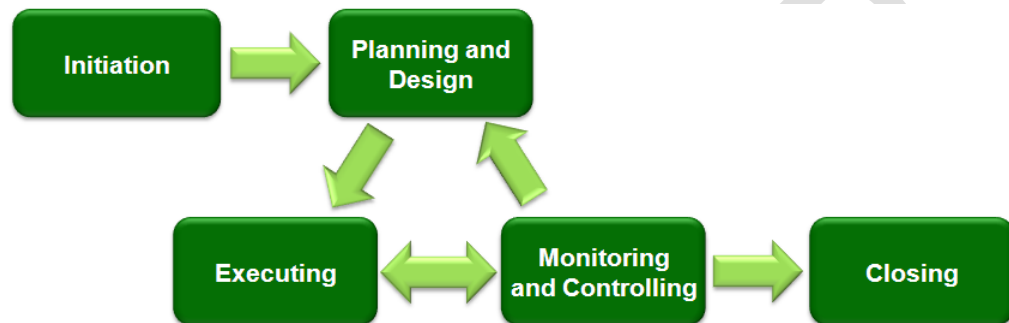


Phases of project management

There are five phases of project management. These phases are as follows:

1. Initiation
2. Planning
3. Execution
4. Performance monitoring
5. Closure



Phase 1: Project initiation

In the initiation phase, they answer the following questions :

1. Why this project?
2. Is the project feasible?
3. Who are going to be potential partners in the project?
4. What are the boundaries of the project?
5. How does the end-result look like?

Once the project is given a green light, the project manager creates a project initiation document (PID) where he outlines the purpose and requirements of a project..

Phase 2: Project planning

Once you've defined all the objectives, it's time to develop a roadmap for everyone to follow. It involves setting goals and describing job-responsibilities to the project members. Many project managers set S.M.A.R.T goals to make the process achievable.

1. Creating a project plan
2. Creating a resource plan Creating a financial plan
3. Creating a quality plan
4. Creating a risk plan
5. Creating an acceptance plan
6. Creating a communication plan

7. Creating a procurement plan
8. Contracting the suppliers
9. Performing phase review

(a) Project Plan

In project planning step, all the project management planning tasks, which are required to deliver the project on time and within budget, are performed. The steps of creating project plan are listed

1. Identify all the phases, activities and tasks
2. Sum up the effort needed to complete those tasks
3. Document all the interdependencies of the project
4. List the planning assumptions and constraints
5. Create a detailed project planning schedule

The above steps will ensure the following:

- a) Defining the project scope and milestones
- b) Identifying the work breakdown structure
- c) Setting and agreeing the target delivery dates
- d) Monitoring and controlling the allocation of resource
- e) Reporting on the progress of the project to the sponsor

(b) Resource Plan

The project management resource planning identifies all the resources which are required to complete the project successfully. The types of resources required to complete a project are, viz., labour, equipment and materials. The objective is to identify the quantity of labour, equipment and materials needed to deliver the project. Then a resource schedule is created which will enable to plan the consumption of each type of resources. Through this, one can know that there will be enough resource to complete every phase in the project.

The steps of the resource plan are listed as follows.

1. Identifying the types of labour required for the project
2. Identifying the roles and key responsibilities for each labour type
3. Identifying the number of persons required to fill each role
4. Identifying the items of equipment to be used and their purposes
5. Identifying the types and quantity of equipment needed in each type Identifying the total amount of material needed
6. Planning the dates for using or consuming these resources
7. Identifying the amount of resource required per project activity Creating a detailed resource utilisation schedule

(c) Financial Plan

The financial planning helps the project team to quickly and easily create a financial plan for the Project. This step enables to set a budget for the project against which the expenditure is measured. The total cost of the project should be within the budget of the project. This will enable the project team to deliver the project successfully.

1. The steps of the financial planning are listed below.
2. Identifying the types of labour costs to be incurred during the project

Identifying the items of equipment needed to deliver the project

3. Identifying the various materials needed by the project
4. Identifying the unit costs for a labour, equipment and materials
5. Identifying other costs types such as administration
6. Identifying the amount of contingency needed
7. Identifying the total cost of each project activity
8. Calculating the total cost involved in completing the project
9. Creating a schedule expenses

(d) Quality Plan

Quality management planning will help the project team to create a quality control plan and quality assurance plan. This step will help to set quality targets for the project to ensure that the deliverables are produced and are meeting the needs of the customer. Also, this step will help the team to schedule quality control planning and quality assurance planning activities mainly to assure the customer that the quality targets agreed, will be met.

