



AAM

Business School



Project Management

III SEMESTER

(Approved by Alagappa University)

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Course Content:

Module I: Concepts of Project Management: Project – Meaning – Nature – Types of project and project life cycle – Project management – Nature and scope of project management – Project management as a profession – Role of project manager.

Module II: Project Identification and Formulation: Project environment – Identification of investment opportunities – Project screening – Preferability study – Project selection – Project formulation – Stages in project formulation – Project report preparation – Planning Commission's guidelines for project formulation.

Module III: Project Appraisal: Objectives, essentials of a project methodology – Market appraisal – Technical appraisal – Financial appraisal – Socio-economic appraisal – Managerial appraisal.

Module IV: Project Planning and Scheduling: Objectives – Process or planning components or good planning – Project designing and project scheduling and time estimation – Scheduling to match availability of man power and release of funds – Cost and time trade cost.

Module V: Project Execution and Administration – Project contrasting – Containing prizes – Types – Project organisation – Firms or organisation – Project direction – Project communication – Project coordination – Factors influencing effective project management – Project time monitoring and cost monitoring – Project over runs.

Module VI: Project Control: Control techniques – PERT, CPM – Proper review – Project audit.

Reference books:

1. Prasanna Chandra, Projects Planning, Analysis, Selection, Implementation and Review.
2. Gopalakrishnan P & Ramamoorthy V.E, Textbook of Project Management.
3. Kerzner Harold, Project Management.
4. Dennis Hock, Project Management Handbook.
5. Choudhry S, Project Management.
6. Goel B.B, Project Management: A Development Perspective.

MODULE 1

CONCEPTS OF PROJECT MANAGEMENT:

Definition of Project

A project is a temporary effort to create a unique product, service or result. A project has a definite start and end. A project management plan is created by a project manager. This plan requires a buy-in from all stakeholders. The plan should be realistic, time-bound and achievable.

Projects drive change and result in benefits.

Definition of Project Management

Project Management is not about managing people alone. PMI bifurcates project management into different process groups and knowledge areas. Process groups include initiating, planning, executing, monitoring and controlling, and closing.

Knowledge areas include integration, scope, time cost, quality, **human resources**, communication, risk, procurement, and **stakeholder management**.

Introduction to Project Management: Key Concepts

Project management dates back to the early 1950s in its contemporary form, although its roots date back to the latter years of the 19th century. A defined method of project management emerged as companies realized the advantages of organizing job around projects-recognizing the critical need to communicate and coordinate work across departments and professions.

Project management relies mainly on planning, handling and arranging the funds accessible. Some of the components of project management are to direct the project team effectively through all stages and effectively implement the project. Other operations include the identification and efficient management of the life cycle of the project and its implementation in the user-centric development method.

Definition of Project Management:

Project Management Institute (PMI) defined Project Management as *"the application of knowledge, skills, tools and techniques to a broad range of activities in order to meet the requirements of a particular project."*

An easy project management definition involves a few main premises:

Project management is no small challenge.

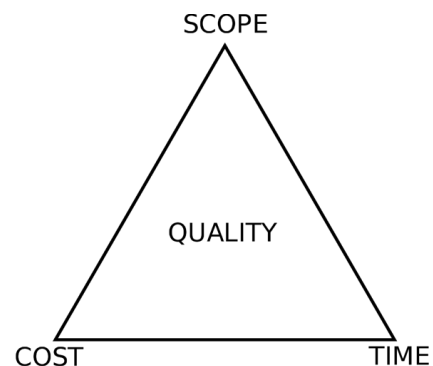
The management of the project has a definite start and end. It's not an ongoing method.

Project management utilizes different instruments to evaluate performance and monitor project tasks. These include structures for work breakdown, charts for Gantt and charts for PERT.

Projects often need resources that are ad-hoc rather than committed. prevalent full-time positions in organizations.

Project management lowers risk and improves opportunities for achievement.

Often, a triangle is used to summarize project management, frequently referred to as the *"triple constraint."* Time, price and range are the three most significant variables. These shape the vertices as the main feature of value.



Generally, there are four key elements in the "triple constraint":

1. Projects must be cost-effective.
2. Projects need to be delivered on time.
3. There must be scope for projects.
4. Projects must satisfy the demands of client quality.

Phases of Project Management:

A project runs through six stages during its lifecycle:

1. **Project Definition:** Defining the objectives, priorities and critical success factors for the project
2. **Project Initiation:** Everything needed to build up the project before the job can begin
3. **Project Planning:** Detailed instructions on how the project will be carried out, including moment, price and resource estimates
4. **Project Execution:** Working to deliver the product, service or desired outcome
5. **Project Monitoring & Control:** Ensuring that a project remains on track and taking corrective action to ensure completion of the project:
6. **Project Closure:** Formal acceptance of the deliverables and disbandment of all the elements required to run the project

Role of a Project Manager:

Accountability of the entire project is the role of the project manager. The task of the project manager is to guide, monitor and regulate the project from start to finish. Project managers should not perform the tasks within the project - it is sufficient to manage the project. Here are some of the operations undertaken by a project manager:



1. The project manager has to identify the project, decrease it to a collection of manageable activities, get adequate funds and create a squad to do the job.
2. The project manager has to set the project's ultimate objective and motivate the project squad to finish the project on time.
3. The project manager must regularly report advancement to all stakeholders.
4. The project manager must evaluate and monitor and mitigate the hazards to the project.
5. No project will ever go as scheduled. Project managers need to know how to adapt and handle the transition.

Project Manager's Skill Set

A project manager must have a range of competencies:

1. Leadership
2. People management
3. Effective communication
4. Influencing

5. Negotiation
6. Conflict management
7. Planning
8. Contract management
9. Estimating
10. Problem-solving
11. Creative thinking
12. Time management

Projects and project management procedures differ with each project due to their size and complexity. Project managers should gather a thorough knowledge of project demands and implement all stages of project management to perform the project efficiently.

Project management is all about establishing an atmosphere and circumstances for achieving a specific goal or objective with a group of individuals in a monitored way.

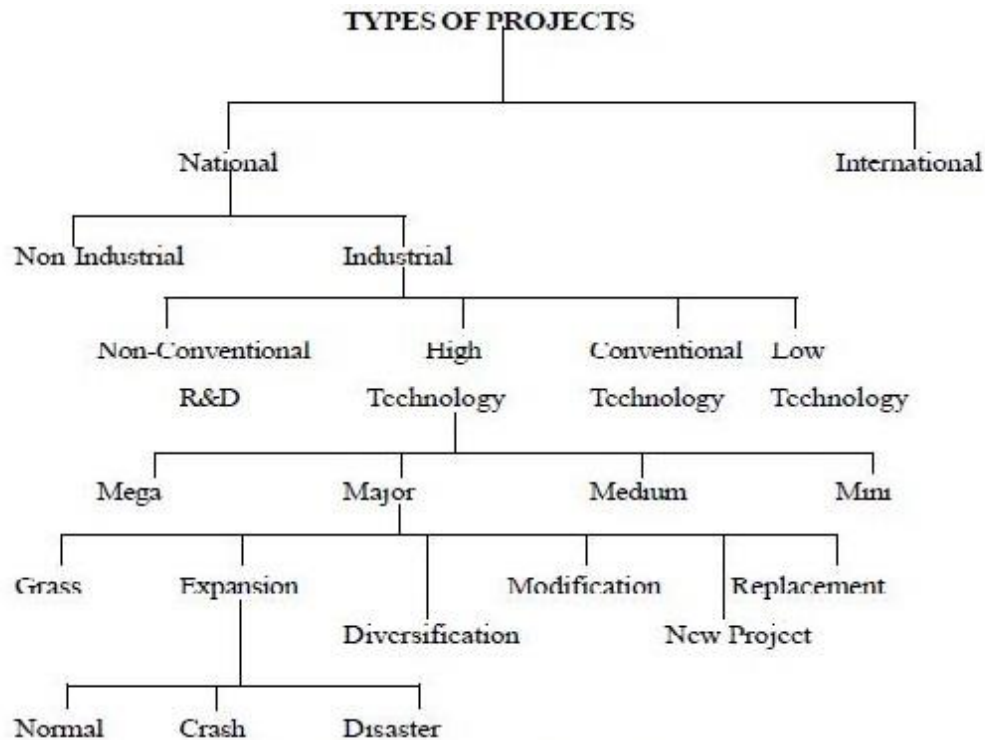
If you are acquainted with what project management entails, from the phase to mitigating everything that might (and often does) go right, you will influence the end outcome-whether you are first involved in a project methodology or a trained professional.

CLASSIFICATION OF PROJECTS:

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The location, type, technology, size, scope and speed are normally the factors which determine the effort needed in executing a project. Project can be classified under different heads, some of which are shown in figure below



PROJECT SELECTION PROCESS:

Identification of a new project is a complex problem. Project selection process starts with the generation of project ideas. In order to select the most promising project, the entrepreneur needs to generate a few ideas about the possible project one can undertake. The project ideas as a process of identification of a project begins with an analytical survey of the economy (also known as pre-investment surveys). The surveys and studies will give us ideas.

The process of project selection consists of following stages :

- Idea generation
- Environment appraisal.
- Corporate appraisal
- Scouting for project ideas.
- Preliminary screening.
- Project rating index
- Sources of positive Net Present Value.
- Entrepreneur qualities.

Idea Generation :- Project selection process starts with the generation of a project idea. Ideas are based on technological breakthroughs and most of the project ideas are variants of present products or services. To stimulate the flow of ideas, the following are helpful:

SWOT Analysis :- SWOT is an acronym for strengths, weaknesses, opportunities and threats. SWOT analysis represents conscious, deliberate and systematic effort by an organisation to identify opportunities that can be profitably exploited by it. Periodic SWOT analysis facilitates the generation of ideas.

Operational objectives of a firm may be one or more of the following.

- Cost reduction.
- Productivity improvement.
- Increase in capacity utilisation.
- Improvement in contribution margin.

Fostering a conducive climate :- To tap the creativity of people and to harness their entrepreneurial skills, a conducive organisation climate has to be fostered. Two conspicuous examples of organisation which have been exceptionally successful in tapping the creativity of employees are the Bell Telephone Laboratory and the 3M Corporation. While the former has succeeded in harnessing creativity by providing an unconstrained environment, the latter has effectively nurtured the entrepreneurial skills of its employees as sources of idea generation. The project ideas can be generated from various internal and external sources.

These are :-

- Knowledge of market, products, and services.
- Knowledge of potential customer choice.
- Emerging trends in demand for particular product.
- Scope for producing substitute product.
- Market survey & research.
- Going through Professional magazines.
- Making visits to trade and exhibitions.
- Government guidelines & policy.
- Ideas given by the experienced person.
- Ideas by own experience.
- SWOT analysis.

