PDHonline Course P221 (5 PDH)

Project Management Guidebook_Part 1 – Practical Concepts

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2020

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PROJECT MANAGEMENT – PART 1 :

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I. INTRODUCTION:

As a first order of knowledge classification, the main functions of managers are: planning, organizing, staffing, leading, and controlling. The primary purpose of this guidebook is to summarize the framework in planning, executing controlling and closing projects, based on the Project Management Body of Knowledge (PMBOK) with proven traditional practices widely applied, as well as, innovative practices.

This *Project Management Guidebook* is divided in **Part 1 and Part 2**, to serve as a practical methodology, and didactical guidance to Project Managers throughout the life of a project, by providing focus towards getting a work completed **on time**, **within budget**, **within scope and quality** (the management aspects of all projects), summarized and customizable to accelerated specific needs, with a proper environment.

II. STRUCTURE OF THE GUIDEBOOK:

Chapter 1 - Introduction to Project Management: Basic Concepts: Provides basic project management concepts**.** This section describes basic concepts, which is good for beginners, but may be skipped by more experienced Project Managers.

Chapter 2 - Project Management Life Cycle: Provides an overview description of the project management lifecycle and draws the distinction between it and project process lifecycles for specific products and services. This destinction provides the flexibility for the project management methodology to be used generically across all projects, which will be further explored in Chapter 3.

Chapter 3 - Making Project Management Scalable and Flexible: Provides the design description of the project management methodology with guideance to categorize projects into five levels to be both saleable for use for any size of project and flexible for use for any type of project. The Chapter also describes how to bridge the gaps between project lifecycle and process lifecycles described in Chapter 2.

Chapter 4 – Project Management Guide and Life Cycle Stages: Provides a description of the project lifecycle. Specific templates are described that supplement the tasks and processes, including meeting agendas, deliverable templates, checklists, and forms. The Project Manager will find useful direction for what to do, when to do it, and how to do it, no matter what stage of the lifecycle the project is in. Each of the project stages is organized as follows:

- ✓ Every Project Manager should have a clear understanding of this distinction because it explains how the project management methodology described within this document works for all types of projects gene-rically. The distinction between the project management lifecycle for specific products and services is des-cribed as an important distinction.

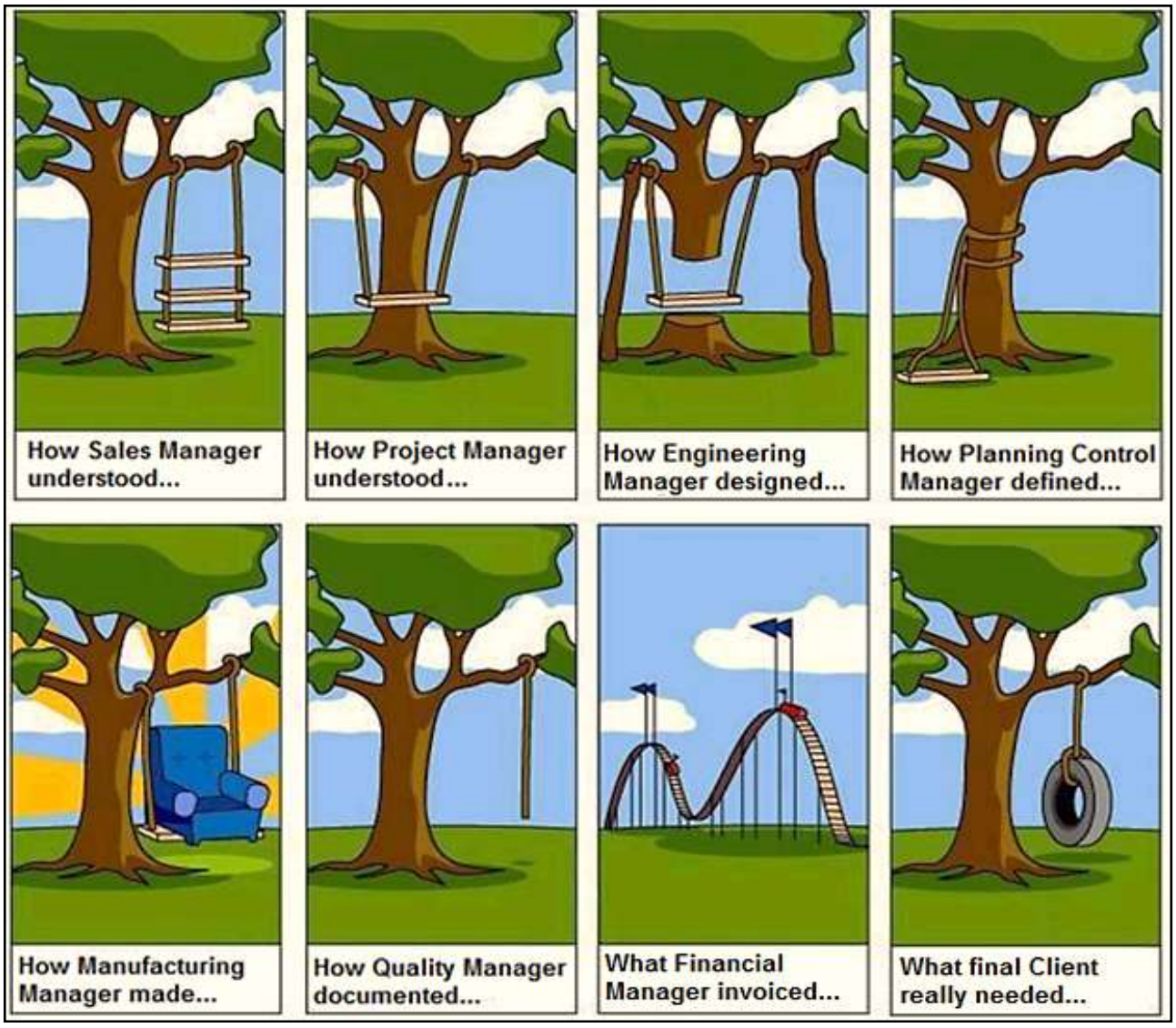
- ✓ This Chapter can be used as a guide in managing, in relation to the project category and deliverables described in Chapter 3. Provides an overview of the starting, stage - 0, which usually occurs before a project has been assigned to a project team primarily for informational purposes.

- Project purpose with a stage overview and description;
- List of stage specific processes;
- List of stage specific templates;
- Project Stage Deliverables;
- Project Stage Activities;
- End-of-Phase Checklist.

Management is the process of designing and maintaining an environment in which individuals, working together in groups, accomplish efficiently selected aims. These concepts are sometimes called the *universality of management* in which managers perform the same functions, as shown below:

1. The main managerial functions are: planning, organizing, staffing, leading, and controlling;
2. Management applies to any kind of organization;
3. It applies to managers at all organizational levels;
4. Managing is concerned with productivity; that implies effectiveness and efficiency.

Note: This guidebook is a basic and **practical script** intended to be both a **"what to do"** and a **"how to do"** guide for Project Managers through the project management life cycle phases. No process can cover every situation, so the Project Manager must be flexible and make good decisions based upon the situation in order the process doesn´t dictate or replace the use of the human brain, when the adjustment of the process if needed. **Don't** ever **let** the process or the project **manage** you.

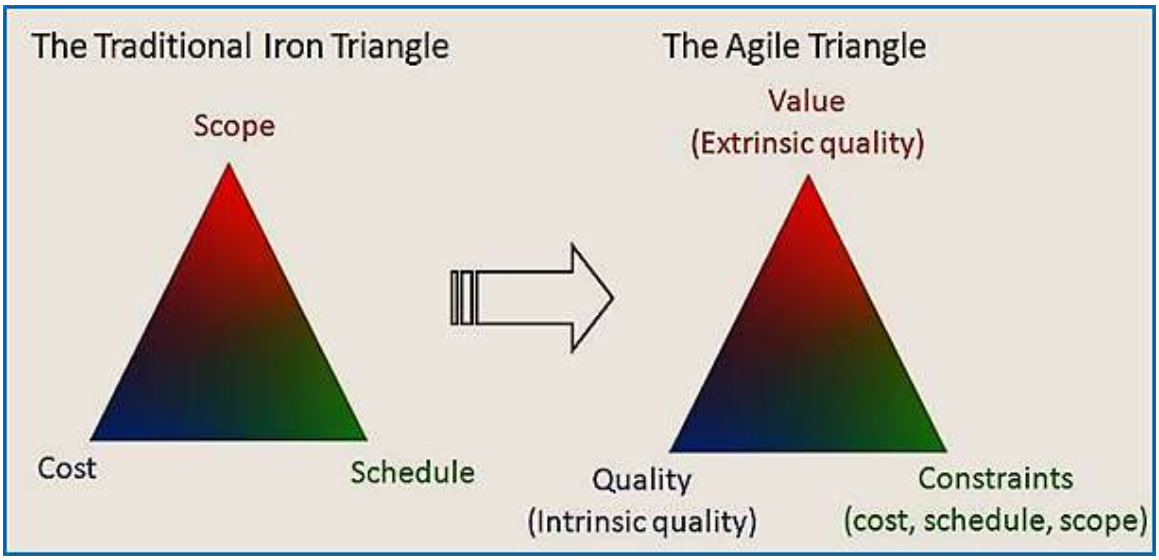


III. DEFINITION OF PROJECT MANAGEMENT:

The **Project Management Institute (PMI)** defines it this way: *Project Management* is the application of knowledge, skills, tools and techniques to project activities in order to **meet project requirements**. Another definition of project management could be stated simply as it is the process of bringing a project to a successful conclusion as efficiently and effectively as possible. It is a series of goal-oriented processes to produce a specific product or service. Specifically, it is concerned with getting an excellent job done:

- On time;
- Within budget;
- According to specifications and the quality needed;
- Within the high levels of the customer satisfaction.

A Balanced Project:



The basic projects are typically defined using the three components of **scope, time and cost. Quality** is inside the intrinsic and extrinsic values.

- ***Scope****:* Is the sum of all products and services to be provided. It includes all the work that must be performed to deliver the product or service (for example, tasks and activities) at the negotiated specification.

- ***Time****:* Is the duration that is needed to complete all the associated project work (for example, calendar days, months or years).

- ***Cost****:* Is the monetary value of the labor expended and all other direct charges that will be incurred during the project (for example, travel, hardware, and software). A triangular shape represents the relationships between **scope, time, and cost**. When the value of one side is changed, one or both of the other sides are almost always affected.

- ***Quality****:* This new relationship is inside a **"triple constraint,"** illustrated above, when the relationships with all other three components are in balance with each other.

1. Chapter 1: Basic Concepts:

A *project* is a temporary endeavor undertaken to create a unique product or service. *Temporary* means every project has a definite **beginning** and definite **end** – the end being when the project's objectives have been achieved. The client satisfaction, support and maintenance results may be **on-going**. *Unique* means that the product or service is different in some distinguishable way from all similar products or services, that is, a product or service that has not been available before.

a. Business Needs: Project management has become a popular means of addressing these issues. Its structured processes and powerful tools offer organizations more predictability, insight, and ultimately,

strategic control. To retain a competitive edge, companies need to improve their level of maturity in project management.

b. Return on Investments: There is no such thing as "one size fits all" when it comes to project management. Every project has different constraints, requiring different levels of certainty when it comes to predicting scope, time and cost. This is important because the amount of effort expended managing a project is directly related to the amount of certainty obtained.

c. Horizon Lines: A project *horizon line* is a point in the future where you can identify, with reasonable certainty, the detailed sequencing of project activities. This portion of a project is considered somewhat predictable and stable. Beyond the horizon line lie activities that, based on the project's current point in time, are unpredictable and dynamic.

Every project has its own unique set of horizon lines. On a new product development project for instance; typically, the horizon lines are associated with the phases of the product development life cycle. However, horizon lines can also be located in the middle of phases due to the product type or its duration. The difficulty in predicting a project's scope, time, and cost at completion is directly proportional to the number of horizon lines within the project.

d. Dynamic Modeling: Typically, when planning a project, a project template is generated first, defining one side of the triangle (scope – in the form of tasks) and then predicting the other two sides (time and cost). As the work begins, the realities must be recorded, and estimates to be completed, and should always be reevaluated for some subset of tasks.

As a result, initial predictions may change. That's why the built initial model needs to be dynamic, so the designer can accommodate these types of changes frequently. This allows continuous updates to forecasts and "**what if**" scenarios, accompanied by other types of analyses.

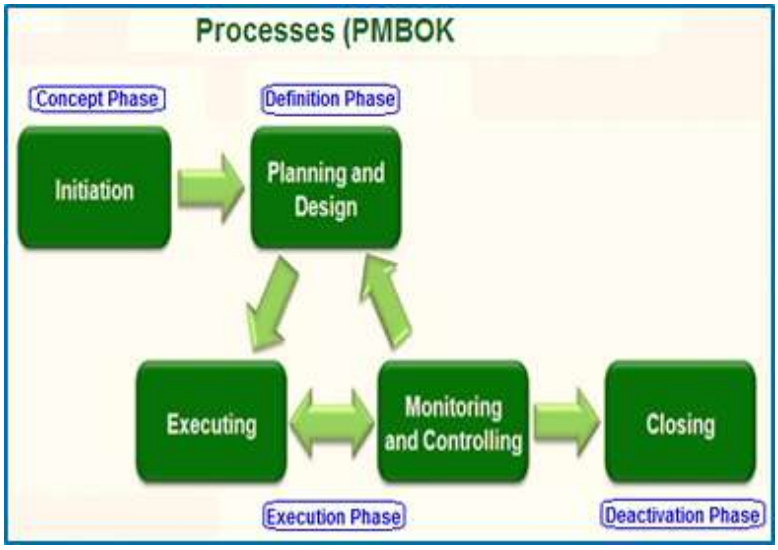
e. Baselines: A baseline is an agreement between a mediator, the client, and the project manager. It is a negotiated and agreed scope, addressing the time and cost of the project. These lines not only define the endpoint, but also define a path. Baselines are fundamental for project management, because they establish and maintain defined expectations for all shareholders associated with the project.

When there is disagreement, the baselines are blocked in time and remain unchanged until another negotiated agreement is established between the mediator, the client, and the project manager. Baselines are usually established at the end of the project planning phase and defined using an updated Go-on Charter, first written during the initial phase, when less is known about the details. The renegotiation process is known as the change control process.

1.1. Management Process Groups:

Horizon lines, the concept of dynamic modeling and baseline strategy are necessary to achieve positive results in a project management process. Typically, five individual groups of processes make up the high-level project management process:

- **Initiating**: recognizes that a project or phase should begin and commits to do so.
- **Planning**: revises and maintains a workable scheme to accomplish the objectives of project.
- **Executing**: coordinates people and other resources to carry out the plan.
- **Controlling**: ensures that project objectives are met by monitoring and measuring progress and taking necessary corrective action.
- **Closing**: formalizes the acceptance of the project or phase and brings it to an orderly end.



a. High-Level Management Process: The five process groups do not exist in isolation. Each one interacts with one or more of the other process groups, based on the results they produce or the inputs they receive. Furthermore, the interaction continues throughout the life of a project, regardless of the product development life cycle phase. However, in real world, the true definitions are **six basic processes**:

- **Origination**: All projects, products and services begin with sales, a customer contact, and then a bid;
- **Initiating**: All projects, products and services begin with budget estimation;
- **Planning**: All projects, products and services begin with a time scheduled program;
- **Executing:** All projects, products and services begin the execution when very well defined;
- **Controlling**: All projects, products and services must be controlled when in execution;
- **Closing**: All projects, products and services must have a closing time definition;

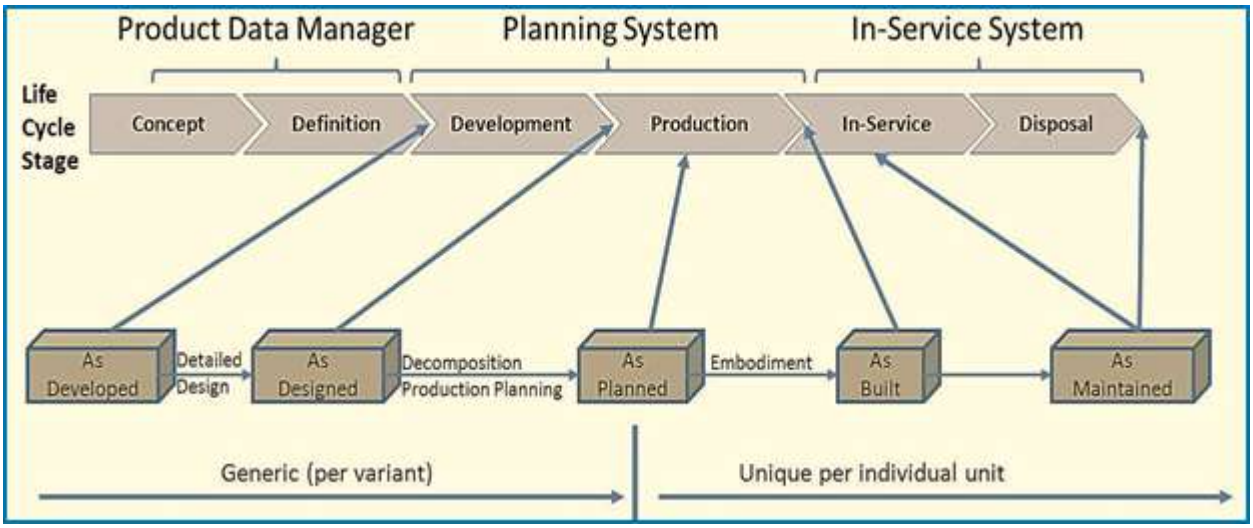
The project management process is the core of this project management methodology. It is the process that steers the project manager through the project management life cycle. During initial phases, innovative and conceptual thinking are needed to comprehend needs and translate these into preliminary project plans and perhaps establish a monitoring project team.

b. Project Phases: A collection of logically related project activities, culminate in the completion of a major deliverable. The word "*stage*" is used interchangeably with "*phase*" and means the same.