The steps of quality planning are classified into setting the quality targets and monitoring and controlling quality which are as stated below.

1. Steps of Setting Quality Targets:
 2. Identifying the customer's requirements
 3. Listing the project deliverables to be produced
Setting quality criteria for these deliverables
 4. Defining quality standards for the deliverables, Gaining customer's agreement with the target set.
5. Steps of Monitoring and Controlling Quality
6. Identifying the quality control tasks needed to control quality

7. Creating a quality control plan by scheduling the control activities Listing the quality assurance activities required to assure quality
8. Building a quality assurance plan by creating an activity schedule.

(e) Risk Plan

The project risk management plan will identify risk and implement a plan to reduce it. The possible risks are anticipated and accordingly the mitigating techniques are outlined to with the risk This will monitor and control risks effectively and thereby increasing the chances of success.

The steps of risk planning are as follows.

1. Listing all the types of risks which may occur
2. Determining the likelihood of the risks occurrence
3. Calculating the impact on the project if risk does occur
4. Ranking the identified risks in order of priority
5. Identifying actions to be taken to prevent the occurrence of risk
6. Listing contingency actions to be taken in the event of occurrence of risk
7. Creating a risk schedule which allocates time frames to risk actions
8. Implementing a process to monitor and control risks throughout the project.

(f) Acceptance Plan

Acceptance plan will help the team to gain the acceptance of the customers for the deliverables produced by the project. Gaining customer's acceptance through acceptance best planning is an important task of the project, since it will allow the customer to accept the deliverables that are produced for them. The use of acceptance planning for the projects will increase the chance of success because the deliverables are constantly produced which will meet the customer's requirements.

The steps of the acceptance plans are as listed below:

1. Identifying the acceptance milestones of the project plan
2. Creating a full list of all project deliverables
3. Listing the criteria for gaining customer's acceptance
4. Putting the acceptance standards in place Identifying the acceptance testing methods
5. Allocating acceptance testing resources
6. Scheduling acceptance reviews with the customer
7. Gaining customer's acceptance of the deliverables

(g) Communication Plan

The main objective of the communication plan is to communicate the right information to the right people at the right time. Further, it will ensure that the stakeholders are always provided with the right information at the right time which will pave the ways for ensuring their continued support.

The steps of communication planning are divided into two types, viz, communication planning and using communication planning.

These are listed below:

Steps of Building Communication Plans

1. List the communications to stakeholders
2. Defining the communication needs of each stakeholder
3. Identifying the required communication events
4. Determining the method and frequency of each events
5. Allocating resource to communication events
6. Building a communication event schedule

h) Procurement Plan

The procurement plan is aimed to define the goods and services that will be procured project and also to decide the method and timing of such procurements, A properly procurement plan will ensure the purchase of the right products for the project at the right time,

The steps of the procurement plan are as listed below.

1. Defining the procurement requirements
2. Listing all the goods and services to be procured
3. Creating a sound financial justification for producing them
4. Researching the market to identify available products to be procured
5. Confirming the current market value of each of the required products
5. Listing all the tasks involved in procuring the products

(I) Contracting the Suppliers

The procedure of contracting the suppliers is done through tendering process. A tender RNist?t keeps the track of different tender forms after releasing them to the suppliers, The tender records the current status of each of the tender forms issued by the project. The tender tðrms through tender register are statement of work, request for information, request for prov•al supplier contract.

The tender register maintains the current status of each of the tender forms used. The following are recorded by the tender register.

Types of tender forms released

1. Monitoring and controlling the tender processes
2. Ensuring that the tender process is followed
3. Identifying and resolving any issue with the tender as early as possible
4. Keeping track of the overall status of the tender

(j) Review of Project Planning Phase

This phase review is done at the end of the project planning phase to tell the sponsor whether the project has achieved its objectives to date.

This phase review form will contain the following question.

1. whether the project is currently delivering to schedule?
2. Whether the budget allocated is sufficient at this point? Whether the deliverables have been produced and approved? Whether the risks have been controlled and mitigated?
3. Whether the issues were identified and resolved?
4. Whether the changes were properly managed? Whether the project is on track?
5. The answers to the above question will result into the following.
6. Documenting the results of the project reviews

Phase 3: Project execution

This is the phase when the project starts taking its shape. As a lot of things are happening while executing a project, maybe that's why it's referred to as the meat of the project. The programmers are working on coding, web designers with the graphic material, status and performance reports are made by project managers. This phase is also called implementation phase.

