a major deliverable. Often expressed as a point in time with no duration
MM - Material Management	Purchasing, Vendor Evaluation, Inventory Management, Warehouse Management, Material Ledger
Monitoring	The capture, analysis, and reporting of project performance, usually as compared to plan.
Near-Critical Activity	An activity that has a low total float.
Network Analysis	The process of identifying early and late start and finish dates for the uncompleted portions of project activities. See also Critical Path Method, Program Evaluation and Review Technique, and Graphical Evaluation and Review Technique. Also know as Time Analysis

Network Logic	The collection of activity dependencies that make up a project network diagram.
Network Path	Any continuous series of connected activities in a project network diagram.
Operation Protocol	Abbreviated “ OQ ”, refers to the validated procedure that is executed when verifying critical operating parameters associated with a physical device, (hardware) that is used within a Validated process
Overall Change Control	Coordinating changes across the entire project.
Overlap	See lead.
PA - Personnel Admin & Payroll	Benefits, Recruitment, Incentive Wages, Travel Expenses, Payroll
Accounting	
Parametric Estimating	An estimating technique that uses a statistical relationship between historical data and other variables (e.g., lines of code in software development) to calculate an estimate.
Path	A set of sequentially connected activities in a project network diagram.
PD - Personnel Planning & Development	Organizational Management, Training & Event Management, Personnel Cost Planning
Percent Complete (PC)	An estimate expressed as a percent, of the amount of work that has been completed on an activity or group of activities.
Performance Reporting	Collecting and disseminating information about project performance to help ensure project progress.
PERT Chart	A specific type of project network diagram. See Program Evaluation and Review Technique.
Phase	Distinct processes in the Project Management Methodology common to any type of project Definition - The first phase of the project which involves gathering high level business objectives, project benefits and impact to the client community Analysis - The process which involves gathering detailed requirements Design - The process which involves converting the proposed requirements and alternative into a blueprint of the future system (i.e. screens, reports, databases) Construction - The process which involves converting the design specifications into a physical reality (i.e. hardware, software, documentation, training plan) Implementation - The process following the Construction Phase which involves bringing the new system up in a production environment Post-Implementation - The process following the Implementation Phase which involves identifying “what things worked well” and “what things could have been improved”
	Note: The Analysis phase always follows the Definition phase. The Analysis, Design and Construction phases can be iterative and can be executed several times prior to implementation (RAD). This does not preclude them from being executed linearly.
Platform	Combination of hardware and software comprising a computer and operating system (i.e. Windows, Mac, UNIX etc.).
PM - Plant Maintenance	Object Links & Object Networking, Bills of Materials (BOM), Maintenance: task list, planning, notifications, orders, history, Measurements & Counter Readings
Portability	Software that operates on multiple platforms (i.e. Windows, Mac, UNIX etc.).
PP - Production Planning	Process Industries, General
Predecessor Activity	In the precedence diagramming method, the “from” activity.

Process	Related series or routines of mental or physical activities. May include interfaces, manual or system activities
Program Evaluation and Review Technique (PERT)	An event-oriented network analysis technique used to estimate project duration when there is a high degree of uncertainty with the individual activity duration estimates. PERT applies the critical path method to a weighted average duration estimate. Also given as Program Evaluation and Review Technique.
Project	A temporary endeavor undertaken to create a unique product or service.
Project Integration	Coordination of Projects so groups ancillary to the Project Team (i.e. Training, Support, Security, other Project Teams etc.) are included in the project life cycle in a timely fashion.
Project Life Cycle	A collection of generally sequential project phases whose name and number are determined by the control needs of the organization or organizations involved in the project
Project Management	The application of knowledge, skills, tools, and techniques to project activities in order to meet or exceed stakeholder needs and expectations from a project
Project Manager (PM)	The individual responsible for managing a project.
Project Methodology	A set of procedures organized by phases, steps and tasks which assist with the implementation of quality products or services
Project Network Diagram	Any schematic display of the logical relationships of project activities. Always drawn from left to right to reflect project chronology. Often incorrectly referred to as a “PERT chart.”
Project Plan	A formal, approved document used to guide both project execution and project control. The primary uses of the project plan are to document planning assumptions and decisions, to facilitate communication among stakeholders, and to document approved scope, cost, and schedule baselines. A project plan may be summary or detailed.
Project Plan Development	Taking the results of other planning processes and putting them into a consistent, coherent document.
Project Plan Execution	Carrying out the project plan by performing the activities included therein.
Project Planning	The development and maintenance of the project plan.
Project Schedule	The planned dates for performing activities and the planned dates for meeting milestones.
Project Scope Management	A subset of project management that includes the processes required to ensure that the project includes all of the work required, and only the work required, to complete the project successfully. It consists of initiation, scope planning, scope definition, scope verification, and scope change control.
Project Team Members	The people who report either directly or indirectly to the project manager.
Prototyping	A project life cycle where the Design and Construction Phases (and sometime the Analysis phase) are done at the same time, or as an iterative process, rather than linear. Also called Rapid Application Development (RAD)
Quality Planning	Identifying which quality standards are relevant to the project and determining how to satisfy them.
Rapid Application Development (RAD)	See Prototyping
Rapid Development Environment (RDE)	See Prototyping
Remaining Duration (RDU)	The time needed to complete an activity.
Request for Proposal (RFP)	A type of bid document used to solicit proposals from prospective sellers of products or services. In some application areas it may have a narrower or more specific meaning.
Request for Quotation (RFQ)	Generally, this term is equivalent to request for proposal. However, in some application areas it may have a narrower or more specific meaning.