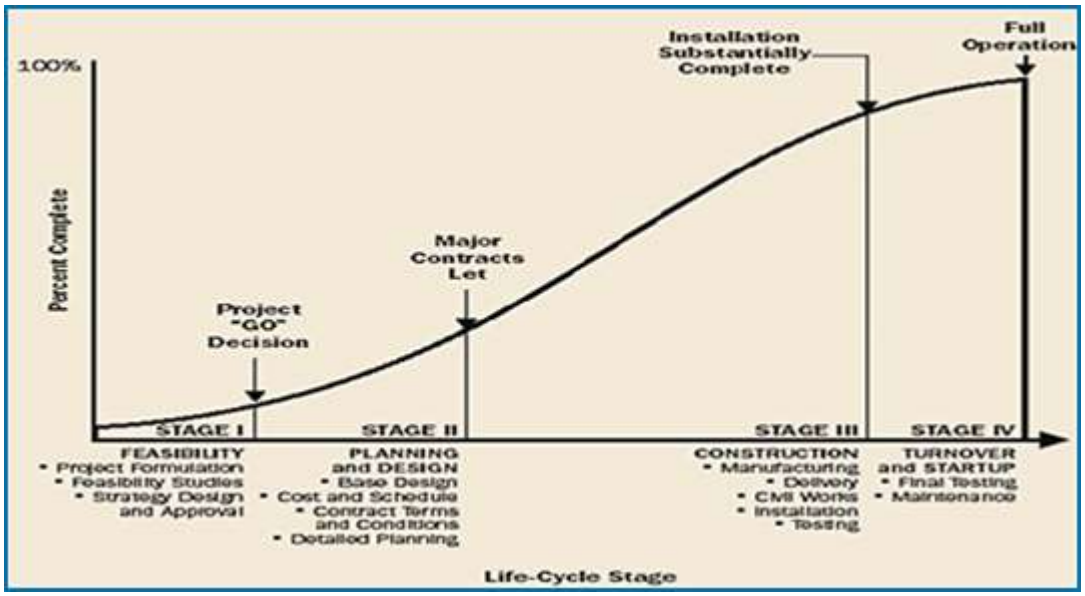
- **Project life cycle:** Collectively the project phases are known as the project life cycle;
- **Product and service life cycle:** Natural grouping of ideas, decisions, and actions into product phases, from product conception to operations to product phase-out;
- **Management lifecycle:** Defines how to manage a project, developing a product or controlling services. It will always be the same, regardless of the project process lifecycle being used.

1.2. Life Cycles - Phase Requirements:

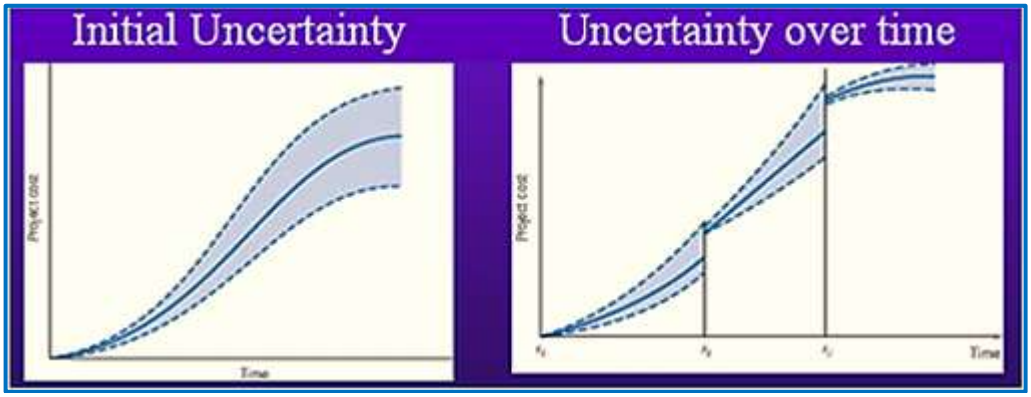
The Project Management Institute (PMI) is moving away from the definition of particular terms that characterize **"*the project life cycle*"** to a reordering and redefinition as a "**collection of phases** whose numbers and names correspond with the needs of project performing organizations". Different organizations have different needs; many project life cycles are similar (names, deliverables), but few are identical.



a. Life Cycle Stages: Most projects have **four, five or more phases**, but some have as few as three four (e.g., one may treat functional design and detail design as separate phases or include both in a single design phase for new product development type projects). Understanding the concept (and the consequences) is more important than any exact terminology, as illustrated in figure below:



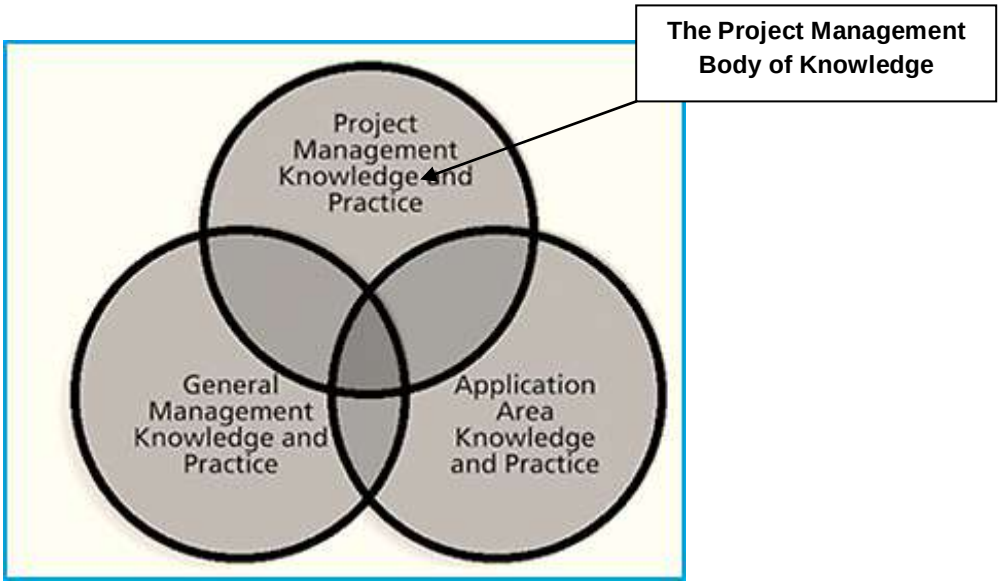
During the course of a project, the project manager usually has less information concerning a project initially, but gains additional information as time passes. Related to the amount of uncertainty, evolves the principle that project planning is iterative and changes over time to build upon new information (less uncertainty) to improve project results. The relationship of the **amount of uncertainty** can be viewed in terms of managing **project risk, scope, and schedule**. The amount of uncertainty changes through the course of a project life-cycle, as illustrated below:



b. Benefits of Mature Project Management: The many benefits of mature project management include:

- Products and services delivered closer to the predicted scope, time, and cost.
- More trust in client relationships.
- Better able to make strategic decisions at the organizational level.
- Greater insight into the organization's activities.
- Cleaner management of stakeholder expectations.
- Better integration of work across departments.
- Less unnecessary chaos for all team members.
- Increased productivity.
- Reduction in project time.

c. Project Management and Information: Many levels of information and flexibility are essential for project management. However, managers should also have good experience in general management of company organizations.



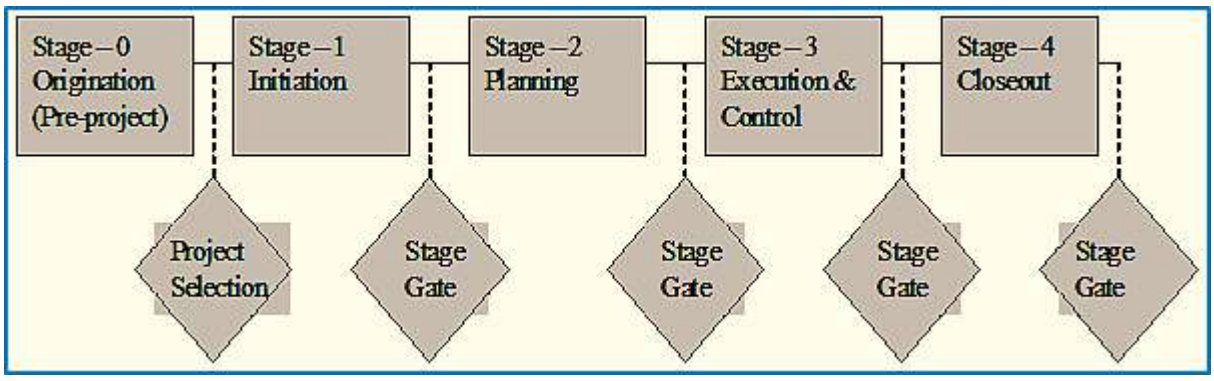
Since projects are **unique or temporary**, involve various resources, project managers must focus on integrating all of the various activities required to successfully complete the project. Most of the tasks performed by a general manager or operations manager are repetitive, ongoing, and done as day-to-day activities. The potential differences of project management in an organization can be seen below:

Common Project Pitfalls	Factors Affecting Project Success	Benefits of Project Management
Unclear objectives & changing Objectives	Lack of coordination and relations	Improved Control
Lack of senior management support	No adequacy of structure and control	Improved Project Support Opportunities
Lack of effective project integration	Poor importance, and public exposure	Improved Performance
Inadequate funding	Lack of criteria, salience, and consensus	Better Customer Relations
Change in business priorities	Competitive and budgetary pressure	Shorter Development Time
Original assumptions invalid	Low optimism, conceptual difficulty	Lower Costs
Ineffective team	Lack of Internal capabilities	Higher Quality & Reliability
Lack of effective communication processes	Board of directors too corporative and inefficient	Oriented results
Greater organizational complexity	Lack of good relationship between departments	Better Interdepartmental coordination

2. Chapter 2 - Management of Project Cycles:

There are two different life cycles that work in conjunction with one another throughout the course of every project. The tasks that must be completed to produce a **product** or a **service** have different *project process **life cycles***. Different project process or life cycles exist for specific products and services. For example, the process life cycle **to build a house** is very **different** from the process life cycle to develop a **software package** or develop **a new product**.

a. Project Management Life Cycles: The management criteria will always be the same, regardless of the project process life cycle being employed. One of a Project Manager's challenges is to understand how **to align** the specific **production process life cycle** with the **project management life cycle**. Production process tasks and project management tasks are **concurrent and on-going**, and can be associated by project management deliverables. The main phases are shown below:



b. Project Schedule: Contains both project process and project management tasks. Phases in the two life cycles may overlap, depending upon the project process being employed. The Project Team needs to be aware of the **inputs and outputs** of the first step life cycle and **shape the next**, as shown above:

- **Stage 0** - **Project Origination:** A customer needs to create a project, a product or develop a service that can solve an internal problem or a business necessity, then; a proposal is submitted to a chosen Company for evaluation and selection process. Depending upon the standards and practices performed by the chosen Company, a time delay between the project's proposal and selection and its actual initiation may occur. If the proposal is selected, a Project Team and a Project Manager are assigned, and the project is authorized to proceed to Stage 1.

- **Stage 1** - **Project Initiation:** The Project Team and the Project Manager start working with the Project Sponsor or even the Client, to identify the necessary resources and core-team members needed to further develop the key project parameters – **Cost, Scope, Schedule, and Quality** (CSSQ). The Project Team documents all procedures in the form of an initial Project Charter, based on the project proposal and the "*business case*" completed during the Stage 0.

Note: The procedure may include plans for involving and communicating with all the parties and Managers that are affected by the project execution, as well as, the identification of an initial set of foreseeable **risks** that can threaten the project. At the conclusion of Stage 1, based on the initial procedures and planning documents, the "*business case*" is revised and re-evaluated, in direction of a decision that can be made to either halt the project or proceed to Stage 2.

- **Stage 2** - **Project Planning:** Builds the project schedule, refining CSSQ and the project plan deliverables. A number of key elements can be added to the project plan, including project-specific items, such as a change control, acceptance management and issue management, as well as, externally-focused items, such as organizational change management and project transition. The initial list of project risks can be augmented, and other detailed mitigation plans can also be developed. The final end of stage the schedule is called as Integrated Project Plan (IPP), since it contains or makes reference to all of the various planning documents being used.

Note: At the conclusion of Project Planning, the "*business case*" is once more revised and re-evaluated based on the completed planning documents and again, a decision can be made to either halt the project, or follow to adjust the necessary resources for Stage 3 (transition and deep implementation details may not be fully developed in this stage).

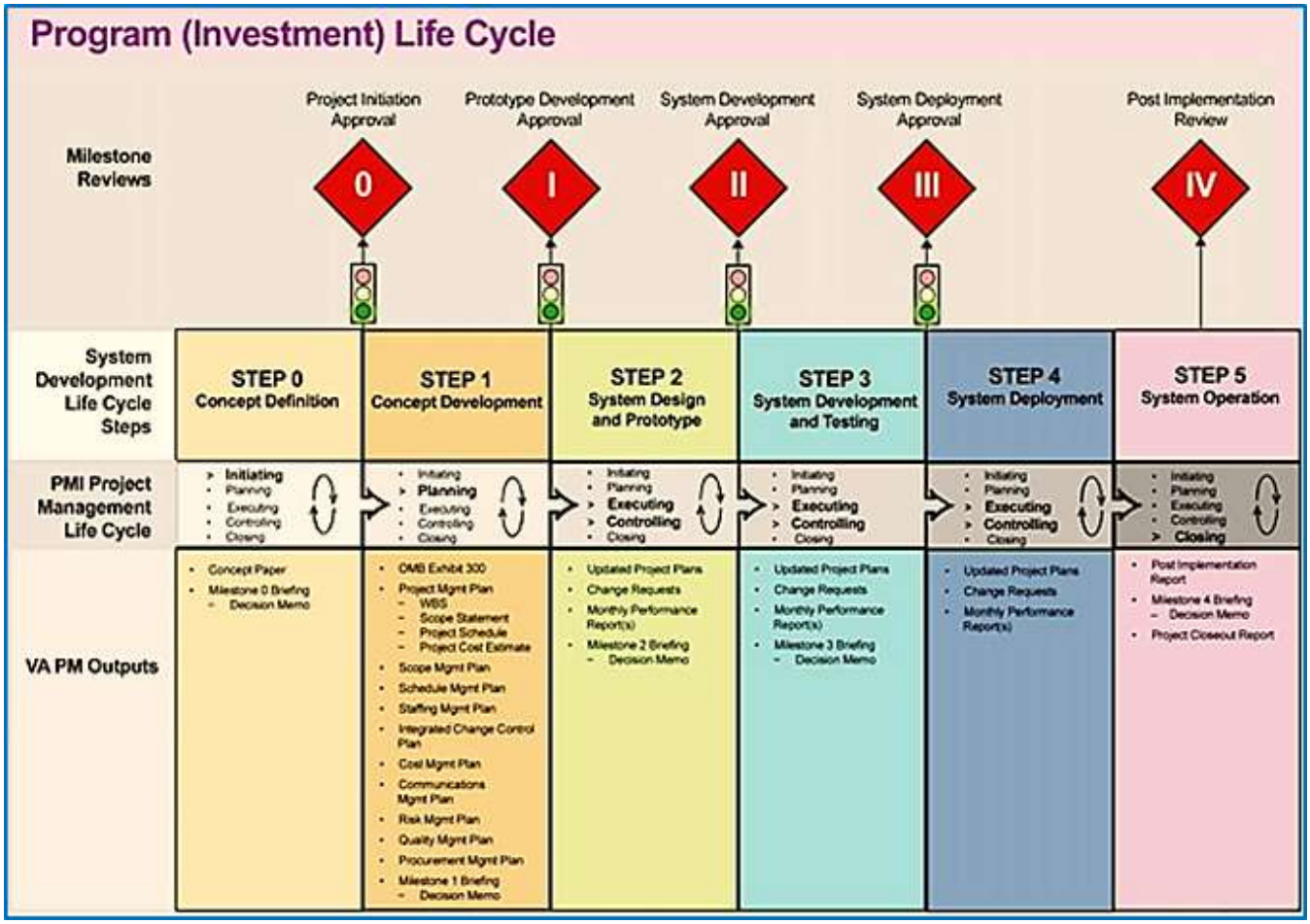
- **Stage 3** - **Project Execution and Control:** Is where most of the resources are applied. A significant number of extended team members may join the project at the beginning of this phase. The primary task of the Project Manager during the Stage 3 is to enable the Project Team to execute the tasks according to the defined Project Planning, communicate with other Managers, and develop the product or service the project is expected to deliver.

Note: The Project Manager uses the processes and plans prepared during Project Initiation (Stage 1) and Project Planning (Stage 2) to manage the project, while preparing the organization and the communication system for the implementation of the product/service and for transitioning the product/service responsibility from the Project Team to the Production Organization.

- **Stage 4** - **Project Closeout:** The Project Manager evaluates the performance of the Project Team and the Production Organization. This may be accomplished primarily by soliciting feedback from the Sponsor or even the Client, Suppliers, Project Team members, Consumers and stakeholders. The primary purpose of this assessment is to document the best practices and lessons learned for use on future projects. Other key project processes may also be scheduled to enable the Production Organization to compare and evaluate the performance measurements during execution.