Here are some of the important things that are being taken care of in the implementation phase.

1. **Report progress:** Regular updates and status reports are required when the project is in the execution stage.
2. **Hold weekly meetings:** Weekly meetings can save your team from deviating from the important activities.
3. **Manage problems:** As the project is in motion, problems are bound to happen. You can face issues like quality, time management, the decline in a team's morale that can threaten the success of a project.

Phase 4: Project performance

This phase is about measuring project progress and overall performance to see if everything aligns with the project management plan or not. Different project managers use different techniques to measure performance. Some use a project management software while others use key performance indicators (KPIs) to determine if it is on track or not.

Some of the common KPIs to measure project performance are:

1. **Project objectives:** If a project stays on schedule and desired budget, it's an indication that it will meet the expectations of the decision-makers and clients.
2. **Quality deliverables:** This helps to determine if deliverables are being met or not.
3. **Cost tracking:** Project managers need to be accountable for the effort and cost of resources.
4. **Project performance:** Any changes made in the project due to scope-creep or other unforeseen circumstances are taken into account while measuring the overall progress of the project.

Phase 5: Project closure

This phase represents the completed project. It is the last phase of project management that is also called post-mortem or follow-up phase. **How a project manager closes the project?**

1. Project performance is evaluated

If there are elements that went really well or something didn't go as planned, it is the time to bring them up. The project manager brings out the performance reports and evaluates how well the project has performed.

2. Closing the project with a team meeting

The final team meeting is a great way to reflect how well the project went and share the takeaways with the team members so that the future projects can be handled in a better way.

And, a project is finally closed!

Risk Management

Risk management has risk management process, risk form and risk register which are explained below.

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Risk Management Process

The risk management process describes the steps that are required to perform risk management within the project. The objective of this process is to identify the risks and take actions such that the occurrence of risks in the project is minimised.

The risk management process involves the following.

1. Identifying critical and non-critical risks
2. Documenting each risk in depth by completing risk forms
3. Creating a log of all risks and notifying the management of their severity
4. Taking action to reduce the likelihood of occurrence of risks
5. Reducing the impact of risk on the project by following the best practice processes

Risk Form

The risk assessment forms are used to manage risks within a project. This risk assessment form enables us to enter all of the information to this risk, and also to list the actions to be taken to prevent it from happening.

The risk form records the following items.

1. Part of the project that has identified risk
2. Nature of the risk and which part of the project is likely to be affected
3. Likelihood of the occurrence of the risk
4. Impact of the risk on the project

Risk Register

The risk register is used to track all risks within the project. Using this risk register, we can record the current status of each risk and take necessary actions to reduce the likelihood of its occurrence.

The risk register records the following.

1. Type of risk, who raised it and how it could affect your business
2. Likelihood of the occurrence of the risk and its potential impact on the project Risk priority, based on its effect on the project
3. Actions which are to be taken to prevent the occurrence of risk Contingency actions taken in case it does occur

Types of Risks: Some Illustrations

Risks are several types as described above. Broadly, they can be categorised into technical risks' social risks, economic risks, political risks, production risks, marketing risks, financial risks and human risks. Figure below the types of risks a project can be exposed.

1. Social Risks

Social risks refer to risks arising from changes in the needs and preferences of target customers. Lack of necessary natural resources, labor unrest, agitations and social movements against the project also constitute social risks.

2. Technical Risks

Technical risks refer to changes in technical specifications of the product result in loss.

3. Economic Risks

Economic risks refer to an increase in the rate of inflation, changes in the economic policies of governments, and distribution of income. Since the project manager does not have any control over these risks, he should carefully assess such risks and should ensure that the project is not going to suffer because of these risks.

4. Political Risks

Nationalisation or privatisation of a particular industry, political instability, and trade restriction are some examples of political risks. The project manager should ensure that the project does not go against the political interests of the country.

5. Production Risks

Production risks refer to the shortage of necessary raw materials, sudden breakdown of key and huge rise in installation and maintenance costs. As these risks can be controlled to extent, the project manager should try to reduce the effect of these risks on the project.

6. Marketing Risks

Marketing risks refer to failure of the developed product or service in the market due to changes in demand, errors in forecasting of demand, or difficulties in distribution.

7. Financial Risks

Financial risks refer to bad debts, change in the interest rate, wrong choice of investments and mistakes in the accounting procedures.

8. Human Risks

Human risks refer to the sudden demise of key employee, limited availability of component employees, inter-group politics, etc.