Environment appraisal :- An entrepreneur or a firm systematically appraise the environment and assess its competitive abilities. For the purposes of monitoring, the business environment may be divided into six broad sectors as shown in The key elements of the environment are as follow:

Economic Sector

- State of the economy
- Overall rate of growth
- Cyclical fluctuations
- Inflation rate
- Growth rate of primary, secondary and territory sector

- Growth rate of world economy
- Trade surplus and deficits
- Balance of Payment

Government Sector

- Industrial policy
- Government programmes and projects
- Tax structure
- EXIM policy
- Financing norms
- Subsidies incentives and concessions
- Monetary policy

Technological Sector

- Emergence of new technologies
- Access to technical know-how, foreign as well as indigenous

Socio-demographic Sector

- Population trends
- Age shifts in population
- Income distribution
- Educational profile
- Employment of women
- Attitudes toward consumption and investment

Competition Sector

- Number of firms in the industry and the market share of the top few
- Degree of homogeneity and differentiation among the products
- Entry barrier
- Comparison with substitutes in term of quality and price
- Marketing policies and practices

Supplier Sector

- Availability and cost of raw material
- Availability and cost of energy
- Availability and cost of capital

Corporate Appraisal :- A realistic appraisal of corporate strengths and weaknesses is essential for identifying investment opportunities which can be profitably exploited. The broad areas of corporate appraisal and the important aspects to be considered under them are as follow :

Marketing and Distribution

- Market Image
- Product Line
- Technological
- Environment
- Government
- Competitor
- Supplier Geographic
- Socio
- Economic
- Product Mix
- Distribution Channels
- Customer loyalty
- Marketing & distribution costs

Production and Operations

- Condition and capacity of plant and machinery
- Availability of raw material and power
- Degree of vertical integration
- Locational advantage
- Cost structure

Research and Development

- Research capabilities of the firm
- Track record of new product developments
- Laboratories and testing facilities
- Coordination between research and operations

Corporate Resources and Personnel

- Corporate image
- Dynamism of top management
- Relation with government and regulatory agencies
- State of industry relations

Finance and Accounting

- **Financial leverage and borrowing capacity**
- Cost of capital
- Tax structure
- Relation with shareholders and creditors
- Accounting & control system
- Cash flow and liquidity



PROJECT LIFE CYCLE:

A project is not a one shot activity. Even a shooting star has a time and life span. Project lifecycle is spread over a period of time. There is an unavoidable gestation period for the complex of activities involved to attain the objectives in view. This gestation period, however, varies from project to project but it is possible to describe, in general term, the time phasing of project planning activities common to most projects. The principal stages in the life of a project are:

- Identification
- Initial formulation
- Evaluation (selection or rejection)
- Final formulation (or selection)
- Implementation
- Completion and operation

Development projects are expressly designed to solve the varied problems of the economics whether in the short or long run. The surveys or in depth studies would locate the problems and the project planner will have to identify the projects that would solve the problems most effectively. At this stage, we are concerned with the kind of action and type of project that would be required in rather broad term. In other words the surveys and studies will give us ideas and throw up suggestions which would be worked out in detail later and then evaluated objectively before being accepted for implementation. What types of surveys and studies are to be undertaken? The current sociopolitical economic situation has to be critically assessed. It will also be necessary to review it in its historical perspective necessitating the undertaking of a survey of the behaviour and growth of the economy during the preceding decades. On the basis of past trends, extrapolation may be made of future possible trends and tendencies, short and long term. There are scientific techniques for doing so which can be broadly grouped as forecasting methodology. It is however not sufficient to view the socio-economic panorama on the historical canvas. More detailed investigations from an operational point of view would be called for in respect of each economic sector.

Initial Formulation Identification is only the beginning in the lifecycle of a project. Having identified the prospective projects, the details of each project will have to be worked out and analysed in order to determine which of them could be reckoned as suitable for inclusion in the plan, allocate funds and put into execution. As a follow up to the finding of techno-economic surveys, and number of feasibility study group are set up, as the name implies to examine the possibility of formulating suitable projects and to put concrete proposals in sufficient detail to enable authorities concerned to consider the feasibility of the proposal submitted.

Evaluation or Project Appraisal After the socio-economic problems of an economy have been determined and developments objectives and strategies agreed, concrete steps have to be taken. The main form this takes is that of formulating appropriate development projects to achieve plan objectives and meet the development needs of the economy. Proposals relating to them are then put to the plan authorities for consideration and inclusion in the plan.

These proposals as pointed out above take the following forms of feasibility studies :

- Commercial viability
- Economic feasibility
- Financial feasibility
- Technical feasibility
- Management

The scope for scrutiny under each of these five heads would necessarily render their careful assessment and the examination of all possible alternative approaches. The process almost invariably involves making decision relating to technology, scale, location, costs and benefits, time of completion (gestation period), degree of risk and uncertainty, financial viability, organisation and management, availability of inputs, know-how, labour etc. The detailed analysis is set down in what is called a feasibility report.

Formulation Once a project has been appraised and approved, next step would logically, appear to that of implementation. This is, however, not necessarily true, if the approval is conditional to certain modifications being affected or for other reasons, such as availability of funds, etc. The implementation stage will be reached only after these pre-conditions have been fulfilled. Project formulation divides the process of project development into eight distinct and sequential stages. These stages are

- General information
- Project description
- Market potential
- Capital costs and sources of finance
- Assessment of working capital requirement
- Other financial aspect
- Economic and social variables.

Project Implementation Last but not the least, every entrepreneur should draw an implementation time table for his project. The network having been prepared, the project authorities are now ready to embark on the main task of implementation the project. To begin with successful implementation will depend on how well the network has been designed. However, during the course of implementation, many factors arise which cannot be anticipated or adequately taken note of in advance and built into the initial network. A number of network techniques have been developed for project implementation. Some of them are PERT, CPM, Graphical Evaluation and Review Technique (GERT), Workshop Analysis Scheduling Programme (WRSP) and Line of Balance (LOB).

Project Completion It is often debated as to the point at which the project life cycle is completed. The cycle is completed only when the development objectives are realized.

NATURE AND SCOPE OF PROJECT MANAGEMENT:

The individual assigned this position is accountable for the management of assigned construction projects and the project team in such a way as to ensure scheduled completion of the projects within established budget, time and quality standards. The individual assigned to this position is responsible for planning and preparing all contract administration, monitoring field installation process, and executing and directing and coaching field personnel, and developing or maintaining client relationships.

This individual is also responsible to assist the Vice President of Operations in various capacities of managerial duties as determined by the Vice President of Operations. This position reports to: Director of Project Management. This position works with: Assigned Project Superintendent. Reporting to this position is: Project Engineer and Administrative Support. Internally, this position interacts with Estimating, Accounting, Business Development, Field Personnel, and other support staff. Externally, this position contacts owners, owner representatives, architects, engineers, trade contractors, vendors, and others who are associated with the assigned project.

NATURE AND SCOPE OF MANAGEMENT So far you have learnt the definition of management, management as a noun, process and discipline and difference between administration and management. Let us now discuss the nature and scope of management.

Nature of Management - The essential features of management reveal its nature and importance. These are discussed below.

1 Universality: Management is a universal phenomenon in the sense that it is a common and essential element in all enterprises. Managers perform more or less the same functions irrespective of their position or nature of the organisation. The basic principles of management can be applied in all managerial situations regardless of the size, nature and location of the organisation. Universality of managerial tasks and principles also implies that managerial skills are transferable and managers can be trained and developed.

2 Purposeful: Management is always aimed at achieving organisational goals and purposes. The success of management is measured by the extent to which the desired objectives are attained. In both economic and non-economic enterprises, the tasks of management are directed towards effectiveness (i.e., attainment of organisational goals), and efficiency (i.e., goal attainment with economy of resource use).

3 Social process: Management essentially involves managing people organised in work groups. It includes retaining, developing and motivating people at work, as well as taking care of their satisfaction as social beings. All these interpersonal relations and interactions make the management a social process.

4 Coordinating force: Management coordinates the efforts of organisation members through orderly arrangement of inter-related activities so as to avoid duplication and overlapping. Management reconciles the individual goals with the organisational goals and integrates human and physical resources.

5 Intangible: Management is intangible. It is an unseen force. Its presence can be felt everywhere by the results of its effort which comes in the form of orderliness, adequate work output, satisfactory, working climate, employees satisfaction, etc. '

6 Continuous process: Management is a dynamic and an on-going process. The cycle of management continues to operate so long as there is organised action for the achievement of group goals.

7 Composite process: Functions of management cannot be undertaken sequentially, independent of each other. Management is a composite process made up of individual ingredients. All the functions are performed by involving several ingredients. Therefore, the whole process is integrative and performed in a network fashion.

8 Creative organ: Management creates synergetic effect by producing results which are more than the sum of the individual efforts of the group members. It provides sequence to operations, matches jobs to goals, connects work to physical and financial resources. It provides creative ideas, new imaginations and visions to group efforts. It is not a passive force adopting to external environment but a dynamic life giving element in every organization.

Scope of Management Management:

Management like any other subject, deals with clearly defined activities without which its progress is impossible. It confines to concepts, principles and theory related to managerial functions. Enterprise functions which vary from organisation to organisation, are excluded from its purview. So typical enterprise functions viz., production, finance, marketing and personnel are outside the scope of management.

THE PROJECT MANAGER'S ROLES & RESPONSIBILITIES:

As things stand today, none of the present generation project manager, including the very successful ones, come from any of our management schools. They were just given the job-some succeeded and others did not. Those who succeeded are not many, because only a handful of projects in India were ever completed on time, within budget and performed to expectations. While the failures of these projects had been analysed in many seminars and workshops, the role of project managers and their development did not form the subject of any serious discussion.

There could be two reasons for this: (a) Perhaps no one thinks that success or failure of a project depends on the project manager; and (b) It may also be that no one considers them as a special breed of managers. Surprisingly, even some of the practising project managers themselves subscribe to these views. The basic roles and responsibilities of a project manager that we are referring to could be grouped under twelve heads :

- 1 Defining and maintaining the integrity of a project;
- 2 Development of project execution plan;
- 3 Organization for execution of the plan;
- 4 Setting of targets and development of systems and procedures for accomplishment of project objectives and targets;
- 5 Negotiation for commitments;
- 6 Direction, coordination and control of project activities;
- 7 Contract management;
- 8 Non-human resource management including fiscal matters;
- 9 Problem-solving;
- 10 Man management;
- 11 Satisfaction of customer, Government and the public; and
- 12 Achievement of project objectives, cash surplus and higher productivity.



MODULE 2

PROJECT IDENTIFICATION, FORMULATION AND IMPLEMENTATION:

PROJECT IDENTIFICATION

You may have difficulties in identifying new worthwhile projects because the process involves careful study from many different angles. As students you will learn and study some of the sources that can enable you to identify worthwhile projects. Let us look at some of these sources as stated by K.Nagarajan (2007).

Performances of Existing Industries

Studying the health of a particular industry has to be taken with careful considerations and analysis. I mentioned careful analysis because the health of a particular industry may be happening at a particular period of the industry business life cycle. For example; you may be looking at an industry that may be performing well however, this particular industry may have crossed its saturation stage and moving into the declining stage of its business life cycle. On the other end there may be an industry that is not doing so well financially however, it may yet to reach its potential to grow later in its business life cycle.

Availability of Raw Materials

Availability of raw materials may give rise to the idea for planning a project. Let us look at some example. If there are abundant lime stone in a particular location without road infrastructure, then there is this possibility of setting up a factory to process this limestone. However, to get into this particular location there need to be road access. Here you will note the possibility of planning two separate projects. Let us look at another example; if in a particular region, farmers are growing lots of fruits but are having difficulties finding markets for their produces, then there is a possibility for a food processing factory.

Availability of Skilled Labour

Some firms and entrepreneurs looked at the availability of skilled labour in a particular market and then they venture into certain projects that can utilize the skilled workforce.

Import and Export Statistics

Imports and exports statistics may provide vital information on business areas that firms or investors can tap into.

Price Trend

Prices may give an indication about the demand and supply of a particular product or service. Existing gaps following careful analysis may conceive an idea for a possible project.

Data from Various Sources

Various publications from governments, banks and other service providers may provide useful information that can indicate possible future venture.

Research Laboratories

Research laboratories may identify the need for new products, processes or systems. This can be exploited to come up with new venture.

Consumption Abroad

Increase in demand and consumption abroad may indicate the need to build a manufacturing plant or factory abroad.

Identifying Unfulfilled Psychological Needs

Consumers' psychological needs are not met thus allowing investors to come up with a product that may meet these needs.