2.1. Management of Project Life Cycle:

The next section of this chapter contains a listing of the Project Management Life Cycle Templates used in a project. The templates can be considered to roughly equate to the project management deliverables in the consecutive order needed. However, not all these templates will be used for every project. There are many **project templates** available to make it easier for the Project Manager. The Project Management Life Cycle Templates, as shown below, lists templates according to their relative project management life cycle order, along with brief descriptions:



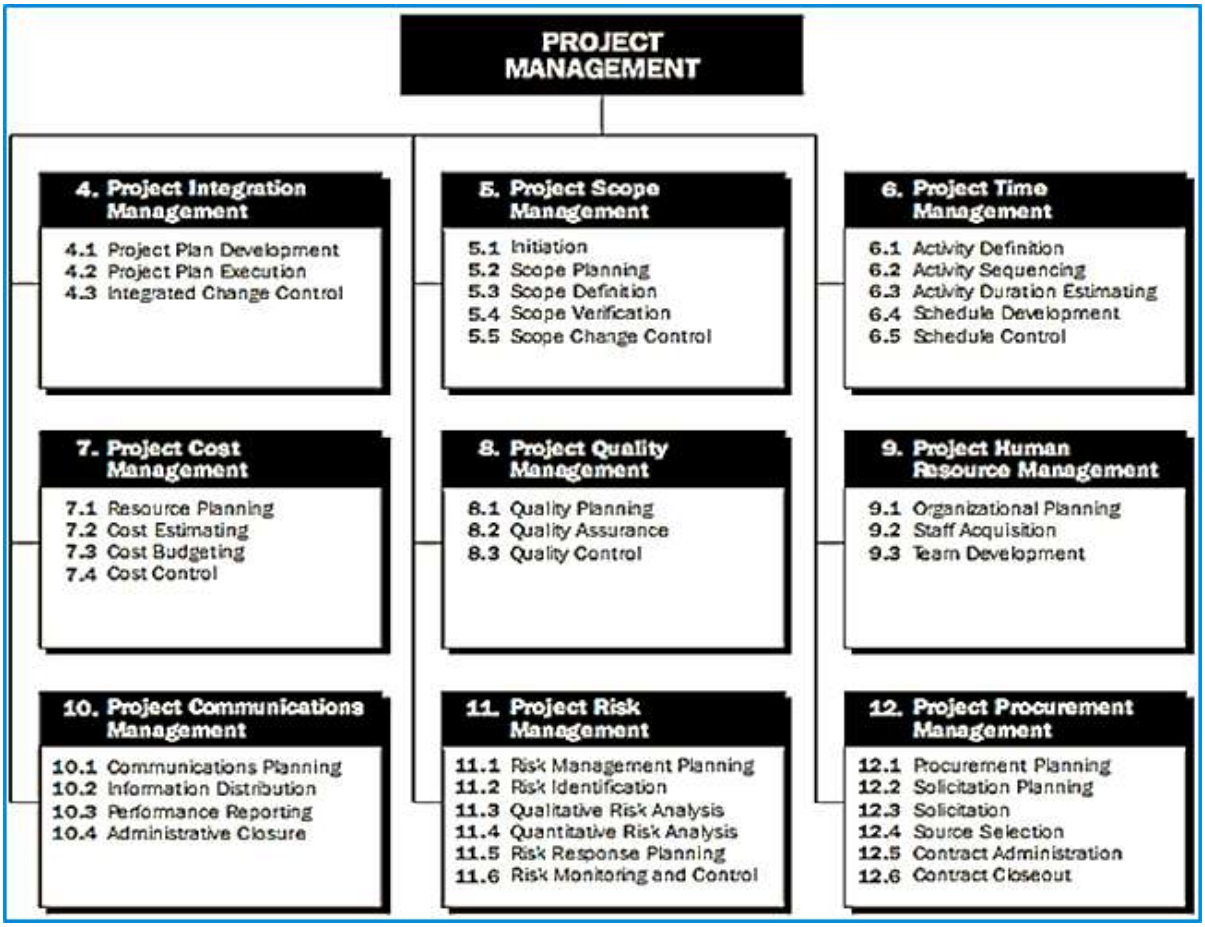
2.2. Project Roles and Responsibilities:

a. Project Team: Also called Core-team is a group of individuals responsible for planning and executing the project. It consists of a Project Manager and a variable number of Project Team members, depending upon the requirements of the project. Usually the project team consists of a group of specialized members to deliver specific tasks, according to the Project Schedule.

Throughout this *Guidebook*, reference is made to specific roles that must be performed at various times throughout the life of the project. The following section provides an overview of the various roles that are required on projects. There are many groups of people involved in the project lifecycle. However, the size and direct make-up of the project team depends upon the unique requirements of each project.

The **Project Manager** is the person who is responsible for ensuring that the Project Team completes all phases of the project, as sketched below. The Project Manager develops the Project Plan with the team

and manages the team's performance of project tasks. It is also the responsibility of the Project Manager to secure acceptance and approval of deliverables from the Project Sponsor and Stakeholders.



b. Extended Project Team Members: on larger projects, may also serve as **Team Leaders**, providing task and technical leadership are responsible for executing tasks and producing deliverables according to the a life cycle template, as indicated below. The levels of effort or participation should be always well defined for them, as extended project team members must be **programmed** and added when **necessary**.

Life Cycle Templates	Description
0. Project Origination:	
Business Case	Defines the business need for the project and supports the Project Proposal with objective analysis of the costs and benefits of doing the proposed project.
Proposed Solution	Defines the solution for how the project's product will support the organization's business need and strategic plan.
Proposal Decision Notice	Identifies the decision of the Project. Selection Committee and communicates that decision to the Project Sponsor and other Stakeholders.
1. Project Initiation:	
Project Charter	Provides authority to establish the project. It is the contract between the Project Team and the Project Sponsor.
Initiation Kick-off Meeting Agenda	Outlines a meeting agenda for an effective kick-off meeting.
Scope Statement	Documents the deliverables of the project, its results and/or quantifiable objectives.

Project Schedule Worksheet	A preliminary high-level schedule of the entire project.
Preliminary Budget Estimate	Documents a preliminary estimate of the cost to complete the project.
Project Status Report	Written by the Project Manager, this report summarizes project activity and is issued at pre-determined intervals (weekly, monthly) throughout the project.
Project Communications Plan	Defines how often information will be disseminated, including the format and media to be used to reach the desired
Project Plan	The compilation of Project Initiation deliverables that ultimately guides the execution and control of the project.
Project Deliverable Approval Form	Indicates Project Sponsor acceptance of deliverables attached and approval to proceed.
2. Project Planning:	
Project Planning Kick-off Meeting Agenda	Outlines a meeting agenda for an effective kick-off meeting.
Project Budget Estimate	Refines cost estimates based on increased detail in Project Scope and Schedule.
Project Risk Management Plan	
Project Quality Management Plan	Identifies and documents all standards for each project deliverables.
3. Project Execution and Control:	
Progress Report	Produced by each Project Team member, this report documents time spent on tasks and provides estimates of time needed to complete tasks.
Project Acceptance Form	Indicates Project Sponsor or the Client acceptance of the project deliverables and approval to proceed to the next phase of Closeout.
4. Project Closeout:	
Project Post-Implementation Survey	Necessary tools for soliciting feedback on the project.
Project Post-Implementation Report	Needed feedback on project effectiveness, lessons learned, best practices and key project metrics.
Project Repository Table of Contents	A suggested list of project-related materials and actions to be maintained.
All Project Phases (Stages) & Change Management:	
Project Scope Change Request	Documents and defines requested changes to the project scope.
Project Change Request Log	Documented record of scope changes.
1. Risk Management:	
Risk Identification List	List of potential risks to the project that should be used for evaluation, programming and planning of difficult situations.
Probability/Impact Analysis & PI (Project Identification) Matrix	Assessment tools to determine the risk severity, commonly used in risk management planning.
Project Risk Control Log	Ranks risks based on the likelihood and impact of other happened risk occurrences, and details risk mitigation plans.

c. Project Sponsor: Is a manager with demonstrable interest in the outcome of the project, where he (or she) is responsible for securing authority and resources for the project continuation. Ideally, the Project

Sponsor should be the highest-ranking manager possible, in proportion to the project size and scope. The Project Sponsor provides support for the Project Manager, approves major deliverables, and signs off on approvals to proceed to each succeeding project phase. The Project Sponsor may elect to delegate any of the above responsibilities.

d. Performing Organization Management (POM): Are defined members of the management team that may exert influence on the Project Team and may be also affected the implementation of the project and final product. The committees that are formed to evaluate and select proposed projects for the Performing Organization(s) are comprised of members of the Performing Organization's Management. It is possible to have several Performing Organizations overseeing projects, as when separate Business Units each participate at some level of stakeholder project sponsorship.

e. Project Proposal Team: is a group responsible for preparing the Project Proposal in the origin phase, organized by the Project Sponsor. The Project Selection Committee comprises members of the Performing Organization(s) Management team who meet on a regular basis to evaluate Project Proposals and select projects for initiation. They maintain the Project Proposal rating models and project selection criteria.

f. External Customers: companies that are identified to need products or services in which the interested company becomes the vendor.

g. Internal Customers: are business units that identify the need for products or services internally where a defined product or project will be developed. Since it is frequently not feasible for all the Customers to be directly involved in the project, the following roles are identified, as below:

- ✓ **Internal Customer Representatives:** are members of the customer community (from organizations, government companies, business units, etc.) that are identified and made available to the project due their subject matter expertise. Their responsibility is to accurately represent their business units' needs to the Project Team, and to validate the deliverables that describe the product or service that the project will produce.

- ✓ **Customer Decision-Makers:** are those members of the customer community designated to make project decisions on behalf of organization or major business units that will be affected by the products or services the project will deliver. They are responsible for achieving consensus of their business unit on project issues and outputs, and communicating it to the Project Team. **Consumers** include all the people that will use the products or services, and the project development. Internal consumers to the organizations may also be customers.

- ✓ **Internal Stakeholders:** are people that, in any way, are affected by the new products or services inside the Performing Business Organization. This may include the Project Team, the Performing Organization Management, customers, as well as, co-workers who will be affected by the change in their work practices, due the new products or services.

- ✓ **External Stakeholders:** Are all people outside the Performing Business Organization also, in any way, affected by the outcoming of new products or services. **Consumers** are buyers of products or services, but may also be External Stakeholders. **Vendors** are the sales people that provide additional products or services inside an organization, but also may be External Stakeholders.

3. Chapter 3 - Flexible and Scalable:

The measure of project management presence lies in the deliverables that project managers produce; well managed projects are usually accompanied by documentation. Exceptions of course, are small projects where little, yet important, documentation is needed. The method provides a model to determine project management deliverables, but this is only just another tool. There is no method to determine the delivera-

bles can cover every situation. The decision concerning what project management deliverables are needed should be based upon more than model results.

➢ Section 1: Determining Project Category:

The Project Category Worksheet asks a set of questions in four categories: the strategic importance of the project, the business risks, the technical risks, and the size of the project. Differences between the Project Managers decisions and the Worksheet in regards to the project management deliverables should be explainable and defendable. The results of the worksheet will determine which of five categories the project belongs. In general, **Category 5** projects are the most complex, difficult, risky, or strategic, while **Category 1** projects are the least, as explained below:

Questions:	Rank
External Projects:	
Is this an external project? (no = 1, yes = 5)	
Is the project for a new customer? (no = 1, yes = 5)	
How strategically important is the customer? (1 to 5, 1 = low)	
Does the project address a new customer segment or market? (no = 1, yes = 5)	
How important are any external alliances to the company (1 to 5, 1 = minimal)	
How critical is the project to the customer (1 to 5, 1 = low)	
Internal Projects:	
Does the project create a new product for the company? (no = 1, yes = 5)	
Does the project create a new market for the company? (no = 1, yes = 5)	
To what extent does the project enhance the company's competitive position?	
To what extent does the project facilitate the company's strategic direction?	

➢ Section 2: Business Risk Ranking:

Questions:	Rank
Does the company have experience with this type of project?	
Does the customer organization or culture impose a risk?	
Do the communications between the customer and the company impose a risk?	
Is the schedule inflexible, imposing a risk of slippage?	
Does our level of confidence in the proposal scope present a risk?	
Do the pricing or budgetary factors impose a risk?	
Is this an overseas project, where cultural and legal issues may impose a risk?	
Do the contract terms impose a risk?	
Is there any third-party involvement that imposes a risk?	
Do customer expectations exceed either development or delivery technology capabilities?	
Enter the highest ranking of business risk	

➢ Section 3: Technical and Management Risk Ranking:

Questions:	Rank
Are the project scope and objectives clearly defined?	
Does staffing the project impose a risk?	
Do the experience and capabilities of the project manager impose a risk?	
Does the project require significant coordination with different parts of the customer organization?	
Does the estimating process impose a risk?	
Does new technology impose a risk?	

Does the use of a new development environment impose a risk?	
Does a lack of skilled resources impose a risk?	
Does the physical separation of project members or the team from the customer impose a risk?	

- **Section 4: Project Size Ranking:**

Questions:	Rank
Is the project class size based on the hours of effort?	
Is the project class size based on the budget?	
What is the higher of the two values?	

- **Section 5: Project Category Summary:**

Questions:	Rank
Does the highest rank enter in a strategic importance?	
Does the highest rank enter in a business risk?	
What is the higher of the two values?	

3.1. Project Strategy Worksheets:

Project Managers will complete the strategic worksheet to determine the project size and then gain project sponsor approval as an appropriate check-and-balance procedure to determine the project management deliverables required for the project. The Project Category Worksheet is used to determine the project sections, as described below:

- **Section 1: Strategic Importance Ranking**: presents a series of questions intended to determine the strategic importance of the project to the company. First, determine whether the project is external or internal, and then answer the questions for the appropriate type of project.

  For each "*yes/no*" question, enter a rank of 1 if the answer is no, and 5 if the answer is yes. For the other questions, determine the rank on a scale from 1 to 5. The interpretation of the scale is given in each question. Once the rankings are complete, scan down them and enter the highest value in the last row. If the highest strategic importance ranking is 4 or 5, the project can be considered strategically important.

- **Section 2: Business Risk Ranking**: is used to determine the business risk ranking which presents a series of questions related to the business risk surrounding the project. For each question, determine the degree to which the answer reflects a risk on a scale from 1 to 5 where 1 is minimal risk and 5 is extreme risk. 3 is moderate risk. Once the rankings are complete, scan down them and enter the highest value in the last row.

- **Section 3: Technical and Management Risk Ranking**: is used to determine the technical and management risk ranking. It presents a series of questions related to the technical and management risk surrounding the project. For each question, determine the degree of risk on a scale from 1 to 5 where 1 is minimal risk and 5 is extreme risk. 3 is moderate risk. Once the rankings are complete, scan down them and enter the highest value in the last row.

- **Section 4: Project Size Ranking**: is used to determine the project size ranking. This section is completed by referring to categorizations of project size based upon effort and budget derived from the Project Size Master Table, explained below. Enter the project classes for hours and, if applicable, budget as derived from the Project Size Master Table.

- **Section 5: Project Category Summary**: is a summary of the preceding four rankings. Enter the highest ranking from each checklist into the corresponding row. At the bottom, enter the highest of the four rankings. This is the project category, which ranges from 1 to 5.

  As a final step, conduct a "sanity check" of the results. In particular if all the rankings but one are low, perhaps the classification is biased by one factor. In such a case, reduce the project category accordingly. This process is not intended to be rigid; its purpose it to provide guidance to help assess the significance of a project and the corresponding degree of project management that needs to be applied.

3.2. Project Size Ranking Master Table:

In the hours of effort column, look down the hours column of the Project Size Ranking Master Table. The number at the extreme left side of the row is the project category which should be used and entered on the checklist presented in Section 4: Project Size Ranking. In the following illustration, the smallest project took **100 hours** and produced **$10.000** revenue, while the largest ones took **12.000** hours and produced **$2 million** in revenue. Extrapolating, the incremental amounts are shown in the table. The highest "Hours" or "Budget" category number will determine the overall project size category, as the example shows below:

Assuming a project estimated at **7.000 hours** will produce revenues of **$1.7 million** dollars. Evaluating the columns, the first number in the hours column that is bigger than **7.000** is in the row labeled **"3"**, and the first revenue amount greater than the project's revenues is in the row labeled **"4"**. Therefore, this project is in **class 3** for effort and **class 4** for revenue. Projects that are larger than the largest amount in the column are in **category 5** and those that are smaller than the smallest amount are in **category 1**.

Project Size Ranking Master Table		Hours	Revenue
	The smallest project undertaken:	100	$10.000
1		3.075	$507.500
2		6.050	$1.005.000
3		9.025	$1.502.500
4	The largest projects undertaken:	12.000	$2.000.000

3.3. Project Management Deliverables:

Deliverables are documents used to help determine the extent of the expected project. Determination of what deliverables are mandatory and what categories provides the scalability feature of the management methodology. Depending upon the size of the project, the plan alone may consist of several documents devoted to such issues as the schedule, the budget, staffing, communications, or risks.

The project category specifies which project management deliverables are required. A Project Manager's job is to control the project to achieve successful results. In order to accomplish this, one of the project management **activities** is to **produce documents**. Plans, status reports, meeting minutes, and issues logs are all part of the process. The reason to **standardize** these forms, as much as possible, is so they bear resemblance to one another across projects.

Obs.: Many people claim about standards as being bureaucratic and it is true that they can lead to an administrative tangle that chokes progress, but when they are regarded as tools to simplify effort, they are invaluable for two reasons. First they serve as a checklist, acting as a reminder towards aspects of planning or reporting that may have been overlooked.

a. Project Charter: The project charter is a document that presents the project scope and overview. It is first created during project initiation and is used to guide project planning, as well as, to provide its reader

with a basic understanding of the project. As will all project management deliverables, the project charter is subject to revision as the conditions that it describes change.

b. Constraints: Constraints are generally unfavorable to a project. That is, if a constraint proves to be true, the project suffers, if it is not true, the project benefits. The purpose of defining constraints is to be able to define approaches to mitigating them.

c. Assumptions: Assumptions are generally favorable to a project. That is, if an assumption proves to be true, the project benefits, if it is not true, the project suffers. The purpose of defining assumptions is to be able to challenge them and to develop contingency plans should they prove to be invalid.

d. Project Satisfaction Criteria: The project satisfaction criteria are a documented listing of four or five criteria to use to measure whether or not the project was successful. Generally, the customer and the project manager sign the form at the start of the project to indicate agreement on the criteria, and both sign at the completion to indicate that the customer has conveyed the ratings to the project manager.

e. Scope Statement: The scope statement provides a general description of the sum of the products and services to be provided by the project. It provides a common understanding of the project scope among stakeholders. The scope statement may also make explicit some exclusion that, based on the audience, would be assumed to be part of the project.

f. Scope Management Plan: The purpose of the scope management plan is to describe how the scope of the project will be managed. It includes a list of factors that could lead to changes of scope, mechanisms for detecting scope changes, and procedures for changing scope.

g. Work Breakdown Structure: A Work Breakdown Structure (WBS) is "A deliverable oriented grouping of project elements which organizes and defines the total scope of the project." Presented as a hierarchical breakdown, each descending level represents an increasingly detailed definition of a component. Graphically, it is a tree structure in which the elements at a lower level consist of all the activities needed to complete the higher level. The process of WBS construction is time consuming: it can take hours for even a relatively small, simple project and for large, complex projects days and weeks may be required.

h. Activity Definitions: An activity definition is a description of an activity or work package. There are two main purposes for the activity description: to document the activity for each team member and to serve as a quality check on the WBS. Every input must be an output from a previous activity or come from a source outside the project, and every output must be an input to another activity or a project deliverable. Inputs that have no source or outputs that have no destination are usually indications of missing activities.

i. Activity Dependencies: Dependencies between activities are relationships indicating the activities that must precede or follow other activities. There is no template for dependencies because they are shown on other deliverables such as a **Gantt chart** or a network diagram like **Microsoft Project Scheduling**.

j. Activity Estimates: Activity estimates are of two types: **duration and effort**. Effort gives the amount of efforts that an activity will take, while duration give the elapsed time that an activity will require. There is no template for this deliverable because the durations and effort estimates are part of the project plan and are developed in project management software such as Microsoft Project.