Project Cost Risk Analysis using Crystal Ball Software

Future estimates are not facts but statements of probabilities about how things will turn out. Hence, actual costs may be higher or lower than estimates made by even experts. The

reasons can be many. A cost risk estimating method, based on Monte Carlo Simulation, is available that provides more accurate estimates of total project cost.

Objective of Project Cost Risk Analysis

Cost risk analysis can answer some questions that the traditional estimating method Cannot.

Include are:

'What is the most likely cost?' The traditional methods assumes that this is the baseline cost computed by summing the estimates of cost for the project elements, but this is not so.

'How likely is the baseline estimate to be overrun?' Traditional methods do not address this problem.

'What is the cost risk exposure?' This is also the answer to the question; "How much contingency do we need on this project?"

Reasons for Project Cost Overruns

The cost overruns can occur at various stages in the execution of projects.

The various stages are

1. Pre-feasibility stage
2. Evaluation stage
3. Technology choice and engineering stage
4. Contraction and procurement stage
5. Construction stage
6. Commissioning and start-up stage

1. Pre-feasibility Stage

Costs tend to rise due to delays and passage of time. Acquiring land and obtaining environment and other clearances are usually best with procedural bureaucratic delays. Securing necessary approvals from regulatory agencies and financial bodies is yet another reason for delay and consequent increase in costs. Inadequate communication facilities, poor quality of roads, absence of sufficient water sources and such other inadequacies add to time slippages and cost overruns. The failure to plan important resources, tie-ins and inputs needed for timely construction and putting into operation is another major reason for cost overruns.

2. Evaluation Stage

The better the evaluation, the greater the chances of eventual project success in terms of meeting time schedule and budget. In practice, the evaluation is hurried through by an inadequate study, resulting in lack of clarity on the project scope and underestimate of cost and resources. These, in turn, necessitate subsequent changes in project scope, non-freezing of specifications, and revision of resource and cost estimates.

In addition to the above, selection of location influenced by factors other than technical, and the incompetence of consultants who are again selected by extraneous considerations led to wrong economic studies and misleading financial flow statements and projections causing financial impediments.

3. Choice of Technology

There is a tendency of selecting technology on considerations of credit offered by the supplier rather than of technical necessities. Very often, the technology chosen happens to be outdated. Cost overruns and schedule slippages are also attributed to delay in completing details engineering, nonavailability or insufficient availability of design data, delay in finalising design and specifications, absence of an engineering schedule leading to delay in the release of drawings for procurement. Improper scrutiny and approval of drawing and specifications also lead to revisions and rework at a later stage escalating project costs.

4. Contacting and Procurement

In this stage, the major causes for cost overruns and project delays are the casual approach to the preparation of tender documents and late release of those documents; wrong selection of vendors fabricators/contractors; delays in evaluating bids; lowest cost syndrome without regard for the Contractor's competency and vendor quality; enormous procedural delays in issuing import licenses, opening of letters of credit and issue of guarantees to overseas suppliers, poor coordination between Suppliers and contractors; time-consuming procedure concerning procurement of imported materials; absence of proper quality control mechanisms; poor logistics planning; and making changes and modifications without any cost benefit analysis.

5. Construction Stage

A number of factors during construction stage account for cost overruns. These include: starting activities without proper planning and even before ensuring the availability of working storage space, sequential supply of equipment and materials and adequate infrastructure; Contractor's low productivity and consequent financial problems; hold-up of certain items of work because the earlier items of work not yet completed; non-involvement of project management and not coordinating with contractor; poor system of monitoring contractor performance; delay in progress payments to contractors; delay in providing infrastructure facilities and delay in settlement of claims for extras and changes.

6. Methods to Keep Track of Cost Overruns Item-wise

The cost of a project usually increases due to the time gap between the planning and implementation of the project. The project manager prepares a 'cost overrun analysis sheet' as given below:

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Cost overruns Analysis Sheet For Monitoring Overrun on an on-going Basis Project Name: Month: Project Code: Year Project Manager:

S.	Project cost	Cost Overruns	Analysis of Cost Overruns					Rectification costs	Others (Specify)
			Price increases	Scope changes	Increase in tax	Exchange rate fluctuation	Time overruns		
1	Land Developing								
2	Building and Civil works								
3	Machinery and								
4	Detailed Engineering								
5	License Fees								
6	Preliminary Expense								
7	Working Capital Margin								—
8	Contingencies								

Time overruns

	Event Name	Scheduled Time	Actual Time	Time Overrun	% of time Overrun	Reasons for Time Overrun
1						
2						
3						
4						
5						
6						
7						

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