Requirements	The specific deliverables generally developed in the Analysis Phase, that meets the clients needs.
Reserve	Provisions in the project plan to mitigate cost and/or schedule risk. Often used with a modifier (e.g., management reserve, and contingency reserve) to provide further detail on what types of risk are to be mitigated. The specific meaning of the modified term varies by application area.
Resource Leveling	Any form of network analysis in which scheduling decisions (start and finish dates) are driven by resource management concerns (e.g., limited resource availability or difficult-to-manage changes in resource levels).
Resource Planning	Determining what resources (people, equipment, materials) are needed in what quantities to perform project activities.
Resource-Limited Schedule	A project schedule whose start and finish dates reflect expected resource availability. The final project schedule should always be resource-limited.
RFI	A request to a vendor for information on a product being considered for evaluation.
Risk Event	A discrete occurrence that may affect the project for better or worse.
Risk Identification	Determining which risk events are likely to affect the project.
Risk Quantification	Evaluating the probability of risk event occurrence and effect.
Schedule	See project schedule.
Schedule Analysis	See network analysis.
Schedule Compression	See duration compression.
Schedule Control	Controlling changes to the project schedule.
Scheduled Finish Date (SF)	The point in time work was scheduled to finish on an activity. The scheduled finish date is normally within the range of dates delimited by the early finish date and the late finish date.
Scheduled Start Date (SS)	The point in time work was scheduled to start on an activity. The scheduled start date is normally within the range of dates delimited by the early start date and the late start date.
Scope	The sum of the products and services to be provided as a project.
Scope Change	Any change to the project scope. A scope change almost always requires an adjustment to the project cost or schedule.
Scripts	The sequential instructions required to verify the accurate operation of a satisfied business requirement. Scripts contain a test description, expected results, test steps, test outcome.
SD - Sales & Distribution	Sales, Shipping, Billing, Pricing & Conditions, Credit Management, Transportation, Foreign Trade
Slack	Term used in PERT for float.
Sponsor	Usually the person or group paying for a project. A Stakeholder.
Stakeholder	Individuals and organizations that are involved in or may be affected by project activities.
Start Date	A point in time associated with an activity's start, usually qualified by one of the following: actual, planned, estimated, scheduled, early, late, target, baseline, or current.
Start-to-Finish	See logical relationship.
Start-to-Start	See logical relationship.
Subnet	A subdivision of a project network diagram usually representing some form of subproject.
Subnetwork	See subnet.
Successor Activity	In the precedence diagramming method, the "to" activity.

Task	Identifies any activity where tracking or communication/notification is desired. Use a Task if the activity is a question, continuity or administration process that has a short 1-time life cycle. If there are no requirements for Validated or historical documentation then a Task with it's associated comments should prove sufficient
Total Float (TF) TR - Treasury	See float. Cash Management, Commitment Account, Treasury Management
Unit	Identifies a specific program or process where documented deliverables are generally associated with the Design, Construction and Implementation phases of the Project Life Cycle and can be attached. In the task database , use a Unit if there is a need to capture historical documentation associated with a reusable entity or process. An example of an entity could be a program while an example of a process might be an Intercompany fulfillment scenario
Unit Testing	Testing of an individual piece of software/hardware, separately, to insure it operates correctly.
Validation	Establishing documented evidence which provides a high degree of assurance that a specific process will consistently produce a product meeting it's predetermined specifications and quality attributes
Work Breakdown Structure (WBS)	A deliverable-oriented grouping of project elements which organizes and defines the total scope of the project. Each descending level represents an increasingly detailed definition of a project component. Project components may be products or services.
Work Effort	Estimate of the amount of person hours required to accomplish a single task (activity), if that task was the only work to do. <i>Not to be confused with Duration.</i>
Workaround	A response to a negative risk event. Distinguished from contingency plan in that a workaround is not planned in advance of the occurrence of the risk event.

**Appendix B -
Project Methodology
Job Aids**

**Job Aids are Client Specific and will be added
later**

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