An effort estimate for an activity is the amount of work needed to complete that activity, expressed in time-related terms such as work hours or work weeks. The estimate is independent of the number of people who will be working on the activity or the percentage of their time that will be committed. At its simplest, if an activity will take four weeks' effort, then completing it will take one person four weeks, two people two weeks, and one half-time person eight weeks.

k. Project Schedule: The project schedule is required for all projects, but will vary in degree of formality from a list of activities with completion dates prepared on a word processor, to a detailed schedule presented in Microsoft Project. For our purposes, these activity definitions are activities in **Microsoft Project Scheduling (Ms Project)**, defined in continuation - **Project Management – Part 2**.

l. Schedule Management Plan: The schedule management plan presents the major milestones, factors that could lead to changes in the schedule, that are mechanisms, for detecting changes and procedures for changing he plan. The Schedule Management Plan may be a separate document or may be embedded in the whole Project Plan.

m. Resource Requirements: Resource requirements consist of list of the skill sets that the project requires and the dates on which they will be needed. There is no template for this deliverable because the format is variable. It may be a resource map from a project management software or a list prepared on a word processor or spreadsheet.

n. Cost Management Plan: Presents the project costs along with factors that could lead to increased costs, mechanisms for detecting cost changes, and procedures for changing the plan. Cost Estimates form the budget of the project and are captured on cost estimate worksheets. The Cost Management Plan may be a separate document or embedded in the whole Project Plan.

o. Project Plan: Is the central planning document and the culmination of the planning and scheduling process. While it is common for project managers to refer to the project schedule as their plan, the schedule is properly just one part of the plan. The choice is up to the project manager, but in general, these and other components will be separate documents only for large projects. The sum total of the project plan is often called the Integrated Project Plan (IPP).

p. Quality Management Plan: There are some basic aspects of quality management that should be present in all projects. Whether or not there is a quality control department, the managing quality is also the project manager's responsibility, also defined in the continuation of this Guidebook - Part 2.

q. Role and Responsibility Assignments: It is included in the project plan. Role and responsibility assignments dictate the responsibilities of each team member or stakeholder for each activity. Some project processes that the project management methodology will integrate with already have pre-defined roles and responsibilities outlined, such as the Value Creation Process (VCP) and Program Management System processes for new product development.

r. Staffing Management Plan: Project staffing follows the process of resource leveling, which is intended to ensure that team members are occupied to the maximum extent. At its simplest objective, the staffing plan is a report taken from a project management software, when someone work (he or she) is required availability, and when he or she will no longer be needed on the project.

s. Organization Chart: On large projects, it is desirable to prepare an organization chart for the project showing each team member and the team reporting and responsibility structure. This is a standard, hierarchical chart similar to corporate organization charts. Its value is twofold: It documents where each person fits into the project – something that is not always apparent on large projects – and it forces the project manager to think about how the team should be organized.

t. Project Team Directory: This is simply a listing of each stakeholder with phone, fax numbers and email addresses. It should include all project stakeholders including key members of the customer team. The directory is especially valuable for external projects.

u. Communications Management Plan: The communications management plan identifies all forms of com-munication that will be used during the project. For each communication device, such as a written

report, a meeting, or a newsletter, the plan will indicate the intended audience along with the purpose, medium, and frequency of the communications.

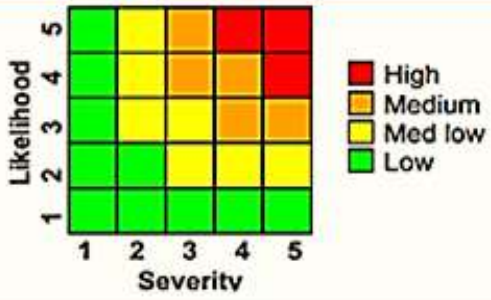
v. Procurement Management Plan: Is typically required for construction projects in which procurement is a major activity, but for many type projects, such as with IT projects, procurement is not usually significant enough to warrant its own plan.

x. Risk Management Plan: The risk management plan presents the project risks and the events that will indicate that the risk can materialize or is about to do so, the actions to be taken to respond to it, and plans to be executed. The risk management plan may be a separate document or it may be embedded in the whole project plan. Risk Management Process is explained in Chapter 4.

z. Risk Categorization: Includes an analysis of both potential problems and opportunities, reflecting the position that most risks endanger a project, some arise from a failure that should be quick recognized and responded to change management. Despite this, the primary focus of risk categorization must be on situations that negatively affect a project, as shown in example below:

Project Categories Impacted by Risks:

Likelihood	Rating	Technical Risks	For Cost / Schedule Risks
	1	< 0.5%	< 20%
	2	0.5% to 1%	21% to 40%
	3	1% to 5%	41% to 60%
	4	5% to 10%	61% to 80%
	5	>10%	> 80%



Severity						
Rating		1	2	3	4	5
Magnitude of Impact	Technical	Minor inconvenience; < 5% utility loss, e.g., infrequent safehold transition without damage	Significant impairment of margin or secondary missions; 6-15% utility loss, e.g. degradation in thermal control, ACS, or battery	Major impairment of margin, design life, or secondary missions; 16-45% utility loss, e.g. frequent safeholding or power shedding, high noise	Severe impact; 46-75% loss of utility, e.g. permanent loss of redundancy, failure to meet key mission objective, early mission termination	Catastrophic Beginning of Life (BOL) failure
	Schedule	Minimal or no impact	Erode segment schedule margin by > 5%	Erode system schedule margin by > 5% or segment margin by > 25%	Erode system schedule margin by > 25%	Delay key effectivity date or event, e.g. delay of launch, delivery of missile warning capability

3.4. Definition of the Scope:

a. Scope Change Requests: One of the mechanisms needed to manage a project scope is a change request form that allows making changes, only submitting a request. The Formal Acceptance of the Project integrates the completion acceptance to be given for a phase of the project, or the project itself.

b. Project Records: Project managers are responsible for maintaining the project records, which at a minimum should include the project proposal and contract; the project plan and supporting documentation; change requests, approved and rejected, along with a log of the requests; project status reports; the project issues log; minutes of meetings; memos, letters, and e-mail; useful project background information; and technical information relevant to the project manager.

c. Input to Performance Appraisals: One of the motivations of any good company is to seek constant improvements in the performance of its people, and for this reason performance review feedback should be given by the project manager for the project team, and by the team for the project manager. The Issues or Actions Log is defined to help a project manager capture issues for follow-up or small action items not found in the project schedule.

d. Project Time Sheets: Team members are required to enter the time they spent on activities into the electronic time sheet system to capture actual activity costs, and together with the Performance or Status Reports, include the depth of information on the status reports that may vary according to the size and complexity of the project.

e. Lessons Learned: Lessons learned should be captured at the end of each stage of a project and when the project is finished. The project team and manager will have acquired some more knowledge about what works and what doesn't.

f. Project Archives: At the close of each project, the files and records of the project should be archived. At a minimum, the archives should include the project proposal and contract, the project plan, project change requests, status reports, the issues log, legal documentation such as the contract or letter of authorization to proceed formal acceptance, and lessons learned.

g. Meeting Agenda: There are **two tools** that are essential in managing meetings: a **clear agenda** and serviceable minutes. The agenda should be prepared in advance and distributed to the participants unless the meeting is repetitive, such as a weekly team meeting, where the agenda rarely changes. Those meetings that are not documented may not be held, since cannot be evidences.

h. Project Handover Form: The project handover form is a document that is useful when a project is handed off from the project manager to the recipients of the product at the end of the project.

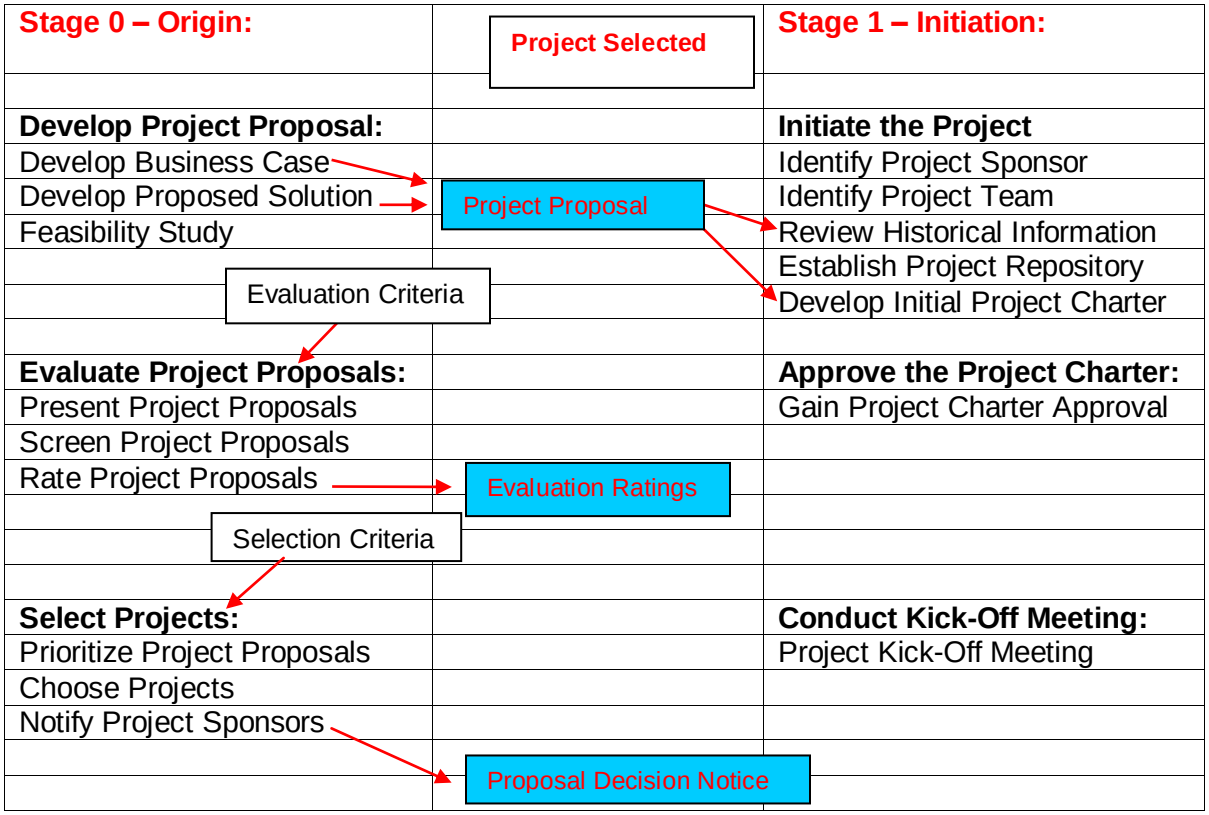
4. Chapter 4 – Life Cycle Stages:

This Chapter provides guidance for the Project Manager to be guided on how to conduct a project through its entirety, or go to the specific stage of the project to reference how to manage through a particular phase. A summary of how this Guidebook can be used, as follows:

a. Processes List: The three major processes in this phase of the project management lifecycle are:

- **Develop Project Proposal**: where the initial project parameters are defined;
- **Evaluate Project Proposals**: where cost/benefit analysis is performed, and the projects are evaluated against a set of specific business criteria;
- **Select Projects**: where a consensus is reached on the project's feasibility and relative importance in comparison to other proposed projects, and a decision is formally made.

b. Origin of the Processes:



4.1. Stage 0 - Project Origination:

The purpose of Project Origination is to evaluate projects proposed for the next planning cycle and to reach a consensus on the projects to be selected. During this phase, the strength of a project's Business Case is tested, and the viability of the Proposed Solution is explored. The Project Proposal process may actually be part of the budget cycle, serving as the justification for budget requests. In this case, Project Proposals may need to be created a full budget cycle prior to the project's anticipated initiation.

Other factors that impact Project Origin include environmental health and safety requirements, governmental regulations, and legislative requirements. Each organization has its own approach to green-lighting desired projects. The approach outlined below is only one of many possible variations of the evaluation and selection process.

- The deciding body must have enough information about the merits of the project's Business Case and the viability of its Proposed Solution to make a meaningful evaluation;
- The competing projects' merits must be evaluated and compared using a consistently applied methodology;
- The selection process must take into consideration the project's fit with the organizational mission and strategic plan.

a. List of Roles: the following roles are involved in carrying out the processes of this phase.

- Project Sponsor;
- Project Proposal Team;
- Project Selection Committee.

b. List of Deliverables: the assigned members of the Performing Organization Management prepare and review Project Origination deliverables.

Project Origination tasks and their deliverables (or outcomes):

Processes	Tasks	Task Deliverables
Develop Project Proposal	Develop Business Case	Business Case
	Develop Proposed Solution	Proposed Solution
	Feasibility Study	Project Technical Understanding
Evaluation Project Proposals	Present Project Proposal	Project Proposal Understanding
	Screen Project Proposals	Proposals Removed from Further Consideration at present time
	Rate Project Proposals	Evaluate Ratings
Select Projects	Prioritize Project Proposals	Prioritized Proposals
	Choose Projects	Select Projects
	Notify Project Sponsor	Proposal Decision Notice

- **Project Proposals:** The initial Business Case for the project is formulated, and all information required for project selection is formalized in the Proposed Solution. The tasks to develop those documents should be performed not consecutively with feasibility study, but concurrently, with one document informing and influencing each other.

- **Business Cases**: Provides information necessary to support the decision to launch the project at the end of Project Origin and to continue in subsequent phases. The cost of implementing the solution must be estimated and compared to the benefits gained, and justification for the potential project should also depend on whether the project is consistent with the organization's mission.

- **Proposed Solutions:** Defines the optimal solutions to address that need, and describes how the solution fits into the organization's strategic plan. The basis of time and cost estimates for the Proposed Solution (expert judgment, availability of historical data on similar projects, etc.), as well as the accuracy of the estimates (+/- 100%, +/- 50%, etc.), should be documented. Some initial risk factors should be considered, along with strategies for mitigation.

- **Strategic Plans:** Include items as a description of the product, the benefit to the performing organization, alignment with the organization's mission and strategic plan, a high-level estimate of the required resources, costs and timeframes, and any other information specifically required by the Performing Organization for selection consideration.

- **Project Proposals Evaluation:** Presents an approach to rating competing proposals in a methodical, impartial fashion; the results are indispensable to the success of the subsequent project selection process. The entire process of maintaining a listing of potential projects, evaluating them for strategic fit, and selection is called "*Project Portfolio Management*."

- **Project Rating Matrix**: generally performed by the executive management or by a group designated by the executive management (usually called a Project Selection Committee or Project Approval Committee). The group may meet on a regular or needed basis to perform this function, or the rating of proposals may be an integral part of the organizational strategic/tactical planning and budgeting process.

Sample Project Rating Matrix:

SAMPLE PROJECT RATING MATRIX

	Project Name	Project Sponsor	Strategic Alignment*	Risk*	Cost/ Benefit*	Total
1						
2						
3						

*Each of these categories would have a separate matrix or worksheet as supporting documentation, which would typically roll up to a single rating within each category. These worksheets should be standard across projects to provide comparative rankings.

STRATEGIC ALIGNMENT

Mandatory Requirement:

0 Initiative not mandatory
1 Initiative inferred by or strongly suggested in law, regulation
2 Initiative specifically required by law, regulation

Alignment to Mission, Goals, & Objectives:

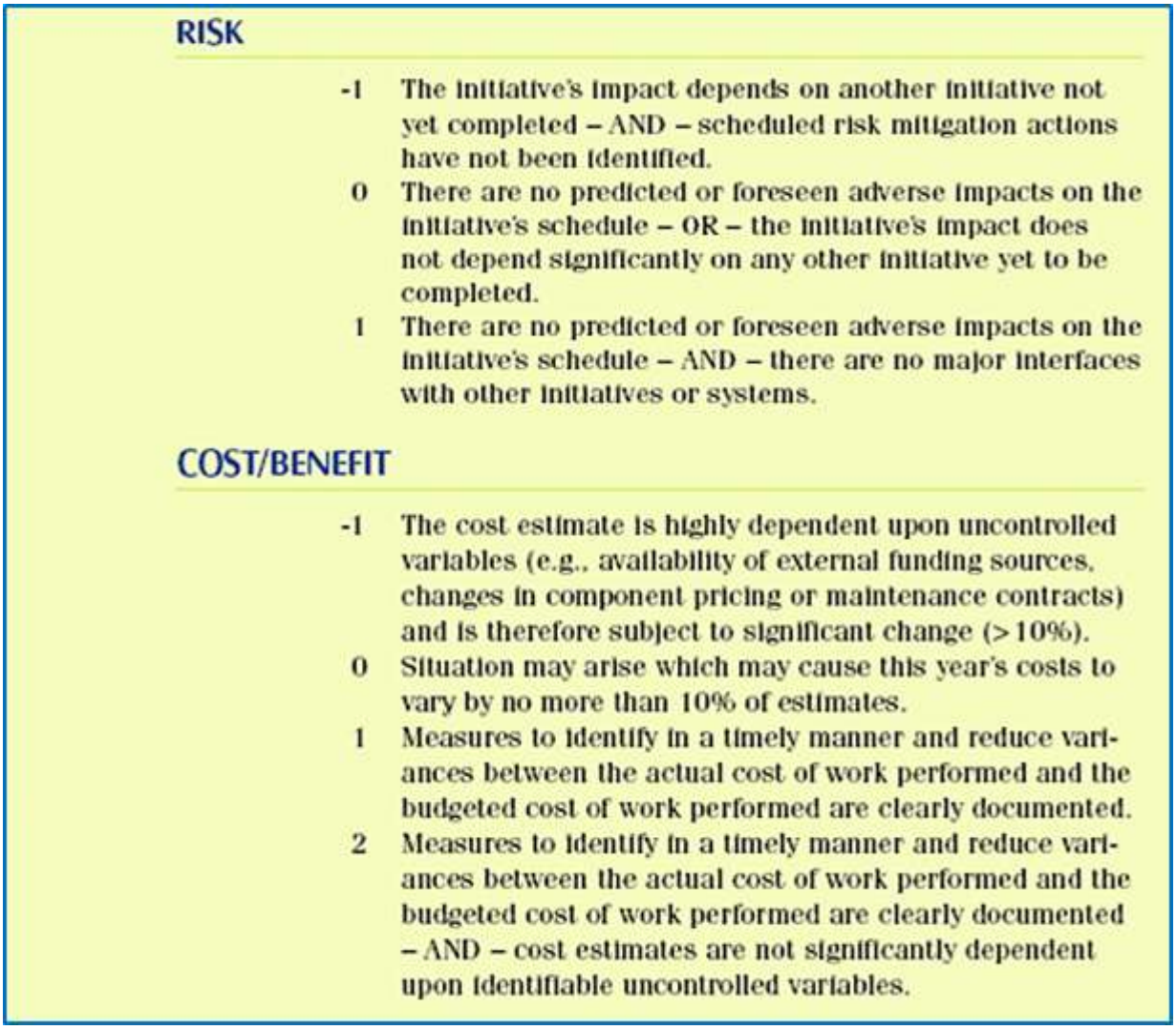
-1 The initiative does not map to any mission, goal, or objectives
0 Explicit documentation somewhat maps this initiative to missions, goals, and objectives.
1 Explicit documentation clearly maps this initiative to missions, goals, and objectives.
2 Accomplishment of mission, goals, and objectives is highly dependent on this initiative and clear documentation exists which supports this assertion.