Plan Outlays and Government Guidelines

- Government development policies are useful pointers to investors for investment opportunities.
- Analysis of Economic and Social Trends.
- Trends and changes in any economy may be useful to investors.
- Possibility of Reviving Sick Units
- There is the possibility of reviving a unit within an organization that is dying.

PROJECT PREPARATION (OR PROJECT FORMULATION)

After having identified a worthwhile project, there are other factors that need to be considered. The promoter of a particular project has to ensure that the project is viable and they would be getting a good return on their investment.

Nagarajan (2007) stated four stages in Project Management and these are as follows;

- Pre-feasibility Study.
- A prefeasibility has the following objectives.
- Functional Studies or Support Studies.
- Feasibility Study.
- Detailed project analysis

TAX INCENTIVES AND PROJECT INVESTMENT DECISIONS

Tax has in recent years become an effective weapon in hands of the state to induce and direct investment. Other incentives are done through the following;

- Fiscal Policies
- Monetary policies
- Commercial Policies

Fiscal Policies

- Depreciation
- Tax Holidays
- Investment Allowance
- Amortization of expenses



Monetary Policies

- Interest Rates concession
- Repayment moratorium
- Risk Capital
- Security margin
- Refinancing facilities

Commercial Policies

- Subsidies
- Sales Tax incentives etc.

ZERO BASED PROJECT FORMULATION

Entrepreneurs visualize a project from a particular bench mark, example starting from zero in order not to make mistakes.

Project promoters often ask the question; Is this necessary?

Why to Invest in Fixed assets at All?

Is it necessary? – Should be applicable to all components of the project cost as a whole. Is it necessary or worthwhile to investing in fixed assets? When such questions are asked, project investors can look at other alternatives.

Consideration of Investment on Components of Project Cost

Investment in building is a major component of the project cost in many projects. Is it necessary to construct a building or is it cost effective to lease?

PROJECT OBJECTIVES:

The objectives of any project are as follows;

- To complete the project within the allotted budget or funds
- To complete the project within the schedule time limit.
- To execute the project in such a way that the project meets the quality standards.
- To ensure the project is completed to the satisfaction of the end user

Social Objectives

Project objectives are to be kept in the minds of all members of the Project team throughout the period of project implementation and should be the guiding force for the team. If an Health centre is the project, who are the end users?

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ESTABLISHING THE PROJECT

The processes involved in establishing a project are as follows

- Initiating
- Planning
- Organizing
- Executing
- Directing and Controlling

All processes mentioned are applicable for all types of management activities irrespective of whether the management activity relates to project management or management of routine on-going operations.

Initiating

This is the starting phase and it involves identification of projects, generation and development of project ideas, formulating a project proposal, appraisal of the chosen project proposal and getting the organization's commitment and authorization to commence work on the project.

Planning

Planning is the process of deciding in advance about the future course of actions to be taken. In project environment, planning consists of defining all the works required to be carried out so that all the project participants will understand their role in the project team and will be able to carry out the work assigned to them.

Project planning involves the following;

- Defining the scope of the project in terms of the product/services to be delivered by the project.
- Forecasting and estimating the resources (man, materials, money, machines etc.) required for the project.
- Breaking down the project into manageable activities and arriving at the logical sequences between the different activities. The logical sequences between activities is arrived at starting from the terminal activity and working backwards towards the initial activity.
- Organizational Structure appropriate for the implementation of the project.
- Tentative project completion time.
- Scheduling the activities in such a way that the project is completed within the least possible time (CPM/PERT) Details topic 8.
- Detail Cost estimates for all activities.
- Determining the required resources.
- Contingency plans.

Organizing

Organizing is the process of defining and analysing the activities of the enterprise, grouping the activities into distinct areas and establishing the authority-responsibility relationships.

Arranging financial resources – This can be arranged in such a way that financial resources is adequately provided to the project on a timely basis.

Building Project Organization – To facilitate execution of projects, responsibility must be entrusted to a project manager, who will be responsible for coordinating, directing and controlling the implementation of the project.

Team Building – Project personnel can be drafted from within the organisation or it can be entrusted to contractors depending on the nature of the project.

Tying up material resources, service providers, contractors – The choices of resources is done by the Project Manager and relevant authority. These resources are defined in clear terms and documented for circulations to the project executives.

Dissemination of information – Effective communication of information among the members of the project executives and other stakeholders is vital for the successful execution of a project.

Executing

Executing is the process of carrying out the project activities as per the plans. Since projects are dynamic in nature, flexibility is essential in execution of projects so that the overall objectives of the projects are achieved.

Directing and Controlling

Directing is the process of guiding the subordinates towards achieving the organizational goals. It involves issuing orders, directives, instructions and commands. Controlling is the process of comparing the actual performance of the project with the planned performances.

Closing

Project are temporary endeavours, hence they have a beginning and an end. A project comes to an end when the execution is completed and the project objectives are fulfilled.

ORGANISING HUMAN RESOURCES

A project can be successfully managed only if the project manager and his members are totally dedicated to the successful completion of the project. Managing a project contains different requirements like project planning, project direction, project execution, project control, project evaluation, project performance reporting etc. The project manager, the personnel of the project office, functional managers and staff must all work together as a team for the successful execution of the projects. The project manager should be a high-calibre person, having the following;

- Ability to evaluate risks and uncertainty
- Possess qualities of honesty and integrity
- Communication skills
- Analytical Skills
- Decision making capability
- Leadership quality
- Good interpersonal skills
- Good motivational skill etc

Selection of Project Manager

Selection of project personals is very crucial for the success of a project. The task of identifying the right person for the post of project manager get more difficult in view of the reason that the selection is to be done on the basis of personal characteristics rather than on the basis of job descriptions. Project Managers can be selected from within an organization or from outside. Selecting a project from within an organization has certain advantages;

- Personality and character of the person will be known and it will be easier to decide.
- Leadership qualities, commitment to work, honesty, sincerity and other quality factors are known whereby easier to appoint a person.
- Internal candidates know the rules and policies of the organization and will be able to adapt well to the role of project manager.

Identification of Staff requirements for the project and their selection;

Project activities are listed down and personals needed are listed beside these activities. Once activities are made together with personal requirement, then job descriptions are prepared. Recruitment and selections takes place thereafter.

The successful implementation of a project depends upon the efficiency and effectiveness with which the project team members perform the tasks assigned to them.

Project Office

Project team is a combination of personnel attached to the project office and field-level employees attached to the project. Some of the responsibilities of personnel for project office are as follows;

- Collate project related data and information for dissemination across project team members.
- Assist the project manager and top management by providing project related information periodically.
- Monitoring the progress of the project and controlling time, cost and performance quality parameters.
- Procurements and awarding of contracts etc
- Creations of proper documentation of work carried out and executed
- To ensure authorization is in place for work etc.

Selection of Team Members

Selection can be done within or outside of the organization. Some people within an organization may refuse to work for a project within an organization for the following reasons;

- Person engaged may resist transferring to project site in another location
- Fear that once the project is completed he or she may be without a job
- Refusal to work under dual authority
- May not enjoy the full delegation authority

Team Building

A team is a collection of individuals who work towards a common goal. A project team consists of all the individuals who contribute towards the success of the project. Project leaders should have the required skills to build an effective team.

Students need to know that in a team, you are dealing with people with diverse qualification and experiences and project leader should be a person a person with good team-building skills.

Tips for Building a Successful Team

- Selecting people with the required skills and talents
- Build and maintain good Relationship
- Cordial Interpersonal Relationship
- Sharing of power and responsibility

Motivating the Project Team Members

- Job satisfaction and sense of achievement
-
- Training for team
- Avenues to learn more
- A good working environment

De-Motivators

- Jobs impossible to perform
- Jobs easy to perform
- Job that is routine
- Restriction on freedom to act
- Negative criticism
- Lack of recognition for good work done
- Lack of support and guidance
- Poor physical working condition
- Unsympathetic approach by managers
- Bad pay structure
- Poor and ineffective communication system

Characteristics of Good Team

- Atmosphere is pleasing, comfortable and informal
- Members are committed to task
- Members are receptive to each other
- Freedom for expression of views
- Constructive criticism acceptable
- Team leader leads by example

- Difficult situation is managed constructively

PROJECT ENVIRONMENT:

Project environment represents a connection, where the project is processed. It impacts the project and is, therefore, conditioned. Such an interaction is provided by numerous factors as operational, physical, ecological, social, cultural, economic, psychological, financial, organizational etc. The environment not only formulates the project but also estimates it.

The project environment analysis is held at the beginning of the project. This method identifies the lobbies and integrates the project stakeholders into project group. All impact factors are analyzed in this analysis: project risks and chances, stakeholders and their interests, measures for the control. The stakeholder type is thereby analyzed. It distinguishes between active and passive type. The first group represents project team and project manager, principal and customer. The second group contains authorities, works council, competitors, persons affected by the project indirectly.

PROJECT PLANNING:

Project planning is one of the important parts of the project management. It bases on the Gantt chart in order to plan a project progress and report about it later. It is a good tool for the project manager during the project implementation as it compares the project objectives to the planning, reacts to the plan deviations, provides a planning of a schedule and therefore controls the project implementation. The project manager can lead a goal-oriented project due to the customization and correction processes.

The first step is to determine the project frameworks and to define methods to complete a project. The next step is to determine the duration of each task or activity, to list them and to group in a project structure plan. After that the logical dependencies between activities will be defined and graphically displayed in a network that enables to identify the critical path. The necessary costs for the implementation of the individual activities will be calculated and, therefore, the whole project costs will be provided. The purpose of project planning is to achieve project objectives under balance between used resources and project duration. The project planning is therefore the basis for the project process.

PROJECT SCREENING:

A **Project Screening** is a preliminary assessment or examination of the project suitability for the selection and application process or development methodology that evaluates or investigates a large number of project candidates to identify the opportunities to obtain an idea of whether the additional time and efforts consuming for further business case development is reasonable. The Project Screening may conduct by different procedures and methods to compare the strengths and weaknesses.

Project Selection Methods:

1. Benefit Measurement Methods

Benefit Measurement is a project selection technique based on the present value of estimated cash outflow and inflow. Cost benefits are calculated and then compared to other projects to make a decision. The techniques that are used in Benefit Measurement are as follows:

2. Benefit/Cost Ratio

Cost/Benefit Ratio, as the name suggests, is the ratio between the Present Value of Inflow or the cost invested in a project to the Present Value of Outflow, which is the value of return from the project. Projects that have a higher Benefit-Cost Ratio or lower Cost-Benefit Ratio are generally chosen over others.

3. Economic Model

EVA, or Economic Value Added, is the performance metric that calculates the worth-creation of the organization while defining the return on capital. It is also defined as the net profit after the deduction of taxes and capital expenditure.

If there are several projects assigned to a project manager, the project that has the highest Economic Value Added is picked. The EVA is always expressed in numerical terms and not as a percentage.

4. Scoring Model

The scoring model is an objective technique: the project selection committee lists relevant criteria, weighs them according to their importance and their priorities, then adds the weighted values. Once the scoring of these projects is completed, the project with the highest score is chosen.

5. Payback Period

Payback Period is the ratio of the total cash to the average per period cash. It is the time necessary to recover the cost invested in the project. The Payback Period is a basic project selection method. As the name suggests, the payback period takes into consideration the payback period of an investment. It is the time frame that is required for the return on an


investment to repay the original cost that was invested. The calculation for payback is fairly simple:

When the Payback period is used as the Project Selection Method, the project that has the shortest Payback period is preferred since the organization can regain the original investment faster. There are, however, a few limitations to this method:

- It does not consider the time value of money.
- Benefits accrued after the payback period are not considered; it focuses more on the liquidity while profitability is neglected.
- Risks involved in individual projects are neglected.