Process Improvement:

-1 Initiative does not assist or generate process improvements.
0 There is documented evidence that the initiative will assist or generate process improvements within a workgroup.
1 There is documented evidence that the initiative will assist or generate process improvements across a division.
2 There is documented evidence that the initiative will assist or generate process improvements across the agency.

Other categories that might be included within strategic alignment include:

- Consequences of not doing the initiative
- Impact on Internal and/or External Customers
- Cross-Functional/Organizational Impact
- Scope of Beneficiaries



RISK

-1 The initiative's impact depends on another initiative not yet completed – AND – scheduled risk mitigation actions have not been identified.

0 There are no predicted or foreseen adverse impacts on the initiative's schedule – OR – the initiative's impact does not depend significantly on any other initiative yet to be completed.

1 There are no predicted or foreseen adverse impacts on the initiative's schedule – AND – there are no major interfaces with other initiatives or systems.

COST/BENEFIT

-1 The cost estimate is highly dependent upon uncontrolled variables (e.g., availability of external funding sources, changes in component pricing or maintenance contracts) and is therefore subject to significant change (>10%).

0 Situation may arise which may cause this year's costs to vary by no more than 10% of estimates.

1 Measures to identify in a timely manner and reduce variances between the actual cost of work performed and the budgeted cost of work performed are clearly documented.

2 Measures to identify in a timely manner and reduce variances between the actual cost of work performed and the budgeted cost of work performed are clearly documented – AND – cost estimates are not significantly dependent upon identifiable uncontrolled variables.

- **Present Project Proposals:** Should be based on the Proposed Solution and the Business Case, but it can take many forms, from a formal slide presentation to an informal run-through of existing material. The objective is to allow the decision-makers to interact with those who best understand the business reasons for the initiative, within all Proposed Solutions.

4.2. Stage 1 - Project Initiation:

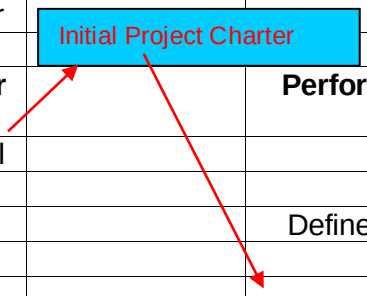
Development of the Project Charter is a pivotal starting point for the project, establishing the project definition that will serve as the foundation for all future efforts. The start of this process is marked by the Project Kick-off Meeting, in which the Project Manager presents the Initial Project Charter. Successful projects begin with a detailed project definition that is *understood and accepted* by Stakeholders.

As part of Project Initiation, an initial Project Plan is developed, which comprises the Project Charter, with **Cost/Scope/Schedule/Quality (CSSQ)** documents, and preliminary Risk Identification. Potential problems are identified so that they can be addressed early in the project.

Even during the Project Initiation, a high-level Project Schedule (see MS Project) is developed as a roadmap to more detailed Project Planning and Project Execution and Control. This high-level schedule will be refined during Project Planning, and will serve as the primary source of information regarding project status and progress.

Initiation Chart of Processes, Tasks and Deliverables:

Stage 1 - Initiation		Stage 2 - Planning
Initiate the Project		**Prepare for Project Planning**
Identify Project Sponsor		Create the Project Plan Shell document
Identify Project Team		Orient new Project Team members
Review Historical Information		Kick-Off Project Planning
Establish Project Repository		
Develop Initial Project Charter		
Approve the Project Charter		**Perform Planning Activities & Detail the Project Plan**
Gain Project Charter Approval		Scope Planning
		Scope Definition
		Define Acceptance Management Process
		Refine Project Charter
		Schedule Activities & Tasks
		Budget Project
Conduct Kick-Off Meeting		Quality Planning
Project Kick-Off Meeting		Human Resource Planning
		Communications Planning
		Risk Management Planning
		Change Control Planning
		Implementation Plan
		Establish Baseline
		Confirm Approval to Proceed
		Gain Approval Signature from Project Approver(s)



a. List of Processes: This phase consists of the following processes:

- **Project Preparation:** where the Project Sponsor and initial Project Team are identified and work with the Project Manager to create the Project Charter.
- **CSSQ (Define Cost/Scope/Schedule/Quality):** the Project Team defines the scope and identifies the preliminary budget, high-level schedule and quality standards to complete the project.
- **Risk Identification:** the Project Team begins to identify and document any risks associated with the whole project.
- **Initial Project Plan:** the Project Team identifies all Stakeholders and documents their involvement in the project, develops means of communicating with them, and compiles all documentation created during Project Initiation to produce the Initial Project Plan.
- **Approval to Proceed to Next Phase:** the Project Manager reviews and refines the Business Case, secures resources required for Project Planning and prepares the formal acceptance package for review and approval by the Project Sponsor.

b. List of Project Initiation Tasks: This phase defines the following processes:

- Project Charter;
- Initiation Kick-off Meeting Agenda;
- Scope Statement;

- Preliminary Budget Estimate;
- Assumptions Checklist;
- Constraints Checklist;
- Project Satisfaction Criteria**.**

Project Initiation Tasks and Their Deliverables:

Processes	Tasks	Task Deliverables
Prepare for the Project	Identify Project Sponsor	Project Sponsor
	Identify Initial Project Team	Project Team
	Review Historical Information	Information Reviewed
	Develop Initial Project Charter	Initial Project Charter
	Conduct Project Kick-off Meeting	Kick-off Meeting
	Establish Project Repository	Project Repository
Define CSSQ	Define Project Scope	Scope Statement
	Develop High-Level WBS & Schedule	High-Level WBS & Schedule
	Identify Quality Standards	Quality Management Plan
	Establish Project Budget	Preliminary Budget Estimate
Perform Risk Identification	Identify Risks	Risks and Impacts
	Risk Identification	List of Risks
Develop Initial Project Plan	Identify & document stakeholder involvement	Description of Stakeholder involvement
	Develop Communications Plan	Communications Plan
	Compile All Information to Produce the Initial Project Plan	Initial Project Plan
Confirm Approval to Proceed to the Next Phase	Review/Refine Business Case	Refined Business Case
	Prepare Formal Acceptance Package	Approval Form
	Gain Approval of Project Sponsor	Approval Form approved

c. List of Roles: The following roles are involved in carrying out the processes of this phase.

- Project Manager
- Project Sponsor
- Project Team Members
- Customer
- Customer Representatives
- Stakeholders
- Performing Organization

d. List of Deliverables: Fall into three categories of importance and formality:

- **Phase:** Main deliverables approved by the Project Sponsor or a designated alternate that allows the project to proceed to the next phase.

- **Process Decisions:** Drafts of major deliverables or minor deliverables that may or may not require a formal sign-off but nevertheless must be reviewed by Project Team members, Customer Decision-Makers, and the Project Sponsor.

- **Tasks:** Drafts of process deliverables or works-in-progress verified within the Project Team, and may or may not be reviewed by the Project Sponsor or Customer Representatives.

- **Project Preparation:** The Project Manager must ensure that the Performing Organization's expectations and all available project information are effectively conveyed to the Project Team. This can be done collaboratively with the Performing Organization's management team.

- **Project Team:** Names of the individuals needed to complete Project Initiation tasks will be documented in the Project Charter with definition of the skills required to perform the complete project. After team members are identified, the Project Manager should provide them with a project orientation and review with individual team members their current and future roles on the project.

- **Project Charter:** Is a document with critical success factors, which define and secure commitment for the resources required to complete the Project Initiation. The charter also documents the project's mission, history, background and describes the business problem the project is intended to resolve. Information compiled during Project Origination is applied in the development of the Project Charter. The Project Charter contains the following sections; background; objective; critical success factors; required resources; constraints and authority;

- **Kick-off Meeting:** Is the event that formally marks the beginning of the project assembling the entire Project Team and the Customer Team. It is most likely the first opportunity for the Project Sponsor to discuss his/her vision of the project, demonstrates support, and advocate project success. The Project Team members are introduced to each other and given the opportunity to discuss their areas of expertise and how they will contribute to the project.

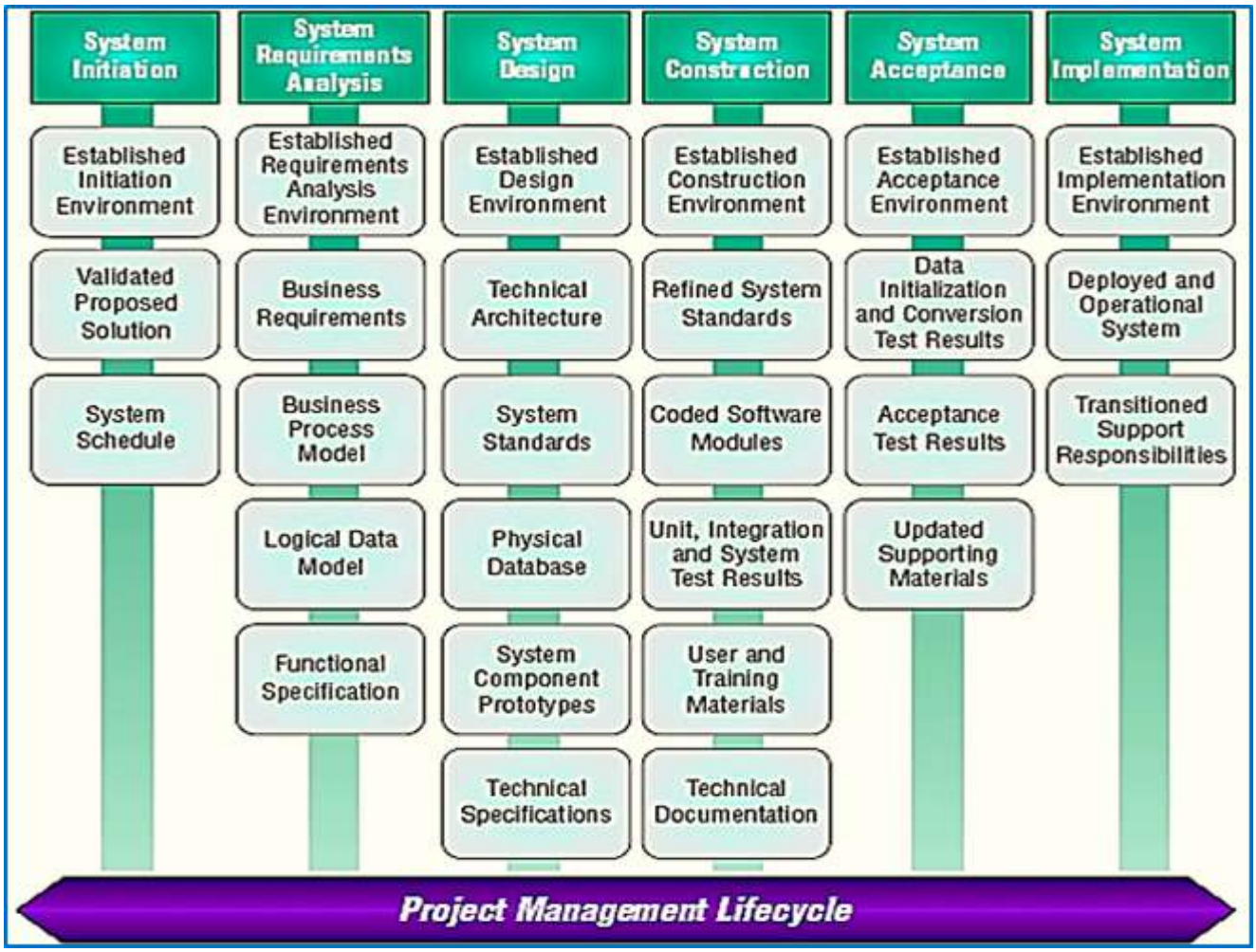
- **Project Repository:** Creates a central point of reference for those developing project definition documents and provides an audit trail documenting the history and evolution of the project. All relevant project-related material, documents produced, decisions made, issues raised and correspondence exchanged must be captured for future reference and historical tracking, kept as hard copy in a binder or notebook, or electronic files and email folders. By the end of the project, a project repository may include the following materials:

✓ Project Proposal and supporting documentation, including the Business Case;
✓ Project description/definition documents such as the Project Charter, the Cost, Scope, Schedule and Quality (CSSQ), and the Project Plan;
✓ Any working documents or informal documents defining CSSQ of the project;
✓ Project Schedules (baseline and current);
✓ Project financials;
✓ Project Scope changes and requests log;
✓ Project Status Reports;
✓ Team member Progress Reports and monthly timesheets;
✓ Action Items - Issues log and details (open and resolved);
✓ Project acceptance documentation;
✓ Product Information;
✓ Risk identification/model documentation and Risk Management plan;
✓ Change Management Plan and Change log;
✓ Audit results, if encountered;
✓ Correspondence, including any pivotal or decision-making memos, letters, email…etc.;
✓ Meeting notes, results, and/or actions.

- **Schedules:** Depending upon the size of the project, the plan alone may consist of several documents as the schedule, budget, staffing, communications and risk documents. The project's deliverables, results and critical success factors, also defines what is out of scope.

- **High-Level Project Work Breakdown Structure (WBS) and Life Cycle:** Should be reviewed and approved by the Project Sponsor and Customer Decision-Makers. The WBS and Schedule will be refined and completed during the Planning Phase.

High-Level Work Breakdown Structure (WBS) and Life Cycle:



- **Quality Management Plan:** Implements quality standards and detailed documents, based on the needs of the project. Structured tools or checklists can be used to ensure that all quality measures have been considered. It may be a complex, industry-standard tool, or a simple "To Do" list.

- **Quality Standards:** Quality standards should be identified and documented, to determine if deliverables are being produced to an acceptable quality level. Additional information discovered when defining your project approach (e.g., your materials acquisition strategy) that is above and beyond that contained in the scope statement may aid in identifying quality standards. Research of past projects that implemented similar quality standards can also be helpful.

- **Project Budget:** The budgeting tools may be simple spreadsheets or complex mathematical modeling tools and the Project Manager should always keep notes on how this preliminary budget was derived. Cost estimating checklists help to ensure that all preliminary budgeting information is known and all bases are covered. Methods by which staff and products are acquired may directly affect the budgeting process. The Project Manager needs to be aware of existing resource acquisition policies, guidelines, and procedures.

- **Preliminary Budget Estimate:** Is a preliminary estimate of the cost to complete the project.

- **CSSQ (Cost, Scope, Schedule, and Quality)**: Is project's quadruple constraints and the main purpose is to define the project scope; develop the high-level schedule; identify the quality standards; establish the project budget.

e. Project Plan Documents Summary: All documents started during Initiation will be refined and elaborated upon during the Planning phase, as illustrated below:

Project Plan Documents Summary:

Documents to be Created in Project Initiation	Documents to be Created
Preliminary Project Charter	*Refined* Project Charter
Initial Project Scope Statement	*Refined* Project Scope
Project Schedule Worksheet (High – Level WBS & List of Tasks)	WBS & Project Schedule
Project Quality Management Plan	*Refined* Project Quality Management Plan
Preliminary Budget	Estimate Project Budget
List of Risks	Risk Management Plan & Risk Log
Description of Stakeholder Involvement	*Refined* Description of Stakeholder Involvement
Communications Plan	*Refined* Communications Plan
	Scope Management Plan with Change Control Process
	Acceptance Management Process
	Issue Management and Escalation Process

- **Initial Project Plan:** Is a collection of information used to describe the environment that will govern the project. The Project Plan is an evolving set of documents - new information will continue to be added and existing information will be revised during Project Planning.

- **Communications Plan:** The communication process must be bi-directional. The Project Manager must provide details to the team and the stakeholders regarding the communications he/she expects to receive, and document these requirements in the plan and determine the best and most cost effective way in which the requirements can be met, and record the information in a formal, approved document.

- **Develop High-Level Schedule:** Means determining the start and end dates for all tasks required to produce the project's product, and the project management deliverables. This information still provides insight into preparing the first draft of a Project Schedule.

- **Work Breakdown Structure (WBS)**: Is a very useful work product that a Project Manager should create to facilitate development of a Project Schedule. The WBS is not static - the Project Manager should work with the Project Team during each project lifecycle phase to refine the WBS and use it as input to refining the Project Schedule.

- **Document Stakeholders' Involvement:** All stakeholders involved on the project should be identified. In defining the high-level schedule for CSSQ, a preliminary list of roles required for the project should be produced. This list may be useful when creating the list of documents needed to perform the tasks leading to the desired project outcome and the responsibilities for each role. The earlier

the Project Manager can identify stakeholders cooperation, the better are the chances of good influencing for the work.

- **Information to Produce Initial Project Plan:** Every information may be refined and supplemented in project phases as the Project Team becomes more knowledgeable about the project and its definition, since the Project Plan is not a static document; it requires iterative refinement. Consists of the following information; project charter; CSSQ; list of risks; description of stakeholders involvement; communications plan.