6. Net Present Value

Net Present Value is the difference between the project's current value of cash inflow and the current value of cash outflow. The NPV must always be positive. When picking a project, one with a higher NPV is preferred. The advantage of considering the NPV over the Payback Period is that it takes into consideration the future value of money. However, there are limitations of the NPV, too:

- 
- There isn't any generally accepted method of deriving the discount value used for the present value calculation.
 - The NPV does not provide any picture of profit or loss that the organization can make by embarking on a certain project.
 - For more details on the NPV and how to use the NPV as a tool to filter projects out, here's an insightful article on calculating the opportunity costs for projects.

7. Discounted Cash Flow

It's well-known that the future value of money will not be the same as it is today. For example, \$20,000 won't have the same worth ten years from now. Therefore, during calculations of cost investment and ROI, be sure to consider the concept of discounted cash flow.

8. Internal Rate Of Return

The Internal Rate of Return is the interest rate at which the Net Present Value is zero—attained when the present value of outflow is equal to the present value of inflow. Internal Rate of

Return is defined as the “annualized effective compounded return rate” or the “discount rate that makes the net present value of all cash flows (both positive and negative) from a particular investment equal to zero.” The IRR is used to select the project with the best profitability; when picking a project, the one with the higher IRR is chosen.

When using the IRR as the project selection criteria, organizations should remember not to use this exclusively to judge the worth of a project; a project with a lower IRR might have a higher NPV and, assuming there is no capital constraint, the project with the higher NPV should be chosen as this increases the shareholders’ profits.

9. Opportunity Cost

Opportunity Cost is the cost that is given up when selecting another project. During project selection, the project that has the lower opportunity cost is chosen.

10. Constrained Optimization Methods

Constrained Optimization Methods, also known as the Mathematical Model of Project Selection, are used for larger projects that require complex and comprehensive mathematical calculations. The techniques that are used in Constrained Optimization Methods are as follows:

These topics, however, are not discussed in detail in the PMP® certification. For the exam, all that is necessary to know is that this is the list of Mathematical Model techniques that are used in Project Selection.

11. Non-Financial Considerations

There are non-financial gains that an organization must consider; these factors are related to the overall organizational goals. The organizational strategy is a major factor in project selection methods that will affect the organization’s choice in the choice of project. Customer service relationships are chief among these organizational goals. An important necessity in today’s business world is to build effective, cordial customer relationships.

Other organizational factors may include political issues, change of management, speculative purposes, shareholders’ requests, etc.

Meaning of Project Report:

A Project Report is a document which **provides details on the overall picture of the proposed business**. The project report gives an account of the project proposal to ascertain the prospects of the proposed plan/activity.

Project Report – Meaning, Contents

Project Report is a **written document** relating to any investment. It contains data on the basis of which the project has been appraised and found feasible. It consists of information on economic, technical, financial, managerial and production aspects. It enables the entrepreneur to know the inputs and helps him to obtain loans from banks or financial Institutions.

The project report contains detailed information about Land and buildings required, Manufacturing Capacity per annum, Manufacturing Process, Machinery & equipment along with their prices and specifications, Requirements of raw materials, Requirements of Power & Water, Manpower needs, Marketing Cost of the project, production, financial analyses and economic viability of the project.

Contents of a Project Report

Following are the contents of a project report.

1. General Information

A project report must provide information about the details of the industry to which the project belongs to. It must give information about the past experience, present status, problems and future prospects of the industry. It must give information about the product to be manufactured and the reasons for selecting the product if the proposed business is a manufacturing unit. It must spell out the demand for the product in the local, national and the global market. It should clearly identify the alternatives of business and should clarify the reasons for starting the business.

2. Executive Summary

A project report must state the objectives of the business and the methods through which the business can attain success. The overall picture of the business with regard to capital, operations, methods of functioning and execution of the business must be stated in the project report. It must mention the assumptions and the risks generally involved in the business.

3. Organization Summary

The project report should indicate the organization structure and pattern proposed for the unit. It must state whether the ownership is based on sole proprietorship, partnership or joint stock company. It must provide information about the bio data of the promoters including financial soundness. The name, address, age qualification and experience of the proprietors or promoters of the proposed business must be stated in the project report.

4. Project Description

A brief description of the project must be stated and must give details about the following:

- Location of the site,
- Raw material requirements,
- Target of production,
- Area required for the workshed,
- Power requirements,
- Fuel requirements,
- Water requirements,
- Employment requirements of skilled and unskilled labour,
- Technology selected for the project,
- Production process,
- Projected production volumes, unit prices,
- Pollution treatment plants required.

If the business is service oriented, then it must state the type of services rendered to customers. It should state the method of providing service to customers in detail.

5. Marketing Plan

The project report must clearly state the total expected demand for the product. It must state the price at which the product can be sold in the market. It must also mention the strategies to be employed to capture the market. If any, after sale service is provided that must also be stated in the project. It must describe the mode of distribution of the product from the production unit to the market. Project report must state the following:

- Type of customers,
- Target markets,
- Nature of market,
- Market segmentation,
- Future prospects of the market,
- Sales objectives,
- Marketing Cost of the project,
- Market share of proposed venture,
- Demand for the product in the local, national and the global market,
- It must indicate potential users of products and distribution channels to be used for distributing the product.

6. Capital Structure and operating cost

The project report must describe the total capital requirements of the project. It must state the source of finance, it must also indicate the extent of owners funds and borrowed funds. Working capital requirements must be stated and the source of supply should also be indicated in the project. Estimate of total project cost, must be broken down into land,

construction of buildings and civil works, plant and machinery, miscellaneous fixed assets, preliminary and preoperative expenses and working capital.

Proposed financial structure of venture must indicate the expected sources and terms of equity and debt financing. This section must also spell out the operating cost

7. Management Plan

The project report should state the following.

- a. Business experience of the promoters of the business,
- b. Details about the management team,
- c. Duties and responsibilities of team members,
- d. Current personnel needs of the organization,
- e. Methods of managing the business,
- f. Plans for hiring and training personnel,
- g. Programmes and policies of the management.

8. Financial Aspects

In order to judge the profitability of the business a projected profit and loss account and balance sheet must be presented in the project report. It must show the estimated sales revenue, cost of production, gross profit and net profit likely to be earned by the proposed unit. In addition to the above, a projected balance sheet, cash flow statement and funds flow statement must be prepared every year and at least for a period of 3 to 5 years.

The income statement and cash flow projections should include a three-year summary, detail by month for the first year, and detail by quarter for the second and third years. Break even point and rate of return on investment must be stated in the project report. The accounting system and the inventory control system will be used is generally addressed in this section of the project report. The project report must state whether the business is financially and economically viable.

9. Technical Aspects

Project report provides information about the technology and technical aspects of a project. It covers information on Technology selected for the project, Production process, capacity of machinery, pollution control plants etc.

10. Project Implementation

Every proposed business unit must draw a time table for the project. It must indicate the time within the activities involved in establishing the enterprise can be completed. Implementation schemes show the timetable envisaged for project preparation and completion.

11. Social responsibility

The proposed units draws inputs from the society. Hence its contribution to the society in the form of employment, income, exports and infrastructure. The output of the business must be indicated in the project report.

Guidelines of Planning Commission's for Formulating Project Report:

Realising the usefulness of these guidelines, we now are presenting these guidelines in a summarised manner hereunder:

In order to process investment proposals and arrive at investment decisions, the Planning Commission of India has also issued some guidelines for preparing/ formulating realistic business plans/industrial projects. So far as feasibility report is concerned, it lies in between the project formulating stage and the appraisal and sanction stage. The project formulation stage involves the identification of investment options by the enterprise and in consultation with the Administrative Ministry, the Planning Commission and other concerned authorities.

1. General Information:

The feasibility report should include an analysis of the industry to which the project belongs. It should deal with the past performance of the industry. The description of the type of industry should also be given, i.e., the priority of the industry, increase in production, role of the public sector, allocation of investment of funds, choice of technique, etc. This should also contain information about the enterprise submitting the feasibility report.

2. Preliminary Analysis of Alternatives:

This should contain present data on the gap between demand and supply for the outputs which are to be produced, data on the capacity that would be available from the projects that are in production or under implementation at the time the report is prepared, a complete list of all existing plants in the industry, giving their capacity and level of production actually attained, a list of all projects for which letters of intents/ licenses have been issued and a list of proposed projects. All options that are technically feasible should be considered at this preliminary stage. The location of the project as well as its implications should also be looked into. An account of

the foreign exchange requirement should also be taken. The profitability of different options should also be given. The rate of return on investment should be calculated and presented in the report. Alternative cost calculations vis-a-vis return should be presented.

3. Project Description:

The feasibility should provide a brief description of the technology /process chosen for the project. Information relevant to determining optimality of the location chosen should also be included. To assist in the assessment of the environmental effects of a project, every feasibility report must present the information on specific points, i.e., population, water, air, land, flora and fauna; effects arising out of project's pollution, other environmental discretions, etc.

The report should contain a list of the operational requirements of the plant, requirements of water and power, requirements of personnel, organisational structure envisaged, transport costs, and activity-wise phasing of construction and factors affecting it.

4. Marketing Plan:

A good marketing plan should contain the following items:

- a. Data on the marketing plan.
- b. Demand and prospective supply in each of the areas to be served.
- c. The method and data used for main estimates of domestic supply and selection of the market areas should be presented. Estimates of the degree of price sensitivity should be presented.
- d. It should contain an analysis of past trends in prices.

5. Capital Requirements and Costs:

The estimates should be reasonably complete and properly estimated. Information on all items of costs should be carefully collected and presented.

6. Operating Requirements and Costs:

Operating costs are essentially those costs which are incurred after the commencement of commercial production. Information about all items of operating cost should be collected.

Operating costs relate to the cost of raw materials and intermediates, fuel, utilities, labour, repair and maintenance, selling expenses, and other expenses.

7. Financial Analysis:

The purpose of this analysis is to present some measures to assess the financial viability of the project. A proforma Balance Sheet for the project data should be presented. Depreciation should be allowed for on the basis of specified rate by the Bureau of Public Enterprises (BPE). Foreign exchange requirements should be cleared by the Department of Economic Affairs (DEA). The feasibility report should take into account income-tax rebates for priority industries, incentives for backward areas, accelerated depreciation, etc. The sensitivity analysis should also be presented. The report must analyse the sensitivity of the rate of return of change in the level and pattern of product prices.

8. Economic Analysis:

Social profitability analysis needs some adjustment in the data relating to the costs and returns to the enterprise. One important type of investment involves a correction in input and costs, to reflect the true value of foreign exchange, labor and capital. The enterprise should try to assess the impact of its operations on foreign trade. Indirect costs and benefits should also be included in the report. If they cannot be quantified, they should be analyzed and their importance emphasized.

9. Miscellaneous Aspects:

The preceding three areas are deemed appropriate to almost every new small enterprise. Notwithstanding, depending upon the size of the operation and peculiarities of a particular project, other items may be considered important to be applied out in the project report. To

mention a few, probable use of minicomputers or other electronic data processing services, cash flow statements, method of accounting etc., may be of great use in some micro and small enterprises.

Stages involved in the Formulation of a Good Business Plan:

8 Stages involved in the Formulation of a Good Business Plan!

Normally, micro and small-scale enterprises do not include sophisticated techniques which are used for preparing project reports of large-scale enterprises. Within the small-scale enterprises too, all the information may not be homogeneous for all units.

In fact, what and how much information will be given in the project report depends upon the size of the unit as well as nature of the production. A general set of information given in any project report is listed by Vinod Gupta (1999) in his study on “Formulation of a Project Report”. We are reproducing it here for your information and knowledge.

Project formulation divides the process of project development into eight distinct and sequential stages.

These stages are:

1. General Information.
2. Project Description.
3. Market Potential.
4. Capital Costs and Sources of Finance.
5. Assessment of Working Capital Requirements.
6. Other Financial Aspects.

7. Economic and Social Variables.

8. Project Implementation.

The nature of information to be collected under each one of these stages has been given below:

1. General Information:

The information of general nature given in the project report includes the following:

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Bio-data of Promoter:

Name and address of entrepreneur; the qualifications, experience and other capabilities of the entrepreneur; if these are partners, state these characteristics of all the partners individually.

Industry Profile:

A reference of analysis of industry to which the project belongs, e.g., past performance, present status, its organisation, its problems, etc.

ADVERTISEMENTS:

Constitution and Organisation:

The constitution and organisational structure of the enterprise, in case of partnership firm, its registration with the Registrar of Firms; application for getting Registration Certificate from the Directorate of Industries/District Industry Centre, etc.

Product Details:

Product utility, product range; product design; advantages to be offered by the product over its substitutes, if any.

2. Project Description:

A brief description of the project covering the following aspects is given in the project report.

Site:

Location of enterprise; owned or leasehold land; industrial area; No Objection Certificate (NOC) from the Municipal Authorities if the enterprise location falls in the residential area.

Physical Infrastructure:

Availability of the following items of infrastructure should be mentioned in the project report:

(i) Raw Material:

Requirement of raw material, whether inland or imported, sources of raw material supply.

(ii) Skilled Labour:

Availability of skilled labour in the area, arrangements for training labourers in various skills.

Utilities:

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These include:

(i) Power:

Requirement for power, load sanctioned availability of power.

(ii) Fuel:

ADVERTISEMENTS:

Requirement for fuel items such as coal, coke, oil or gas, state of their availability.

(iii) Water:

The sources and quality of water required should be clearly stated in the project report.

Pollution Control:

The aspects like scope of dumps, sewage system and sewage treatment plant should be clearly stated in case of industries producing emissions.

Communication System:

Availability of communication facilities, e.g., telephone, telexes etc. should be stated in the project report.

Transport Facilities:

Requirements for transport, mode of transport, potential means of transport, distances to be covered, bottlenecks etc., should be stated in the business plan.

Other Common Facilities:

Availability of common facilities like machine shops, welding shops and electrical repair shops etc. should be stated in the report.

Production Process:

A mention should be made for process involved in production and period of conversion from raw material into finished goods.

Machinery and Equipment:

A complete list of items of machinery and equipment's required indicating their size, type, cost and sources of their supply should be enclosed with the project report.

Capacity of the Plant:

The installed licensed capacity of the plant along with the shifts should also be mentioned in the project report.

Technology Selected:

The selection of technology, arrangements made for acquiring it should be mentioned in the business plan.

Research and Development:

A mention should be made in the project report regarding proposed research and development activities to be undertaken in future.

3. Market Potential:

While preparing a project report, the following aspects relating to market potential of the product should be stated in the report:

(i) Demand and Supply Position:

State the total expected demand for the product and present supply position. This should also be mentioned how much of the gap will be filled up by the proposed unit.

(ii) Expected Price:

An expected price of the product to be realised should be mentioned in the project report.

(iii) Marketing Strategy:

Arrangements made for selling the product should be clearly stated in the project report.

(iv) After-Sales Service:

Depending upon the nature of the product, provisions made for after-sales service should normally be stated in the project report.

(v) Transportation:

Requirement for transportation means indicating whether public transport or entrepreneur's own transport should be mentioned in the project report.

4. Capital Costs and Sources of Finance:

An estimate of the various components of capital items like land and buildings, plant and machinery, installation costs, preliminary expenses, margin for working capital should be given in the project report. The present probable sources of finance should also be stated in the project report. The sources should indicate the owner's funds together with funds raised from financial institutions and banks.

5. Assessment of Working Capital Requirements:

The requirement for working capital and its sources of supply should be carefully and clearly mentioned in the business plan or project report. It is always better to prepare working capital requirements in the prescribed formats designed by limits of requirement. It will minimise objections from the banker's side.

6. Other Financial Aspects:

In order to adjudge the profitability of the project to be set up, a projected Profit and Loss Account indicating likely sales revenue, cost of production, allied cost and profit should be prepared. A projected Balance Sheet and Cash Flow Statement should also be prepared to indicate the financial position and requirements at various stages of the project.

In addition to above, the Break-Even Analysis should also be presented in the project report. Break-even point is the level of production/ sales where the industrial enterprise shall earn neither profit nor incur loss. In fact, it will just break even. Break-even level indicates the gestation period and the likely moratorium required for repayment of loans.

Break-even point (BEP) is calculated as follows:

$$\text{BEP} = F/S - V \times 100$$

where, F = Fixed Cost

S = Sales Projected

V = Variable Costs

Thus, the break-even point so calculated will indicate at what percentage of sales, the enterprise will break even i.e., no profit, no loss.

7. Economic and Social Variables:

In view of the social responsibility of business, the abatement costs, i.e., the costs for controlling the environmental damage should be stated in the project. Arrangements made for treating the effluents and emissions should also be mentioned in the report.

Besides, the socio-economic benefits expected to accrue from the project should also be stated in the report itself.

Following are the examples of socioeconomic benefits:

(i) Employment Generation.

(ii) Import Substitution.

(iii) Ancillarisation.

(iv) Exports.

(v) Local Resource Utilization.

(vi) Development of the Area.

8. Project Implementation:

Last but no means the least, every entrepreneur should draw an implementation scheme or a time-table for his project to ensure the timely completion of all activities involved in setting-up an enterprise. Timely implementation is important because if there is a delay, it causes, among other things, a project cost overrun.



MODULE 3

PROJECT APPRAISAL:

Definition of Project appraisal is the structured process of assessing the viability of a project or proposal. It involves calculating the feasibility of the project before committing resources to it. It is a tool that company's use for choosing the best project that would help them to attain their goal. Project appraisal often involves making comparison between various options and this done by making use of any decision technique or economic appraisal technique.

Project appraisal is a tool which is also used by companies to review the projects completed by it. This is done to know the effect of each project on the company. This means that the project appraisal is done to know, how much the company has invested on the project and in return how much it is gaining from it.

Process of project appraisal

The process of project appraisal consists of five steps and they are – initial assessment, defining problem and long-list, consulting and short-list, developing options, and comparing and selecting project. The process of appraisal generally starts from the initial phase of the project. If the appraisal process starts from an early stage, then the company will be in a better position to decide how capital should be spend in the project and also it will help them to make the decision of not spending too much or stopping a project that is not economically viable.

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Types of project appraisal

Appraisal of projects can be done by many ways, but the most common of them are financial and economic appraisal. In case of financial project appraisal, the company reviews the cost of the project and the expected revenues that will be generated by the project. This type of appraisal helps the company to prevent overspending on a project. It also helps in finding certain areas where alterations can be done for generating higher revenues. Under economic appraisal, the company mainly focuses on the total benefit of the project and less on the costs spent on the project. Other than these two types of appraisal, there are also other types of project appraisal which include technical appraisal, management or organizational appraisal and marketing and commercial appraisal.

What is Project Appraisal?

Assessing the viability or feasibility of a proposed project by the lending institutions is called project appraisal.

Project Appraisal – Meaning, Criteria, Why is it necessary

Why is Project Appraisal necessary?

Generally, commercial banks cannot finance on a long term basis to industries as most of their funds are short term in nature. In the case of term loans, the bank provides them on the basis of the purpose and they differ from short term loans.

Term loans are not only huge but they are given for a longer period and there are greater risks involved. But, the earnings of the banker will be more which compensates for the loss. The borrowing industry is able to utilize the term loans in a much better manner and it improves their production capacity, earnings and utilization of existing capacity.

While providing term loans, the lending institutions will have to find that the income received from the utilization of these loans by the borrower firm is sufficiently large that they are able to repay the loan. A banker has to assess the project for which the loan is required. He must make sure that the project will provide enough contribution so that the loan could be repaid. Hence project appraisal is necessary.

The problem for the banker will be more when there are different projects with different rates of return. It is here that the bank has to adopt a technique and go in for the selection of a suitable project.

Four major criteria in project appraisal

There are four major criteria which have to be studied in project appraisal to ascertain its feasibility. They are:

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1. Technical feasibility
 2. Economic feasibility
 3. Financial feasibility
 4. Managerial feasibility

Technical feasibility of projects

1. To find out whether the various factors of production are available.
2. Suitable location of the project.
3. Adopting appropriate technology.
4. Providing suitable training to manpower.
6. Erection of plant and equipment.
6. Technical know-how.

7. Suitable plant lay-out.
8. Clearance for pollution from the pollution control board.
9. Environment clearance under Environment Protection Act.
10. Protection under the Patent Right and Trademark Act.
11. Disposal of wastage.

Economic feasibility of projects

1. Market share of the product.
2. Demand for the product.
3. Competition prevailing in the market.
4. Product life cycle and stage of the product.
5. Future demand of the product.
6. Fulfillment of social objectives such as employment generation, development of backward areas, etc.
7. Scope for the product [Strength, Weakness Opportunity and Threat (SWOT Analysis)].

Financial feasibility of projects

1. Financial soundness of the project which is based on return on investment.
2. Various sources of finance available and their costs.
3. Expected cash inflow and outflow.
4. Cost of the project.
5. Profit margin.
6. Cost of production.
7. Future growth of the project.
8. Gross and net earnings.
9. Future prospects.

Managerial feasibility of projects

1. Competence of the Board.
2. Experience of the staff.
3. Technical competence.
4. Problems that are likely to be encounter in industrial relations.
5. Experience in the field.

5 Methods of Project Appraisal:

Some of the methods of project appraisal are as follows:

1. Economic Analysis:

Under economic analysis, the project aspects highlighted include requirements for raw material, level of capacity utilization, anticipated sales, anticipated expenses and the probable profits. It is said that a business should have always a volume of profit clearly in view which will govern other economic variables like sales, purchases, expenses and alike.

It will have to be calculated how much sales would be necessary to earn the targeted profit.

Undoubtedly, demand for the product will be estimated for anticipating sales volume.

Therefore, demand for the product needs to be carefully spelled out as it is, to a great extent, deciding factor of feasibility of the project concern.

In addition to above, the location of the enterprise decided after considering a gamut of points also needs to be mentioned in the project. The Government policies in this regard should be taken into consideration. The Government offers specific incentives and concessions for setting up industries in notified backward areas. Therefore, it has to be ascertained whether the proposed enterprise comes under this category or not and whether the Government has already decided any specific location for this kind of enterprise.

2. Financial Analysis:

Finance is one of the most important pre-requisites to establish an enterprise. It is finance only that facilitates an entrepreneur to bring together the labour of one, machine of another and raw material of yet another to combine them to produce goods.

In order to adjudge the financial viability of the project, the following aspects need to be carefully analysed:

1. Assessment of the financial requirements both – fixed capital and working capital need to be properly made. You might be knowing that fixed capital normally called ‘fixed assets’ are those tangible and material facilities which purchased once are used again and again. Land and buildings, plants and machinery, and equipment’s are the familiar examples of fixed assets/fixed capital. The requirement for fixed assets/capital will vary from enterprise to enterprise depending upon the type of operation, scale of operation and time when the investment is made. But, while assessing the fixed capital requirements, all items relating to the asset like the cost of the asset, architect and engineer’s fees, electrification and installation charges (which normally come to 10 per cent of the value of machinery), depreciation, pre-operation expenses of trial runs, etc., should be duly taken into consideration. Similarly, if any expense is to be incurred in remodeling, repair and additions of buildings should also be highlighted in the project report.

2. In accounting, working capital means excess of current assets over current liabilities. Generally, 2: 1 is considered as the optimum current ratio. Current assets refer to those assets which can be converted into cash within a period of one week. Current liabilities refer to those obligations which can be payable within a period of one week. In short, working capital is that amount of funds which is needed in day today’s business operations. In other words, it is like circulating money changing from cash to inventories and from inventories to receivables and again converted into cash.