- **Risk Identification:** The Project Team should always try to anticipate any possible events, obstacles, or issues that may produce unplanned outcomes during the course of the project. Techniques and tools available to identify risk include: brainstorming, fish bone diagrams and risk checklists. Risks to both internal and external aspects of the project should be assessed using various risk identifying techniques as defined according to the project environment.

- **End-of-Phase Checklist:** This check list is a spreadsheet to ensure that all requirements of the phase are met. As each item is completed, should be indicated its completion date. When an item is not elected to be complete on the checklist, indicate the reason and describe how the objectives of that item will be met.

Item Description	Category Level					Completion Date	Comments	Reason for NOT Completing
	1	2	3	4	5			
Prepare for the Project:								
Identify and assign the Project Manager								
Identify and appoint the Project Sponsor								
Identify Project Team Members								
Identify Customer Representatives								
Review historical Information:								
Document how issues were resolved and decisions								
Review Project Charter template								
Work with Project Sponsor and Project Team to gain								
Write the Project Charter document								
Schedule time and location of Kickoff meeting								
Invite appropriate Attendees:								
Prepare meeting presentation and agenda								

Item Description	Category Level 1	2	3	4	5	Completion Date	Comments	Reason for NOT Completing
Define CSSQ:								
Write the Project Scope Statement								
Create preliminary list of roles and skills required								
Complete the Project Schedule Worksheet								
Create High-Level Schedule								
Identify organization's existing quality standards, if any								
Identify and document quality standards for each deliverable								
Develop staff and materials acquisition plans								
Estimate costs of all resources								
Calculate the preliminary project budget estimate								
Perform Risk Identification:	**Category Level 1**	**2**	**3**	**4**	**5**	**Completion Date**	**Comments**	**Reason for NOT Completing**
Solicit input on risk identification from Project Team, Project Sponsor, and Customer Representatives								
Analyze scope, charter, historical information								
List all risks identified								
Confirm Approval to Proceed to Next Phase:								
Review and refine the Initial Business Case								
Review all other deliverables from Project Initiation								
Obtain buy-in from other managers								
Organize deliverables into package								
Prepare formal approval form								
Present approval package to Project Sponsor for signature								
Resolve any issues								
Update package as needed to resubmit to Project Sponsor								
Get Approval Signature:								

4.3. Stage 2 - Project Planning:

The main purpose of Project Planning is to define the exact parameters of a project and ensure that all the pre-requisites for Project Execution and Control are in place. Project Planning builds upon the work performed during Project Initiation and all information to produce the Initial Project Plan.

As referenced above, the **Work Breakdown Structure (WBS)** is a very useful work that should be always created to facilitate development of a Project Schedule. The project definition and scope should be always validated with the appropriate Stakeholders, starting with the Project Sponsor and Customer Decision-Makers. The list for Stage 2 - Project Planning is:

- ✓ Project Planning Kick-off Meeting Agenda;
- ✓ Communication Plan;
- ✓ Cost Estimate Worksheet;
- ✓ Project Estimating;
- ✓ Cost Management Plan;
- ✓ Project Plan;
- ✓ Scope Management Plan.

Planning Chart of Processes, Tasks and Deliverables:

Stage 2 - Planning		Stage 3 - Execution & Control
Prepare for Project Planning		**Launch Project**
Create the Project Plan Shell document		Orient Extended Team Members
Orient new Project Team members		Review Outputs of Project Planning
Kick-Off Project Planning		Kick-Off Project Execution & Control
	Integrated Project Plan	
Perform Planning Activities and Detail the Project Plan		**Manage Project Execution & Control**
Scope Planning		Manage Project Scope
Scope Definition		Manage Project Schedule
Define Acceptance Management Process		Implement Quality Control
Refine Project Charter		
Schedule Activities & Tasks		Manage Project Budget
Budget Project		Monitor and Control Risks
Quality Planning		Manage Change Control Process
Human Resource Planning		Manage Acceptance of Deliverables
Communications Planning		Manage Issues
Risk Management Planning		Execute Communications Plan
Change Control Planning		Manage the Project Team
Implementation Plan		Manage Project Implementation
Establish Baseline		
Confirm Approval to Proceed		**Gain Project Acceptance**
Gain Approval Signature from Project Approver(s)	Approval	Conduct Final Status Meeting
		Gain Acceptance Signature from Project Approver(s)

The Initiation deliverables – CSSQ and Initial Project Plan – are further developed, enhanced, and refined, until they form a definitive plan for the rest of the project. Additional Project Team members are brought on board and familiarized with the project objectives and environment, and additional resources are ready to be brought in following the finalized staff and material acquisition plans. This phase consists of the following processes:

- **Project Planning Kick-off:** The Project Manager conducts a meeting to formally begin the Project Planning phase, orient new Project Team members, and review the documentation and current status of the project.

- **CSSQ:** The Project Team refines the cost, scope, schedule and quality components of the project to more accurately reflect the additional information learned about the project.

- **Risk Assessment:** The Project Team and Project Manager review the list of risks identified in Project Initiation, identify new risks, evaluate each risk based on the likelihood of its occurrence and magnitude of its impact, and develop a plan to respond to each risk.

- **Project Plan:** Additional management procedures (Change Control procedure) and plans (e.g. Risk Management Plan, Scope Management Plan) are developed and all updated documents created during Project Planning are compiled into the Project Plan to be utilized in Project Control.

- **Approval to Proceed to Next Phase:** The Project Manager reviews and refines the Business Case, secures resources required for the Project Execution and Control phase and prepares the formal acceptance package for review and approval during a Stage Gate Review by the Project Sponsor and possibly a decision making body such as a Project Approval Committee.

Project Planning Tasks and Deliverables:

Processes	Tasks	Task Deliverables
Conduct Project Planning Kick-off	Orient New Project Team Members	Team Members Oriented
	Review Outputs of Project Initiation and Current Project Status	Project Outputs Reviewed
	Kick Off Project Planning	Kick-off Meeting Agenda and Kick-off Meeting Notes
Refine CSSQ	Refine Project Scope	Scope Statement
	Refine WBS & Schedule	WBS & Schedule
	Refine/Define Quality Standards and Quality Assurance Activities	Quality Management Plan
	Refine Project Budget	Project Budget
Perform Risk Assessment	Identify new Risks & Update existing Risks	Risk Log
	Quantify Risks	Risks Log
	Develop Risk Management Plan	Risk Management Plan
Refine & Finalize Project Plan	Develop Scope management Plan with Change process	Scope Management Plan
	Refine Communications Plan	Communications Plan
	Establish Time and Cost Baseline	Time and Cost baselines
Confirm Approval to Proceed to the Next Phase	Review/Refine Business Case	Refined Business Case
	Prepare Formal Acceptance Package	Approval Form
	Gain Approval of Project Sponsor	Approval Form approved

a. List of Roles: The following roles are involved in carrying out the processes of this phase, such as, Project manager; Project sponsor; Project team member; Customer; Customer decision-maker; Customer representative; performing organization management; other stakeholders.

- **Refine Project Scope:** it is important to remember that refinements to the Project Scope must include discussions and interviews with the Customer and other appropriate Stakeholders. The scope document, therefore, will reflect a mutual agreement between all parties. This process includes a description of the means by which scope will be managed and how changes to scope will be handled. The *Project Change Control Process Guide and Procedure* is intended to make this an easier process to follow by standardizing it across projects.

- **Refine Project Schedule:** Deliverables illustrated in the Work Breakdown Structure should be broken into smaller components. A good rule of thumb to follow is the "eighty-hour rule": if the task requires more than two weeks duration to complete, it should be broken down further. This provides a solid basis for estimating level of effort, task planning, assignment of work, and measurement of performance in Project Execution and Control. The Project Manager must recognize the links among tasks to be defined as below:

✓ **Mandatory dependencies:** Inherent to the type of work being done and cannot be changed, no matter how many individuals are working on a task or how many hours are allocated to a task. The Project Manager must recognize mandatory dependencies since they will dictate the way certain pieces of the schedule will need to be structured.

✓ **Discretionary dependencies:** Defined by the Project Team, for example, may be required to use an in-house "best practice" to complete an activity that forces other activities to be completed in a specific sequence.

✓ **External dependencies:** May be dependent upon an outside vendor delivering a piece of equipment. This is something neither the Project Team nor the Customer can control, but it must be defined and considered when revising the schedule.

b. List of Deliverables: Project deliverables in this phase is inside three categories of importance and phase deliverables are the major deliverables commonly signed by the Project Sponsor. Sometimes a designated alternate to Project Management allow gaining approval to proceed to the next phase.

- **Process deliverables:** Drafts of major deliverables or minor deliverables that may or may not require a formal sign-off but nevertheless must be reviewed by Project Team members, Customer Decision-Makers, and the Project Sponsor.

- **Task deliverables:** Drafts of process deliverables or works-in-progress that are verified within the Project Team, and may or may not be reviewed by the Project Sponsor or Customer Decision-Makers. Each task culminates with the production of one or more tangible deliverables, which allows the Project Manager to monitor project progress using concrete and real results.

- **Project Planning Kick-Off:** It ensures that the project remains on track and focused on the original business need. New Project Team members are thoroughly prepared to begin work, the current project status is reviewed, and all prior deliverables are re-examined. All deliverables produced during Project Initiation are used in Project Planning.

- **Kick-Off Project Planning:** A meeting is conducted to kick off Project Planning. At this meeting the Project Manager presents the main components of the Initial Project Plan for review. To highlight the Project Planning kick-off includes:

- ✓ Introduction of new team members;
- ✓ Roles and responsibilities of each team member;
- ✓ Restating project background and objective(s);
- ✓ Most recent Project Schedule and timeline;
- ✓ Identified risks;
- ✓ Communications plan;
- ✓ Current project status, including open issues and action items.

- **New Project Team Members:** Is to enhance the ability of new team members to contribute quickly and positively to the project's desired outcome. The Project Manager (or Team Leader, if appropriate) must convey to each new team member, in a one-on-one conversation, what his/her role and responsibilities are related to the project.

- **Review Outputs of Project Initiation and Current Project Status:** This is a checkpoint process, which has been produced to analyze what will most likely be refined as Project Planning takes place. It is especially useful for any new members joining the team during this phase.

- **CSSQ:** Each section of the CSSQ, during Project Planning, will be refined, as more information becomes known about the project. The CSSQ is not static and some of the components will continue to change throughout the life of the project.

c. Project Schedule Revision:

- **Calendars:** the hours and days when project work is allowed, including seasonal restrictions, holidays, labor contract restrictions, and vacation or training schedules.

- **Constraints:** completion dates for project deliverables mandated by the Project Sponsor, Customer, or other external factors, which will most often be known early in the project and there may be financial, legal, or other constraints that help dictate a project's timeline.

- **Refine Quality Standards and Assurance:** specific types of deliverables are performed by a separate Quality Assurance Department. If an organization does not have the luxury of a Quality Assurance Department, the required activities will need to be performed by designated Project Team members or Customers. Examples of quality assurance activities include:

- ✓ Collecting project documentation;
- ✓ Conducting audits;
- ✓ Verifying business requirements;
- ✓ Performing testing.

- **Refine Project Budget:** All costs must be considered including the cost of human resources, equipment, travel, materials and supplies. The following project components must be taken into account the schedule created during Project Initiation has been revised during Project Planning to include more detail and greater accuracy regarding project activities, tasks, and durations.

- **Staff Acquisition:** The Project Manager must identify additional staffing requirements. Strategies defined in Project Initiation need to be changed accordingly.

- **Resource Requirements and Costs:** At this point in the project, a more detailed understanding of the resources required to perform the work and their associated costs is most likely known and can be used in refining the budget.

- **Materials Acquisition:** If changes have occurred, the product acquisition strategies need to be changed accordingly. The Project Manager must update the Project Schedule to include all tasks needed to acquire equipment, materials, and other non-human resources.

- **Preliminary Budget Estimate:** The more detailed cost estimates its better for the project defined in the Project Schedule. The Project Manager can use cost estimating checklists to ensure all preliminary budgeting information is known and all bases are covered.

- **Cost Management Plan:** On large projects Project Team may want to implement this plan to clarify how costs will be managed in a project.

- **Project Budget:** It includes the cost of all required human resources, equipment, travel, and supplies, and the anticipated timing of expenditures.

d. Perform Risk Assessment: The goals of **Risk Assessment** are to predict the likelihood that a risk will occur, to quantify its potential impact on the project, and to develop plans for risk management. Risks documented during Project Initiation should be reassessed during Project Planning.

- **Risk Management Plan:** Each case will require a decision by the Project Team. Since each risk may have more than one impact, the Risk Management Plan must describe the actions to be taken to avoid, mitigate or accept each risk impact, including contingency plans. It should also specify the individuals responsible for the mitigation actions or contingency plan execution.

Risk Management Key:

IT Risk Management Plan Templates

Risk	Risk Level	Control	Supporting Documents
Customers or staff may injure themselves on the property	High Risk	· Emergency procedures followed, incident report completed, first aid kit used or doctor/hospital contacted	See Operations Manual
		· Cleaning and maintenance schedules kept which ensure regular inspection of property	
		· Customers verbally warned of slippery paths	See cleaning schedules in Operations Manual
		· Staff induction covers safe practices and safe handling	
		· Non slip mats in bath, and on steps;	See Greeting Procedures
		handrail at entrance	See Staff induction procedures in Operations Manual
		· Instructions written on using gas fires, electric equipment	Installed 1/6/01, invoices on file
			Compendium in each room
Canoes capsize, customers fall into water	High Risk	· Water Safety procedures documented and explained to each customer	Pre-tour handout to customer, also in Operations Manual
		· Safety and flotation devices supplied to meet standards	
		· Canoes checked for damage after every trip	See invoices for equipment
		· Guides must have lifesaving qualifications, and emergency procedures	Maintenance schedule
			Personnel files + training program + Operations Manual
Property involved in a fire	Low Risk	· Insurance cover for replacement	Annual renewed 1/2/02
		· Smoke alarms, extinguishers installed, checked quarterly by CFA	
		· Procedures written for customers, staff and managers	See diary/ maintenance schedule
			Compendiums, Operations Manual.

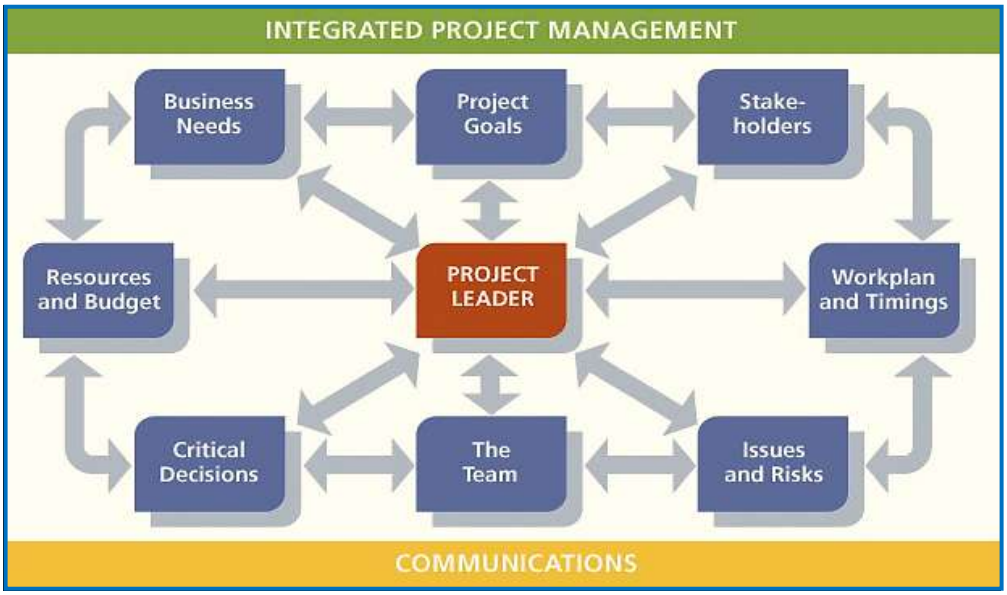
- **Risk Management Log:** Attention should be directed to those risks most likely to occur, with the greatest impact on the outcome of the project. On the other hand, a conscious decision can also be made by the Project Team to accept or ignore certain risks. These decisions must be documented

as part of the Risk Management Plan, for subsequent re-evaluations. Then, the Risk Management Log will be recorded, as shown below:

- ✓ **Category**: Scope, Cost, Schedule, Quality, Management, Resources;
- ✓ **Description**: Concise description of the risk identified;
- ✓ **Risk Probability**: 1-Very Unlikely, 2-Somewhat Likely, 3-Likely, 4-Almost Certain;
- ✓ **Risk Severity**: 1-Low, 2-Medium, 3-High, 4-Very High;
- ✓ **Frequency of Occurrence**: Infrequent, Frequent, One Time, The Date;
- ✓ **Mitigation Plan/ Contingency Plan Scheduled Actual Date**: Actual date of actions.

- **Quantify Risks:** There are many tools available to quantify risks as shown above. The Project Team members evaluate each risk identified in terms of occurrence and magnitude of impact upon the project, process called as "Probability and Impact Analysis." There are four levels of severity determined from multiplying the risk probability to its impact: low, medium, high, and very high, as identified in figure below. These measurements are used as input into the Risk Management Log for further analysis when determining how the risk threatens the project. This will vary depending upon the specific project.

e. Communications Management Process: As a project progresses, certain events may occur that alter the way information is accessed or change communication requirements. For example, a change in personnel may dictate a change in the frequency of communications, determined that any portion of the plan is no longer applicable, the Project Manager must develop appropriate revisions to the plan.



- **Communications Control**: Depending on the project, communications may be very informal or highly sophisticated. When deciding how to manage communications on a project, a Project Manager solicits information from the Project Team and Stakeholders and together they decide:

- ✓ **Information Collected**: How project information will be collected and stored, and what procedures will be followed to disseminate the information. If an electronic filing structure will be used, someone must be responsible for its setup and maintenance.

- ✓ **Internal Stakeholders**: Communication channels currently established in the organization should be used. The distribution structure for External Stakeholders must take into account how the particular Stakeholder group will be affected by this project.

- **Information Sources**: Information requiring communication comes from different sources. Sometimes it is already documented in hard copy or electronic form, but sometimes it is conveyed during formal meetings, informal gatherings, or simple conversations. Some sources of project information that may require communication include; Status meetings; Status reports; Memos; Newsletters; Executive correspondence; Meeting notes; Executive meetings; Steering committee meetings.

✓ **Establish Time and Cost Baseline:** Using the Project Schedule (Microsoft Project), a baseline is captured, the time and cost baseline becomes part of the Project Plan. As the project progresses, subsequent schedules may be compared to the baseline version to track project performance. When the baseline is revised as a result of scope change, the Project Team should be sure to save the original for historical purposes.

- **Project Implementation and Transition Plan:** Must include all the necessary activities to perform and procedures to follow to ensure a smooth and satisfactory hand-off and is a part of the overall project plan. When planning the implementation and transition, the Project Team must consider the impact the resulting product will have on the Performing Organization and Consumers.

- **Project Manager Tasks**: Needs to define and document a plan to implement the product, and should consider, to ensure the organization will be ready to receive the product may include acquiring the necessary physical space, installing appropriate software, obtaining the appropriate building permits, etc. How and when the Customer will test and accept the product and confirm and authorize its implementation. The plan must define which of the Customer(s) require training, the level of training necessary, who will provide the training, and when it will occur.

- **Revise Project Plan:** Is the main deliverable of the Project Planning Phase, incorporating the revised outputs of all other Project Planning components. The document should now be thorough and accurate enough to be used as the main guide to follow during Project Execution and Control. At the end of Project Planning, the Project Plan should contain the following:

✓ Project Charter;
✓ CSSQ (Cost, Scope, Schedule, Quality);
✓ Risk Management Log
✓ Description of Stakeholder Involvement;
✓ Communications Plan;
✓ Change Control Process (outlined in the Scope Management Plan);
✓ Time and Cost Baseline.

4.4. Stage 3 - Project Execution and Control:

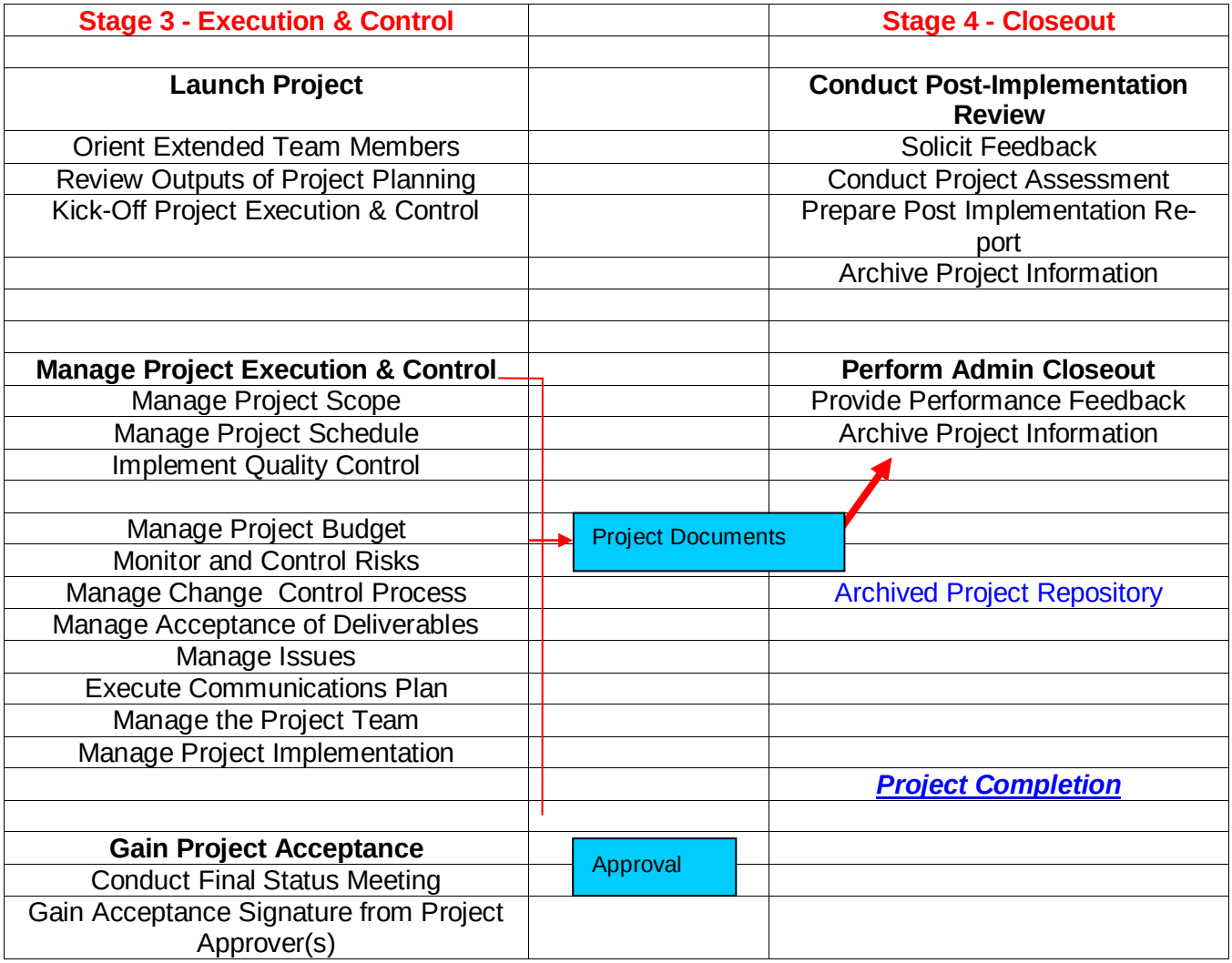
The main purpose of Project Execution and Control is to develop the product or service that the project was commissioned to deliver. Typically, this is the longest phase of the project management lifecycle, where most resources are applied. Project Execution and Control utilizes all the plans, schedules, procedures and templates that were prepared and anticipated during prior phases.

a. List of Roles: The following roles are involved in carrying out the processes of this phase. The detailed descriptions of these roles can be found in the Stage 2 – Project Planning. The Project Execution and Control differs from all other phases in that, between phase kick-off and project acceptance, all processes and tasks occur concurrently and repeatedly, and continue almost the entire duration of the phase. Thus, the earlier concept of a “process deliverable” is not applicable to this phase, and even task deliverables are mostly activities, not products.

- **Manage Project Execution:** The purpose of Manage Project Execution is to manage every aspect of the Project Plan as work is being done to make certain the project is a success. This process is

performed concurrently with the Manage CSSQ and Monitor and Control Risks processes. The tasks in this process are performed concurrently and repeatedly as various aspects of the product of the project are constructed, tested, and accepted.

Project Execution & Process Diagram:



- **Records:** The conclusion of this phase arrives when the project installation is fully developed, tested, accepted, implemented and transitioned to the Performing Organization. Accurate records need to be kept throughout this phase. They serve as input to the final phase, Project Closeout. This phase consists of the following records:

✓ **Project Execution and Control Kick-off:** when the Project Manager conducts a meeting to formally begin the Project Execution and Control phase, orient new Project Team members, and review the documentation and current status of the project.

✓ **CSSQ:** implementation of Quality Assurance and Quality Control processes according to the Quality standards, and control and manage costs as established in the Project Budget.

✓ **Monitor and Control Risks:** when the Project Team utilizes the Risk Management Plan prepared in previous phases, and develop and apply new response and resolution strategies to unexpected eventualities.

- ✓ **Manage Project Execution:** when the Project Team must manage every aspect of the Project Plan to ensure that all the work of the project is being performed correctly and on time.

- ✓ **Gain Project Acceptance:** when the Project Manager, Customer Decision-Makers and Project Sponsor acknowledge that all deliverables produced during Project Execution and Control have been completed, tested, accepted and approved, and the project has been successfully transitioned to the Performing Organization.

- **Change Control Process:** During Project Planning, the Project Manager, Project Sponsor, and Customer agreed on a formal change control process that was documented and included in the Project Plan, and sometimes in a separate Scope management Plan. The change control process (See the *Project Change Control Process Guide and Procedure)* describes:

- ✓ The definition of change and how to identify it;
- ✓ How requests for change will be initiated;
- ✓ How requests for change will be analyzed to determine if they are beneficial to the project;
- ✓ The process to approve or reject change requests;
- ✓ How funding will be secured to implement approved changes.

- **Project Execution**: The need for change is usually discovered during Project Execution, as actual task work is being performed. It is during Execution that the Project Team may discover their original effort estimates were not accurate and will result in more or less effort being required to complete their work. It is also during Execution that the Project Sponsor or Customer may realize that, despite their best efforts to thoroughly document the Project Scope, the product being produced is not exactly what they need. It is the responsibility of the Project Manager to keep a close watch on factors that could introduce potential "scope creep" and take proactive steps to prevent it from occurring, or to manage it as it occurs.

- **Project Acceptance:** The purpose of Project Acceptance is to formally acknowledge that all deliverables produced during Project Execution and Control have been completed, tested, accepted, and approved by the project's Customers and the Project Sponsor, and that the product or service the project developed was successfully transitioned from the Project Team to the Performing Organization. Formal acceptance and approval also signify that the project is essentially over, and is ready for Project Closeout. A final review will be conducted during a Stage Gate Review, where the project stage will either be approved to move into the Closeout phase of the project or not be approved. A project can also be redirected, with new objectives.

- **Final Status Meeting:** Once the product of the project has been successfully transitioned to the Performing Organization, the Project Manager should prepare the final status report and conduct the final status meeting. The Project Schedule must be up to date for all completed project and project management lifecycle phases. This is the final opportunity for all participants to confirm that the product of the project has been successfully developed and transitioned. Any outstanding issues or action items must be transitioned from the Project Team to the Performing Organization.

4.5. Stage 4 - Project Closeout:

The main purpose of the Project Closeout is to assess the project and derive any lessons learned and best practices to be applied to future projects. The review may start with a survey designed to solicit feedback on the project from the Project Team, Customers, Consumers and other stakeholders. Once feedback has been collected and evaluated, an assessment meeting is conducted to derive best practices and formulate lessons learned to inform future efforts.

a. List of Roles: The following roles are involved in carrying out the processes of this phase. The detailed descriptions of these roles can be found in Stage 2 – Project Planning Project Manager.

Project Closing tasks and their deliverables (or outcomes):

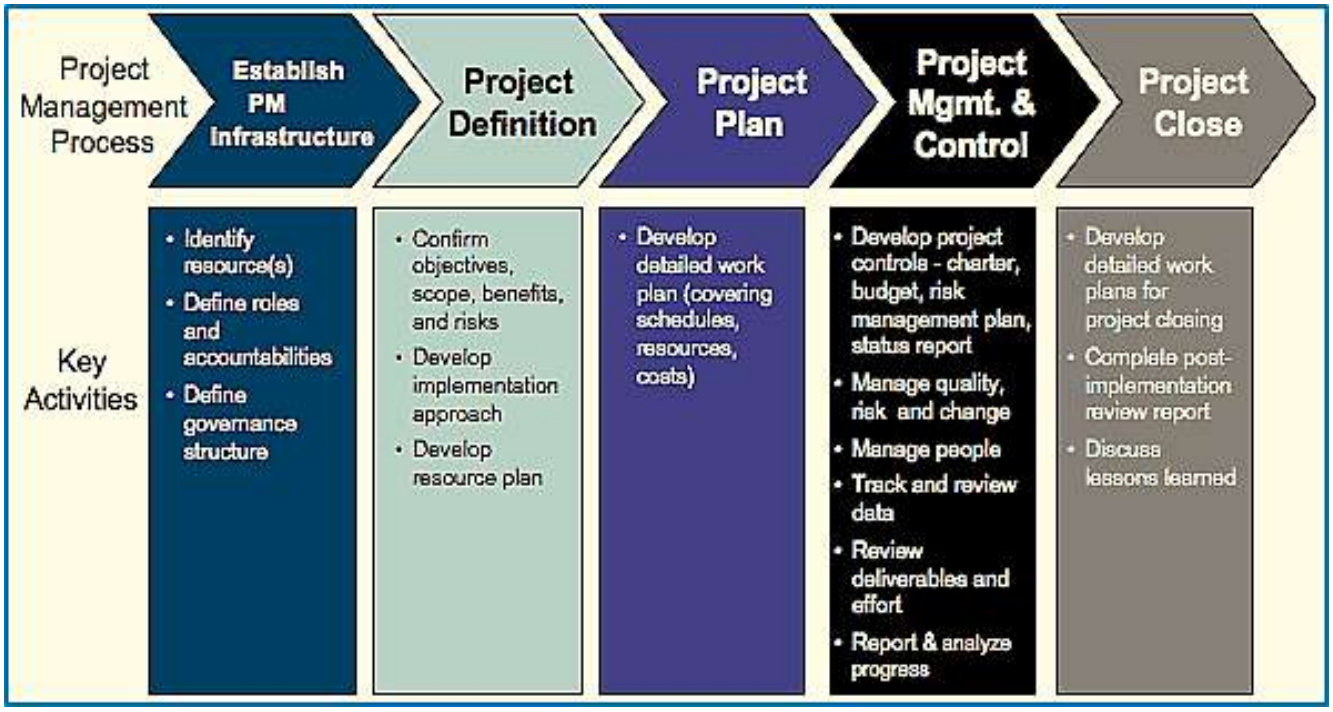
Processes	Tasks	Task Deliverables
Conduct Post Implementation Review	Solicit Feedback	Post-Implementation Survey
	Conduct Project Assessment	Project Assessment Meeting
	Prepare Post Implementation Report	Post Implementation Report with Lessons Learned
Perform Administrative Closeout	Provide Performance Feedback	Performance Reviews
	Archive Project Information	Archived Project Repository

b. List of Deliverables: The major outcome of this phase is the Post-Implementation Report, which formalizes the feedback received from all involved parties, and identifies best practices and lessons learned or even more importance is the transfer of lessons learned and best practices from the Post-Implementation Report to an organizational repository of project management data.

- **Best Practices**: Ideally, the **best practices** and **lessons learned** should be stored in a centralized organizational repository, facilitating access and retrieval by managers of future projects. Project Closeout ends with administrative conditions providing feedback, updating the skills inventory, capturing key project metrics, and filing all pertinent project materials into the project repository. This phase consists of the following processes:

✓ **Post-Implementation Review:** where the Project Manager assesses the results of the project by feedback from team members, customers and stakeholders, best practices and performance patterns, and communication plans that results in the form of a Post-Implementation Report.

✓ **Administrative Closeout:** where the Project Manager formally closes the project by providing performance feedback to team members, and archiving all project information.



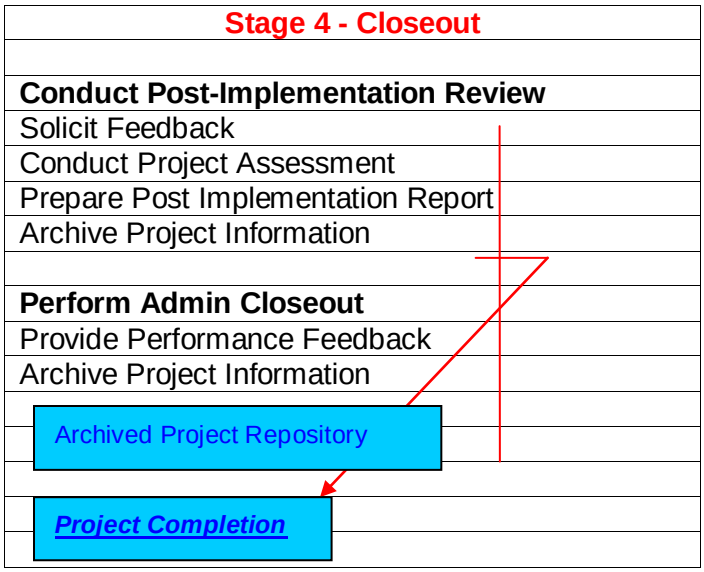
- **List for Stage 4**: The list for Project Closeout is; Project Acceptance Form; Project Post-Implementation Survey; Post-Implementation Report; Project Repository Table of Contents; Project Archives.

- **Archive Project Information:** As the project progressed, the purpose of the repository was to create a central point of reference for all project materials to be used by anyone involved in the project. Once the project comes to an official close, the repository provides an audit trail documenting the history and evolution of the project. A hard copy repository should be archived in a designated documentation area. When the project is officially closed, the project repository should include the following materials:

✓ Project Schedules: retain all copies electronically, but only include the baseline and final schedule in the hardcopy repository;
✓ Project financials: scope change log and requests and status reports;
✓ Project acceptance documents;
✓ Project Deliverable Approval Forms;
✓ Risk Management Log;
✓ Audit results, correspondence, including any pivotal or decision-making memos, letters, email, meeting minutes, notes, etc.;
✓ Final Project Acceptance Form, with approvals ;
✓ Post-Implementation Report.

- **Administrative Closeout:** The purpose is to perform all administrative tasks required to bring the project to an official close. Feedback documentation should be prepared and reviewed with the individual team members first. Following this performance discussion, the documentation is submitted promptly to each Project Team member's immediate supervisor to be used as input to performance appraisals. The performance feedback mechanisms (appraisal forms, project exit interviews, etc.) specific to the Performing Organization should be used.