This circle goes on and on. Thus, working capital serves as a lubricant for any enterprise, be it large or small. Therefore, the requirements of working capital should be clearly provided for. Inadequacy of working capital may not only adversely affect the operation of the enterprise but also bring the enterprise to a grinding halt.

The activity level of an enterprise expressed as capacity utilization, needs to be well spelt out in the business plan or project report. However, the enterprise sometimes fails to achieve the targeted level of capacity due to various business vicissitudes like unforeseen shortage of raw material, unexpected disruption in power supply, inability to penetrate the market mechanism, etc.

Then, a question arises to what extent an enterprise should continue its production to meet all its obligations/liabilities. 'Break-even analysis' (BEP) gives an answer to it. In brief, break-even analysis indicates the level of production at which there is neither profit nor loss in the enterprise. This level of production is, accordingly, called 'break-even level'.

3. Market Analysis:

Before the production actually starts, the entrepreneur needs to anticipate the possible market for the product. He/she has to anticipate who will be the possible customers for his product and where and when his product will be sold. There is a trite saying in this regard: "The manufacturer of an iron nail must know who will buy his iron nail."

This is because production has no value for the producer unless it is sold. It is said that if the proof of pudding lies in eating, the proof of all production lies in marketing/ consumption. In fact, the potential of the market constitutes the determinant of probable rewards from entrepreneurial career.

Thus, knowing the anticipated market for the product to be produced becomes an important element in every business plan. The various methods used to anticipate the potential market,

what is named in 'Managerial Economics' as 'demand forecasting', range from the naive to sophisticated ones.

The commonly used methods to estimate the demand for a product are as follows:

1. Opinion Polling Method:

In this method, the opinions of the ultimate users, i.e. customers of the product are estimated. This may be attempted with the help of either a complete survey of all customers (called, complete enumeration) or by selecting a few consuming units out of the relevant population (called, sample survey).

Let us discuss these in some details:

(a) Complete Enumeration Survey:

In this survey, all the probable customers of the product are approached and their probable demands for the product are estimated and then summed. Estimating sales under this method is very simple. It is obtained by simply adding the probable demands of all customers. An example should make it clear.

Suppose, there are total N customers of X product and everybody will demand for D numbers of it. Then, the total anticipated demand will be:

$$N \sum_{i=1}^N D_i$$

Though the principle merit of this method is that it obtains the first-hand and unbiased information, yet it is beset with some disadvantages also. For example, to approach a large number of customers scattered all over market becomes tedious, costly and cumbersome. Added to this, the consumers themselves may not divulge their purchase plans due to the reasons like their personal as well commercial/business privacies.

(b) Sample Survey:

Under this method, only some number of consumers out of their total population is approached and data on their probable demands for the product during the forecast period are collected and summed. The total demand of sample customers is finally blown up to generate the total demand for the product. Let this also be explained with an example.

Imagine, there are 1000 customers of a product spread over the Faridabad market. Out of these, 50 are selected for survey using stratified method. Now, if the estimated demand of these sample customers is D_i , i.e., it refers to 1 2 3....50, the total demand for the entire group of customers will be

$$50 \sum n_i D_i = n_1 D_1 + n_2 D_2 + n_3 D_3 + \dots + n_{50} D_{50}$$

Where n_i is the number of customers in group i , and $n_1 + n_2 + n_3 + \dots + n_{50} = 1000$.

But, if all the 1000 customers of the group are alike, then the selection may be done on a random basis and total demand for the group will be:

$$(D_1 D_2 + D_3 + D_4 + \dots + D_5) 1000 / 50$$

No doubt, survey method is less costly and tedious than the complete enumeration method.

(c) Sales Experience Method:

Under this method, a sample market is surveyed before the new product is offered for sale. The results of the market surveyed are then projected to the universe in order to anticipate the total demand for the product.

In principle, the survey market should be the true representative of the national market which is not always true. Suppose, if Delhi is selected as a sample market, it may not be a true representative of a small place, say Silchar in Assam simply because the characteristic features of Delhi are altogether different from those of a small town like Silchar.

Again, if we select Agra as a sample market, sales in Agra would be influenced by the size of the floating tourist's population throughout the year. But this feature is not experienced by many other places again like Silchar in Assam.

(d) Vicarious Method:

Under the vicarious method, the consumers of the product are not approached directly but indirectly through some dealers who have a feel of their customers. The dealers' opinions about the customers' opinion are elicited. Being based on dealers' opinions, the method is bound to suffer from the bias on the part of the dealers. Then, the results derived are likely to be unrealistic. However, these hang-ups are not avoidable also.

2. Life Cycle Segmentation Analysis:

It is well established that like a man, every product has its own life span. In practice, a product sells slowly in the beginning. Backed by sales promotion strategies over period, its sales pick up. In the due course of time, the peak sale is reached. After that point, the sales begin to decline. After, some time, the product loses its demand and dies. This is natural death of a product. Thus, every product passes through its 'life cycle'. This is precisely the reason why firms go for new products one after another to keep themselves alive.

Based on above, the product life cycle has been divided into the following five stages:

1. Introduction
2. Growth
3. Maturity
4. Saturation
5. Decline

The sales of the product vary from stage to stage and follows S-shaped curve as shown in

Figure 16.1:

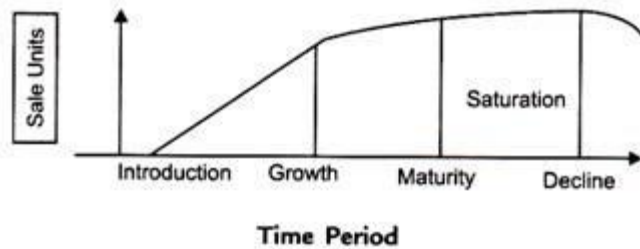


Fig. 16.1 Product Life-Cycle

Considering the above five stages of a product life cycle, the sales at different stages can be anticipated.

4. Technical Feasibility:

While making project appraisal, the technical feasibility of the project also needs to be taken into consideration. In the simplest sense, technical feasibility implies to mean the adequacy of the proposed plant and equipment to produce the product within the prescribed norms. As regards know-how, it denotes the availability or otherwise of a fund of knowledge to run the proposed plants and machinery.

It should be ensured whether that know-how is available with the entrepreneur or is to be procured from elsewhere. In the latter case, arrangement made to procure it should be clearly checked up. If project requires any collaboration, then, the terms and conditions of the collaboration should also be spelt out comprehensively and carefully.

In case of foreign technical collaboration, one needs to be aware of the legal provisions in force from time to time specifying the list of products for which only such collaboration is allowed under specific terms and conditions. The entrepreneur, therefore, contemplating for foreign collaboration should check these legal provisions with reference to their projects.

While assessing the technical feasibility of the project, the following inputs covered in the project should also be taken into consideration:

(i) Availability of land and site.

(ii) Availability of other inputs like water, power, transport, communication facilities.

(iii) Availability of servicing facilities like machine shops, electric repair shop, etc.

(iv) Coping-with anti-pollution law.

(v) Availability of work force as per required skill and arrangements proposed for training-in-plant and outside.

(vi) Availability of required raw material as per quantity and quality.

5. Management Competence:

Management ability or competence plays an important role in making an enterprise a success or otherwise. Strictly speaking, in the absence of managerial competence, the projects which are otherwise feasible may fail. On the contrary, even a poor project may become a successful one with good managerial ability. Hence, while doing project appraisal, the managerial competence or talent of the promoter should be taken into consideration.

Research studies report that most of the enterprises fall sick because of lack of managerial competence or mismanagement. This is more so in case of small-scale enterprises where the proprietor is all in all, i.e., owner as well as manager. Due to his one-man show, he may be jack of all but master of none.

MODULE 4

PLANNING AND SCHEDULING:

Purpose to define the project and to prepare project plans and schedules that support the project definition.

Overview This Phase describe the tasks and steps necessary to plan and schedule the activities that the Project Manager and the project team should perform to achieve a successful completion of a project. A Project Plan is prepared which is defined as a management summary document that describes the essentials of a project in terms of its objectives, justification and how the objectives are to be achieved. It describes how all of the major activities under each project management function are to be accomplished, including that of overall project control. The project plan will evolve through successive stages of the project life cycle. A Project Plan is developed once the Business Case and Project Charter have been defined. It is assumed that the Business Case and the Project Charter have been prepared prior to the execution of this Phase and are of an acceptable quality and standard. Project planning is defined as developing the basis for managing the project, including the planning objectives, deliverables, interim work products, procedures, organization, chain of activities, resources types and numbers, timing, routines and finances. Project planning is a complex and iterative task which typically involves:

Identification of all of the tasks to be performed given the scope of the project and the technical and business constraints;

Estimating the effort and cost of completing each task; and

Project scheduling. Project scheduling is one of the critical management tasks as it dictates the time frames in which the project will be completed, the budgets/costs in terms of resource requirements and the sequence of tasks to be completed. Project scheduling is defined as the process of determining when project activities will take place depending upon defined durations and precedent activities. Schedule constraints specify when an activity should start or end, based on duration, predecessors, external predecessor relationships, resource availability, target dates or other time constraints. Project scheduling is a complex and iterative task which typically involves:

Assigning resources to project tasks; ?? Balancing completion dates against the availability of the appropriate resources to complete all tasks within the available time; ?? Identifying dependencies between tasks so that they are scheduled in the correct sequence; ?? Identifying realistic start and end points (elapsed time) to accommodate the number of mandays work for each given task; and

Critical path analysis to identify those tasks which are critical to the success and timely completion of the project. The Project Schedule includes the planned dates for starting and completing activities in one or more of the following forms: ?? Milestone; ?? Deliverable; Planning and scheduling

PROJECT DESIGN:

Project Design is the first phase of the project cycle. At the beginning, a project develops as an idea or vision-which is feasible. However, the steps to make it feasible is quite difficult. An idea can only become a reality once it is broken down into organized, actionable elements within a timeline. NGO project design centers around problems and solutions: it involves identifying a prevailing/future problem that is/may impact a target population.

Project design is a crucial stage in a project's lifecycle because it identifies key elements by outlining the answers to 4 Ws of the project: What-Where-When-Who.

What: defines the project itself

Where: is the internal and external environment

When: is the time frame

Who: is you and the beneficiaries

Project design consists of the following elements:

Project Background

It describes the history of how you developed the idea for your project and the status quo that you want to change. This is where you explain exactly why your project should take place in your community and what the problem is you aim to solve.

Project Context

It is the description of the internal and external environment where the project is going to be undertaken and the effect of the environment on the project. The environment includes risk and opportunity (SWOT Analysis)

Risks and Assumptions

You have to take risks and assumptions into account when planning your project as they might change the entire setup if the event actually occurs. They might even end your entire project if they occur.

Goals and Objectives

Project goals and objectives are similar in that they are both the reason for why the project needs to take place. The goal gives direction to the project. The objectives are the specific targets the project aims to achieve to meet the goal. In short, the goal can be seen as the high-level, “shoot-for-the-stars” vision while the objectives are the grounded, well-thought-out plan to reach that vision.

Output and Outcomes

Both outputs and outcomes are direct results from a project. Many NGOs focus on outputs because they are easier to measure. However, the evaluating outcomes should be emphasized as those are the direct changes in the lives of beneficiaries that are most important.

Beneficiaries or Stakeholders

Every project is designed for the beneficiaries. The project beneficiaries are the people whose circumstances you want to change by implementing your idea. They are also called the target group or the target beneficiaries of your project.

Activities

Project activities are actions undertaken by the project to achieve the set objectives. Activities are typically designed according to the project’s strategy.