Closeout Process Diagram:

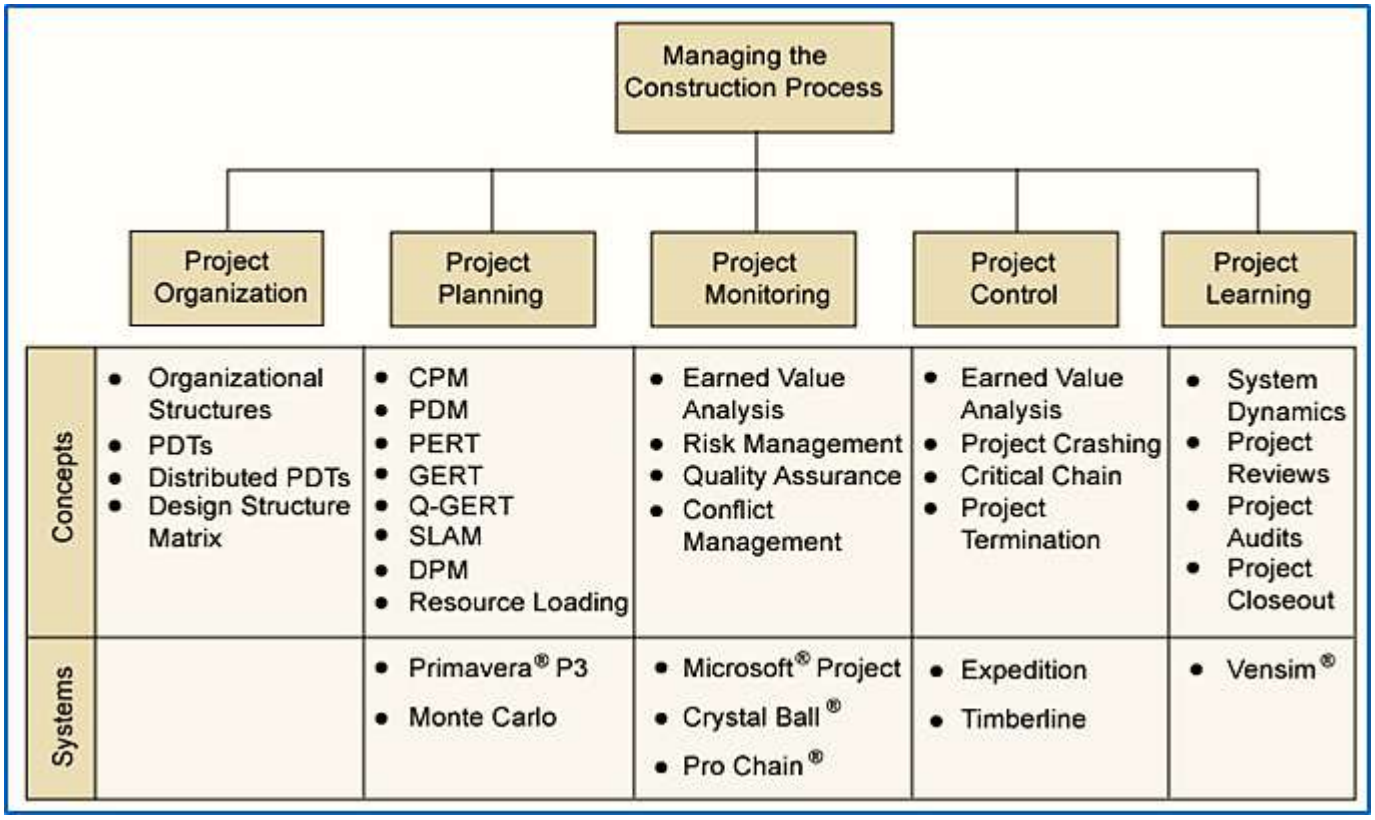


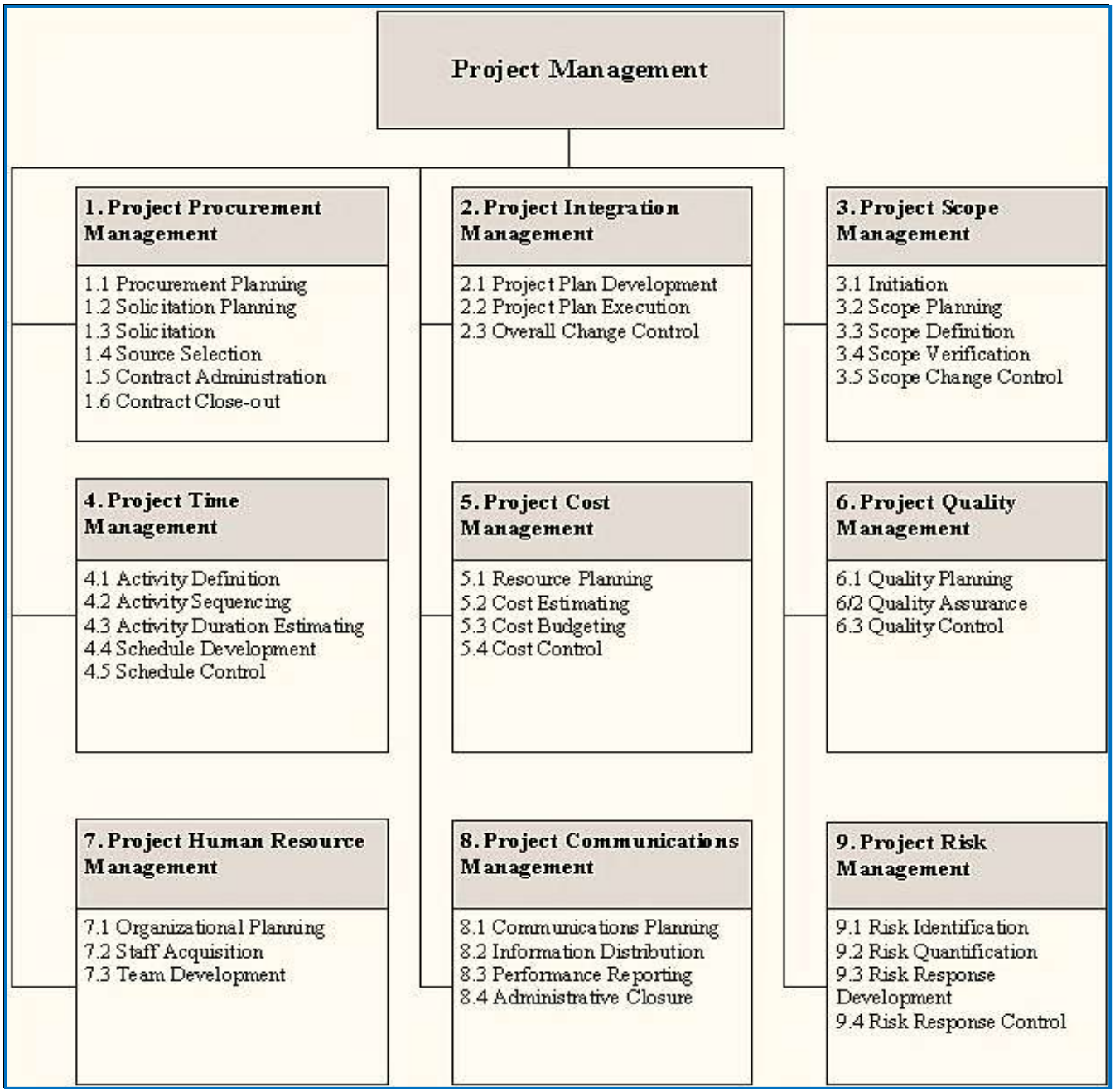
- **End-of-Phase Checklist:** This checklist must be used throughout Project Closeout to help ensure that all requirements of the phase are met. As each item is completed, also indicate its completion date. Use the Comments column to add information that may be helpful to you as you proceed

through the project. If you elect NOT to complete an item on the checklist, indicate the reason and describe how the objectives of that item are otherwise being met.

Item Description	Category Level					Completion Date	Com-ments	Reason for NOT Completing
	1	2	3	4	5			
Solicit Feedback:								
Prepare surveys								
Distribute or review surveys with appropriate participants								
Gather survey results								
Review and analyze survey results								
Summarize feedback for presenta-tion at Project Assessment Meeting								
Conduct Project Assessment:								
Schedule Project Assessment Meeting								
Select and invite appropriate meeting participants								
Review and distribute survey summary results								
Gather notes and meeting results for inclusion in Post-Implementation Report								
Use survey feedback and meeting results to identify lessons learned and best practices								
Document each lesson learned								
Document best practices								
Develop action plans to implement lessons learned and best practices								
Prepare Post-Implementation Report:								
Gather summarized survey feed-back, notes from Project Assess-ment Meeting, lessons learned and best practices								
Present or distribute report to Per-forming Organization Management								

Item Description	Category Level 1	2	3	4	5	Completion Date	Com-ments	Reason for NOT Completing
Update Skills Inventory and Provide Performance Feedback:								
Establish skills inventory system, if one does not exist								
Update skills or add skills to inventory system for each Project Team member								
Write performance feedback on each Project Team member								
Discuss performance feedback with each Team member								
Forward feedback to team member's immediate supervisor								
Archive Project Information:								
Gather all project information								
Archive information in project repository								
Locate hardcopy repository in designated documentation area								
CELEBRATE: Your project is complete.								





IV. GLOSSARY:

A:

Acceptance Management: This process is defined and included in the Project Plan. The approval at each stage means that the deliverable(s) for that stage are completed to the satisfaction of the Customer. In order for a deliverable to be considered "complete" and "acceptable", it is measured against a pre-determined acceptance criterion.

Accessibility: Access to information and data for Customers with disabilities comparable to that accorded Customers who do not have disabilities.

Activity: Is equivalent to a process and is a piece of work accomplished during a project. A process can be broken down into tasks.

Attribute: A data element that holds information about an object (entity).

Audit: *See* Project Audit.

B:

Baseline: An initial measurement that can serve as the basis for future comparisons. Applies to the Project Schedule.
Benchmark: A standard against which measurements or comparisons can be made.
Best Practices: Certain procedures recognized during the course of the project by the Project Manager, Project Sponsor, or Project Team, that, when exercised, improved the production of a deliverable, streamlined a process, or ways to improve standardized templates, etc. These best practices must be documented and shared with other Project Managers so that they can be repeated.
Brainstorming: A technique used to stimulate creative thinking and overcome problems. Team members gather in a room and offer ideas for solutions to a problem(s). No idea is rejected no matter how absurd or impractical. Often a practical solution surfaces and a decision is reached by group consensus.
Business Rules: Practices associated with certain business processes that are required by regulation, law, accounting controls or business practices. Rules should be defined in as much detail as possible using techniques such as structured English.
Business Continuity Planning/Disaster Recovery (BCP/DR): Process of developing advance arrangements and procedures that would enable an organization to respond to a disaster and resume its critical business functions within a predetermined period of time, minimize the amount of loss, and repair or replace the damaged facilities as soon as possible.
Business Process Re-engineering (BPR): A technique used to optimize organizational processes.

C:

Capability Maturity Model (CMM): A description of the stages through which software organizations evolve as they define, implement, measure, control, and improve their software processes. This model provides a guide for selecting process improvement strategies by facilitating the identification of current process capabilities and the issues most critical to software quality and process improvement.
Change Control: A plan for handling changes to a project aimed at minimizing the negative effect on a projects outcome. Change is defined as any adjustment to any aspect of the Project Plan or to any already approved deliverable(s).
Charter: *See* Project Charter.
Client-Server: A system architecture where a host computer or 'server' provides data and services to requesting or 'client' workstations.
Configuration Management: A discipline applying technical and administrative direction to identify and document the functional and physical characteristics of a system component, control changes to those characteristics, record and report change processing and implementation status, and verify compliance with specified requirements.
Constraint: Something that establishes boundaries restricts limits or obstructs any aspect of the project.
CSSQ: The interdependent quadruple constraints of the project (scope, cost, schedule and quality), represented by project scope, project budget, project schedule, and quality management plan.
Consumer: *See* Roles and Responsibilities, Section 1 Introduction.
Cost/Benefit Analysis: A comparison of the cost of the project to the benefits it would realize, to determine whether the project or portion of the project should be undertaken.
Critical Success Factor (CSF) Interviewing: A process in which a series of strategic questions are asked to identify what objectives and goals need to be met in order for the project to demonstrate success.
Customer: *See* Roles and Responsibilities, Section 1 Introduction.
Customer Representatives: *See* Roles and Responsibilities, Chapter 2.
Customer Decision-Makers: *See* Roles and Responsibilities, Chapter 2.

D:

Database: An integrated collection of data (entities and attributes) organized to avoid duplication of data and allow for easy retrieval.

Data Flow Diagram: A picture diagramming how data flows through a system. It depicts the external entities (which are sources or destinations of data), the processes which transform that data, and the places where the data is then stored.
Data Dictionary: Reference material that describes and defines each piece of data used in a system. This may include entity and attribute definitions, discuss relationship characteristics and provide sizing information.
Decision Trees: A branching chart showing the actions that occur from various combinations of conditions and decisions.
Defect: A flaw in a system or system component that causes the system or component to fail to perform its required function.
Defect Tracking: The process of ensuring that all test cases have been executed successfully. If cases have not executed successfully and defects have been identified, a log is generated to track the defects so that the Project Team can correct them and perform a retest.
Deliverable(s): A product or service satisfying one or more objectives of the project.

E:

Effort Estimate: An estimate of the amount of effort necessary to perform each project task.
Encryption: The coding of data either at its source or as part of a data stream to prevent unauthorized access to the data. For example, information transmitted over a telecommunications line is scrambled at one end, and unscrambled at the other.
External Stakeholder: *See* Roles and Responsibilities, Chapter 2.

F:

Flowchart: A graphical representation of the flow and interaction of a process or system.
Functional Decomposition: Process of dividing higher level functions into sub-functions and processes.

G:

Gap Analysis: *See* Matrix Diagram.
Graphical User Interface (GUI): The front-end of an application through which the user interacts with the system by utilizing buttons, the mouse, drop down menus, etc.

I:
Internal Stakeholders: *See* Roles and Responsibilities, Chapter 2.
Issue Management and Escalation: A process for capturing, reporting, escalating, tracking, and resolving problems that occur as a project progresses.

M:

Matrix Diagram: The matrix displays requirements down the left side of the grid, while processes or data elements are tracked across the top of the grid. A checkbox at the intersection of a requirement and a process or data element to indicate that the requirement has been successfully accounted for in a deliverable.
Microsoft Project: A software program, developed and sold by Microsoft, designed to assist a project manager in developing a plan, assigning resources to tasks, tracking progress, managing the budget, and analyzing workloads.
Mission: The mission of the organization is the development of the business case, when it will explain how the expected outcome of the project supports the organization's mission.

O:

Outsourcing: The practice of contracting out a project, a portion of a business, or an IT operation.

P:

Parallel Testing: The concurrent testing of both the current and new system, with identical data to compare the outputs for consistency and accuracy.
Performing Organization: *See* Roles and Responsibilities, Chapter 2.
Phase: The end of a project phase usually coincides with the approval of a major deliverable. Interchangeable with the word "Gate" as used in the Guidebook.
Post-Implementation Report: The report documents the successes and failures of the project and provides a historical record of the planned and actual budget and schedule. It also contains recommendations for improvement to be used by other projects of similar size and scope.
Process: A series of tasks performed to bring about a result.
Process Flow Diagram: A diagram used to analyze the flow of a process, find problems, create solutions, and measure efficiency. Symbols are used in a visual representation that can quickly point out delays, unnecessary events, and other problem areas.
Project: A temporary endeavor undertaken to create a unique product or service.
Project Audit: A process designed to ensure that the Quality Assurance activities defined in Project Planning are being implemented and to determine whether quality standards are being met.
Project Lifecycle: A collection of phases whose number and names are determined by the control needs of the Performing Organization.
Project Management: Direction and coordination of human and material resources for a project using management techniques to achieve cost, scope, schedule, quality, and customer satisfaction objectives.
Project Manager: *See* Roles and Responsibilities, Chapter 2.
Project Repository: A collection or archive of all information and documents from the project.
Project Sponsor: *See* Roles and Responsibilities, Chapter 2.
Project Team: *See* Roles and Responsibilities, Chapter 2.
Proof-of-Concept: A technique used to confirm the feasibility of one or more components of the technical solution, helps to minimize cost by 'testing the waters' first on an idea or a design.
Prototyping: The process of building a small working version of a system design as a means of hedging risk, and attaining Customer buy-in. Prototyping can provide a better understanding of Customer requirements, validate those requirements, and sometimes perform as a proof-of-concept tool.

Q:

Quality Assurance: Evaluation of project performance on a regular basis to ensure that the project will satisfy the established quality standards.
Quality Control: Monitoring of project results to ensure compliance with the appropriate established quality standards and to eliminate causes of non-compliance.
Quality Standards: The criteria established to ensure that each deliverable created meets a certain level of standard improvements commonly agreed between the Customer and Project Manager.

R:

Risk: An anticipated event with the potential to positively or negatively affect the project.
Risk Assessment: A process to identify which risks are likely to affect a project, documenting them, and determining which require a mitigation plan.

S:

Six Sigma: Six Sigma is a concept, a subject whose basic goal is to focus on the basic steps and analysis. Six Sigma also is a level of quality applied to variations in any process. Sigma, the Greek letter "σ" is the symbol in statistics used for standard deviation, a measure of variation in the distribution of values.
Skills Inventory: A record of the skills learned and used on the project by the Project Team.
Stakeholders: *See* Roles and Responsibilities, Chapter 2.

Storyboarding: A technique used to aide in the brainstorming process. Ideas are written down on cards and posted immediately on a wall by the participants. Once all the ideas are posted, several passes of categorization take place.
Strategic Plan: A formal document produced by the Performing Organization outlining organizational goals and direction over a designated period of time. The Strategic Plan drives the proposed solution developed during Project Origination.
Supply Chains: The movement and storage of raw materials, work-in-process inventory and finished goods from point of origin to point of consumption.

T:

Task: A single piece of work itemized in the Project Schedule where effort and resources must be applied.
Test Cases: Individual test scenarios that may be executed singularly or in combination to test modules or strings of modules. Test cases should be developed by the Project Team to test what is expected, as well as what should not be expected.
Test Plan: A series of test cases that when compiled into a whole constitute a testing plan for the Project Team to follow. A well-formulated test plan should ensure that all internal components and system interfaces operate as they should according to the Functional and Technical Specifications.
Total Quality Management (TQM): A set of guiding principles that represent the foundation of a continuously improving organization. The application of quantitative methods and human resources to improve the materials and services supplied to an organization, all the processes within an organization, and the degree to which the needs of the Customer are met, now and in the future.

U:

Unified Modeling Language (UML): Is a modeling language used to define a system prior to construction, much like a blueprint is used prior to building a house. It allows the Project Team to specify, visualize, and document an application, including its structure and design, in a way that meets all of the user business requirements.

V:

Value Systems: A value system includes all of the supply chains of an organization's suppliers, the organization itself, the organization's distribution channels, and the organization's downstream buyers and so on until the product or service has reached the end of its useful life.

W:

Walkthroughs: A technique for performing a formal review which takes place at review and inspection points throughout the lifecycle being utilized, to observe and verify what has been accomplished.
Work Breakdown Structure (WBS): A grouping of project elements or components which defines the total project scope. A WBS is deliverable-oriented and each descending level represents an increasingly detailed definition of a component.
Work Flow Diagram: A graphical representation of the organization's workflow. Which is helpful when documenting the current working model and when looking for opportunities to improve a process.

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