Timeline

Timeline basically shows the chronological order of events that you plan to do in your project. A timeline is not a detailed work plan, but a quick way to present an overview of your planned activities.

Workplan

A work plan is a description of the sequence of the project activities in time. It is much more detailed than a mere timeline though. It includes information about responsibilities, objectives and sometimes even the budget.

Budget estimates

A budget is an estimate of income and expenditure for a set period of time. Project budget simply refers to a document which specifies how much money needs to be allocated and how will the allocated money be implemented on the activities to achieve the goal of the project.

Sustainability

Sustainability is the ability of an organization to continue its mission or program far into the future. All projects have to end eventually, but the project impact should continue.

Monitoring and Evaluation Strategies

Monitoring and Evaluation strategies is an approach that has mainly been developed to measure and assess the success and performance of projects, programs or entire organizations.

NOTE -

Please refer my notes given during the class for the topics, scheduling to match availability of man power and release of funds, Cost and time trade cost and will be feasible.



MODULE 5

Project Execution Plan (PEP):

- Project Execution Plan
- Stage plans

Project Execution Plan (PEP)

A Project Execution Plan is much more than a chart showing timescales. It is a document describing how, when and by whom a specific target or set of targets is to be achieved. These targets will include the project's products, timescales, costs, quality and benefits. It will do this by showing the major products, activities and resources required for the project.

The PEP is produced by the Project Manager. The required standard contents can be found.

Stage plans

A Stage plan is required for each management Stage. It is similar to the PEP in content, but each element is broken down to the level of detail required to be an adequate basis for day-to-day control by the Project Manager.

Each Stage plan for the next management stage is produced near the end of the current management Stage. This allows the Stage plan to;

- Be produced close to the time when the planned events will take place.
- Exist for a much shorter duration than the project plan.
- Be produced with the knowledge of the performance of earlier management Stages.\\

SINCE 2011

What is Project Execution?

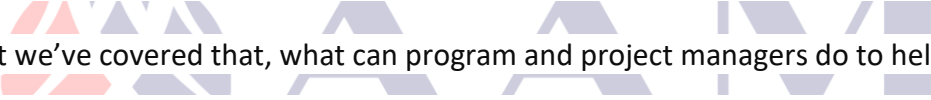
During the five process groups of the project life cycle, there are multiple objectives and outcomes for each phase. After the project initiation and the planning processes, the execution of the project begins.

Successful CEOs Ram Charan and Larry Bossidy define execution in their book *Executive: The Discipline of Getting Things Done*: "Execution is a specific set of behaviors and techniques that companies need to master in order to have competitive advantage. It's a discipline of its own."

Project execution is the third phase of the project life cycle and one of the most vital of the project phases. It is the phase where you will construct your deliverables and present them to your customer and key stakeholders. This is usually the longest phase of the project life cycle and predictably the most demanding.

Project execution's key purpose is to complete the work defined in the project management plan and to meet key project objectives. During this phase a project leader will focus on these key processes:

- Managing people
- Following processes
- Communicating information to all key stakeholders, sponsors and team members



Now that we've covered that, what can program and project managers do to help their organizations close those gaps and add value along the way?

Closing the Execution Gap

There are two pieces to closing the gap:

- Aligning the strategic plan goals and objectives with an implementation plan
- Executing in the program and project delivery of outcomes that meet those objectives

Closing that execution gap, also known as the strategy gap, is one of the most frustrating challenges facing business leaders today. The execution gap is a perceived gap between a company's strategies and expectations and its ability to meet those goals and put ideas into action.

6 Execution Gaps to Watch Out For

Over the last several years, there have been numerous books focused on how to solve the gaps regarding strategy and execution. These books suggest that sponsors are critical to filling these gaps, as well as implementing a well-defined framework.

Organizations that implement an executive strategy to turn strategic goals into business value will discover the “larger system” for success – the C-suite executives, middle management, project manager and project team.

Earlier this year, another book was released called Filling Execution Gaps by Todd Williams. Williams’ book takes it one step further to clearly identify “six execution gaps” to close for realizing repeatable project success.

Per the latest PMI Pulse of the Profession 2017, “C-suite continues to be largely focused on bridging strategy formulation and execution and tackling technology and business disruption.” Williams’ research reveals the gaps we’ve been missing.

Williams’ research identifies six primary gaps that prevent successful project execution

- Absence of common understanding
- Disengaged executive sponsors
- Misalignment with strategic goals
- Poor change management
- Ineffective corporate governance
- Lackluster leadership

Shouldn’t it be more complicated than this? The reality is that fixing each gap individually is not the solution. The real challenge is finding solutions, developing actions plans and implementing strategy to fix *all* six gaps. According to Williams, it’s not rocket science, but understanding how

each gap affects your program initiatives is key to the most critical phase of your project – execution.

PROJECTMANAGER			
10 Strategies for Project Execution			
	Begin with the End in Mind By keeping the end in sight, you're more likely to stay aligned with strategy.		Get Buy-In If your team doesn't understand the strategy, they're not going to know what to do.
	Leaders Have the Skills It's crucial to have the correct combination of skills, from business to technical, in order to get the job done.		Build High-Performing Teams The right team, with the right skills, who are informed on strategy, will lead to success.
	Monitor with Accountability Keep the lines of communication open, and follow the progress of performance of your team.		Listen to Lead A leader doesn't bark orders, but seeks feedback and fosters a dialogue with the team to better communication.
	Be Flexible Every project is different. You must be open to change and nimble in your response to it.		Celebrate Note small wins and milestones, boosting morale by acknowledging teamwork.
	Team Effort There's no "I" in team. Everyone works together towards a common goal.		Fail Better Don't let failure creep up on you when it's too late to do anything about it.

PROJECT COMMUNICATION:

Project Communications Management includes the processes that are required to ensure timely and appropriate planning, collection, creation, distribution, storage, retrieval, management, control, monitoring, and the ultimate disposition of project information. Project managers spend most of their time communicating with team members and other project stakeholders, whether they are internal (at all organizational levels) or external to the organization. Effective communication creates a bridge between diverse stakeholders who may have different cultural and organizational backgrounds, different levels of expertise, and different perspectives and interests, which impact or have an influence upon the project execution or outcome.

The Project Communications Management processes are as follows:

Plan Communications Management—

The process of developing an appropriate approach and plan for project communications based on stakeholder's information needs and requirements, and available organizational assets.

Manage Communications—

The process of creating, collecting, distributing, storing, retrieving and the ultimate disposition of project information in accordance with the communications management plan.

Control Communications—

The process of monitoring and controlling communications throughout the entire project life cycle to ensure the information needs of the project stakeholders are met.

These processes interact with each other and with processes in other Knowledge Areas.

The communication activities involved in these processes may often have many potential dimensions that need to be considered, including, but not limited to:

- *Internal* (within the project) and *external* (customer, vendors, other projects, organizations, the public);
- *Formal* (reports, minutes, briefings) and *informal* (emails, memos, ad-hoc discussions);
- *Vertical* (up and down the organization) and horizontal (with peers);
- *Official* (newsletters, annual report) and *unofficial* (off the record communications);
- *Written* and *oral*, and *verbal* (voice inflections) and *nonverbal* (body language).

Most communication skills are common for both general management and project management, such as, but not limited to:

- *Listening actively and effectively;*
- *Questioning and probing ideas and situations to ensure better understanding;*
- *Educating to increase team's knowledge so that they can be more effective;*
- *Fact-finding to identify or confirm information;*
- *Setting and managing expectations;*
- *Persuading a person, a team, or an organization to perform an action;*
- *Motivating to provide encouragement or reassurance;*

- *Coaching to improve performance and achieve desired results;*
- *Negotiating to achieve mutually acceptable agreements between parties;*
- *Resolving conflict to prevent disruptive impacts; and*
- *Summarizing, recapping, and identifying the next steps.*

PROJECT COORDINATION:

Introduction

A **project** is a set of tasks that needs to be completed to accomplish a specific goal. **Project coordination** involves managing the day-to-day operations of a project, making sure the resources are aware of deadlines and tasks that they are responsible, managing meeting minutes, and so on. A project coordinator works very closely with a project manager and is aware of the goals of a project.

Difference between Project Management and Project Coordination

A **project coordinator** role could be classified as a more entry level role to get into the field of project management. A project manager is ultimately responsible for the success or the failure of the project, whereas the project coordinator handles more administrative tasks. A project coordinator is also sometimes referred to as an executive assistant in a project. However, some project coordinator roles have extensive responsibilities.

Influence of Organizational Structure on projects.

Some organizations are run project based, while others are organized based on functional department. Depending on the type of organizational structure, the project manager's role could vary as having a lot of authority and accountability on the project to less accountability.

A functional organization is grouped by departments and project management is done within the department. The project manager's role and authority is very less and could be considered as a project coordinator role. A projectized organization is grouped by projects giving project managers a lot of authority and accountability. A matrix organization is a combination of projectized and functional organization. A strong matrix leans towards a projectized organization and a weak matrix leans towards a functional organization. Depending on the type of matrix a project manager's role leans towards management or co-ordination.

Responsibilities and Skills of a Project Coordinator

A project coordinator's tasks start after the project plan has been created and approved. A project coordinator organizes meeting, makes sure the project is moving according to plans and escalates any issues. A project coordinator also works on spreadsheets and performs relevant paperwork.

Factors Affecting Project Management in your Organization:

7 Factors Affecting Project Management

1. Deadline:

Deadline is one of the key aspects that determine how a project is managed. Missing a deadline creates a bad impression for your team. However, completing a project on deadline does not mean that you compromise on quality. You have to be both alert about time and have a keen eye on quality. If the project has narrow deadlines with strict clients or stakeholders, project manager should be alert to all possible hindrances from before and take appropriate precautions, so that on-time delivery of quality products or services can be ensured. Not only should the manager be on their toes but they should instill the same kind of attitude among the team members. Team members should flag issues, problems and hindrances the moment being faced so that solutions can be looked out for immediately.

2. Budget:

Budget is another critical factor that determines a project's progress and management. In case the budget is high, then the number of days for completion of the project is also more and so is the number of resources allocated to it. Do not rush in such situations; rather focus completely on delivering products or services that are of best quality, with maximum utilization of resources. However, if the budget is less you have to adjust with limitations such as unavailability of resources, lack of time, and money. However, you cannot compromise on quality which means the stress level of you and your team increases. You may have to motivate your irritated overworked team members by encouraging them for their good performance and recognizing their efforts through rewards.

3. Stakeholders:

Techniques of managing projects will vary depending upon the kind of stakeholders for the projects. In case a project has multiple stakeholders from different backgrounds, there is a possibility of disagreement between them. In such cases, project management becomes extremely challenging as you cannot afford to have unhappy stakeholders and clients. Great convincing and negotiation skills are required in such cases to reach a consensus. It can be time consuming and hence the actual time dedicated to resources will reduce. The project manager needs to adopt tactful approaches in such cases and get the work done.

4. Project Members:

Project management techniques are also determined by the challenges faced by a project manager which, in turn, depends on the kind of team he or she is handling. If the team consists of members with diverse backgrounds and skills, a gap in terms of team spirit may exist. This obviously impacts work. Therefore, a project manager should apply techniques to bring the team close. He should ensure that regular team meets happen which can be both formal and informal. In team meetings and outings people from various backgrounds are bound to interact. This creates a bond between members and they are ready to be there for each other.

5. Demand:

Demand is another key factor that influences project management techniques. Demand itself depends on a few factors such as type of products or services, usability, etc. If the product is a perishable item such as grains or vegetables, the nature of demand will be different from that of garments that can be stocked and used for months. In case of services, such as creation of instruction manuals for electronic products, the demand depends on the number of users in the market. Depending on the kind of demand and the nature of the product or services offered, a project manager needs to apply appropriate management techniques ensuring on time delivery of goods and services.

For example, an app development company is creating a product for a new mobile

offering from XYZ which will be released in the market after 6 months. Therefore, the app needs to be ready by at least a month before the release. The project manager will have the details in mind, while forming the team and allocating resources. Some of the techniques may involve daily morning stand-ups, regular testing sessions, survey within his or her organization, pilot testing among selected technology geeks. On the other hand, if an organization conducts training sessions on project management certifications, the project manager's technique may involve researching the market, offering services at lower than market rate, looking for potential candidates who can take up the certifications, offering discounts if a person takes more than one course, having an online marketing team to promote the services that are offered at attractive prices etc.

6. Supply:

In order to meet the demand within a stipulated date and time (which we came across as deadline), supply of resources is necessary. A project manager needs to ensure that supply is adequate, so that deadline is not compromised for want of resources. For example, the company has scheduled a training session with 15 students on a given date. Students have paid fees and they have been given the date, time and venue of the session. However, more people started registering for the session and the total number reached 25. The current venue has a capacity of 20 people. Now, the training provider should be in a position to arrange another venue immediately for the training session. If the session gets cancelled due to lack of space, it will be a big loss for the company both in terms of money and reputation.

7. Price:

Price is an important aspect of project management. Price is determined by high level managers in consultation with project sponsors after studying market trends. Price is an important determinant of the sale and profit and should be determined after careful calculation. The type of product or service is an important factor to be considered when talking about price determination. For convenience, we will

categorize products into three 3 types: perishable products, non-perishable products, and specialized products. There are two factors that need to be considered here: the quantity that needs to be sold and the price that the buyer is willing to pay for it. In case of non-perishable items like cooking oil, grains and pulses, coal, demand is never a limitation. Additionally, being non-perishable, the products can be stored and marketed throughout the year. The storage and demand factors balance out the price. These kinds of products are usually not exorbitantly high priced. However, it is different for perishable products and seasonal items. These are in the market for a short duration and are in high demand for that period. Owing to the high demand and limited supply, price is usually high. For example, an organization focused on export of fruits and vegetables, will have enough supply of the items during winter.

Project management is a complex concept. There is no one rule for managing projects as there is no single type of project. Services and products are the two key categories of offerings in the market and the management method differs significantly for both. Within each category, there are multiple varieties and again project management will vary depending on the type of product or service in question. The factors mentioned in this article will give you a clear idea regarding the key determinants of project management methods and techniques.

Project monitoring and control techniques:

Monitoring and control processes continually track, review, adjust and report on the project's performance. It's important to find out how a project's performing and whether it's on time, as well as implement approved changes. This ensures the project remains on track, on budget and on time.

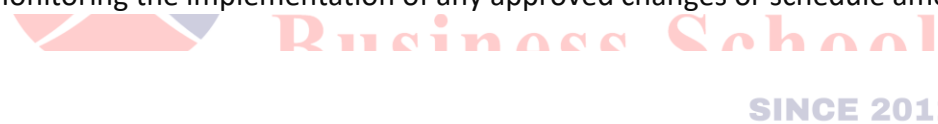
What is project control?

According to *the PMBOK® Guide* (the Project Management Body of Knowledge), project control is a "project management function that involves comparing actual performance with planned

performance and taking appropriate corrective action (or directing others to take this action) that will yield the desired outcome in the project when significant differences exist.”

Essentially, project controls are a series of tools that help keep a project on schedule. Combined with people skills and project experience, they deliver information that enables accurate decision making. The project control process mainly focuses on:

- Measuring planned performance vs actual performance.
- Ongoing assessment of the project’s performance to identify any preventive or corrective actions needed.
- Keeping accurate, timely information based on the project’s output and associated documentation.
- Providing information that supports status updates, forecasting and measuring progress.
- Delivering forecasts that update current costs and project schedule.
- Monitoring the implementation of any approved changes or schedule amendments.



Importance of project monitoring and control

Monitoring and control keeps projects on track. The right controls can play a major part in completing projects on time. The data gathered also lets project managers make informed decisions. They can take advantage of opportunities, make changes and avoid crisis management issues.

Put simply, monitoring and control ensures the seamless execution of tasks. This improves productivity and efficiency.

Monitoring and control method

When setting up a project's monitoring and control process, first establish the project baselines. This includes the scope, schedule and budget. Use this information to benchmark the project's progress throughout the lifecycle.

Use a Work Breakdown Structure (WBS) to break a project down into small units of work, or sub-tasks. This makes the work easier to manage and evaluate. This enables easier detection of issues, keeps the project under control and allows for easier progress verification. It also helps prevent team members from feeling overwhelmed.

With a WBS in place, follow this sequence throughout the project's lifecycle:

Monitoring and control techniques

There are a range of monitoring and control techniques that can be used by project managers, including:

A Requirements Traceability Matrix (RTM). This maps, or traces, the project's requirements to the deliverables. The matrix correlates the relationship between two baseline documents. This makes the project's tasks more visible. It also prevents new tasks or requirements being added to the project without approval.

This makes the project's tasks more visible. It also prevents new tasks or requirements being added to the project without approval.

A control chart monitors the project's quality. There are two basic forms of control chart – a univariate control chart displays one project characteristic, while a multivariate chart displays more than one.

Review and status meetings further analyse problems, finding out why something happened. They can also highlight any issues that might happen later.

MODULE 6

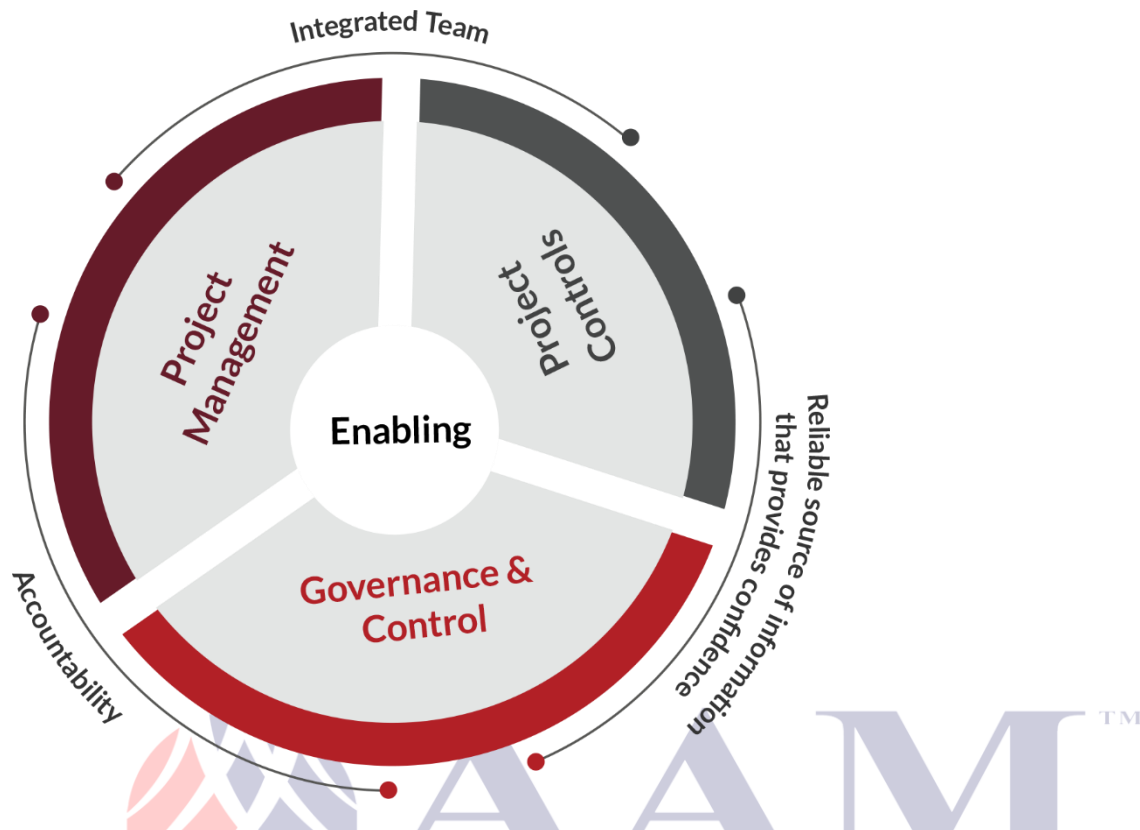
Project Controls: What is it and why is it important ?

Definition of Project Controls:

There are many definitions of Project Controls used across industries and indeed across companies within industries. Project Controls are a professional function not widely recognised as a set of specialised skills in their own right. They are a function that is critical to achieving successful project and programme outcomes i.e. delivering required benefits to cost, time and performance. For the purposes of this portal, the field of Project Controls are defined as follows:

"Project Controls are the data gathering, data management and analytical processes used to predict, understand and constructively influence the time and cost outcomes of a project or programme; through the communication of information in formats that assist effective management and decision making."

This definition covers all stages of a project lifecycle from initiating and scoping the project, through to closure, final learning from experience and analytical analysis of overall project performance.



Where does Project Controls sit?

Project Control professionals sit within the Project Team, work for, and are responsible to the Project Manager. They are the heart of the Project Team. If Project Management is concerned with making informed and accountable decisions, Project Controls are about the necessity of being aware by "informing, monitoring and analysing" – to exercise the control needed. Project Control professionals generate and maintain the information that brings awareness to the Project Manager and Senior Managers so that control can be exercised.

Component Elements of Project Controls.

Depending upon how Project Controls are viewed will influence what is considered as the component parts of the function. Here it is assumed that Project Controls are concerned with estimating initial baseline performance metrics, determining the current status of the project, estimating future potential of the project, identifying any variances (baseline to current position and baseline to potential future position), and considering appropriate action to be taken to recover any positive variance. Here variance refers to actual differences identified in project control documents and also the potential variations possible from project threats, issues and opportunities. On this basis the component elements of Project Controls are about measuring and monitoring controlling variables, these are principally time and cost aspects:

- Planning and Scheduling
- Risk Management (includes identification & assessment)

- Cost estimating and management
- Scope and Change Management
- Earned Value Management
- Document Control
- Supplier Performance
- Maintaining the project baseline
- Reporting

PERT in Project Management:

PERT is a project management planning tool used to calculate the amount of time it will take to realistically finish a project. PERT stands for Program Evaluation Review Technique. PERT charts are tools used to plan tasks within a project - making it easier to schedule and coordinate team members accomplishing the work. PERT charts were created in the 1950s to help manage the creation of weapons and defense projects for the US Navy. While PERT was being introduced in the Navy, the private sector simultaneously gave rise to a similar method called Critical Path. PERT is similar to critical path in that they are both used to visualize the timeline and the work that must be done for a project. However with PERT, you create three different time estimates for the project: you estimate the shortest possible amount time each task will take, the most probable amount of time, and the longest amount of time tasks might take if things don't go as planned. PERT is calculated backward from a fixed end date since contractor deadlines typically cannot be moved.

Critical Path Method:

The critical path method (CPM) is a project modeling technique that's used by project managers to find the important deadlines and deliver a project on time. In a project, the critical path is the longest distance between the start and the finish, including all the tasks and their duration. Once a critical path is determined, you'll have a clear picture of the project's actual schedule.

Critical Path – Definition of Terms

To properly understand the concept of critical path, you first need to understand the various terms used in this method.

Earliest start date. This is simply the earliest date that a task can be started in your project. You cannot determine this without first knowing if any tasks are dependent on this one task, or figuring out other constraints that might impact the start of this task. Next is the earliest finish date. This being the earliest date your task can be completed.

Latest start date. This is the very last minute in which you can start a task before it threatens to upset your project schedule. And you need to calculate what the latest finish date is for the same reason. By having a clear picture of this timeframe, you can better schedule the project to meet its deadline.

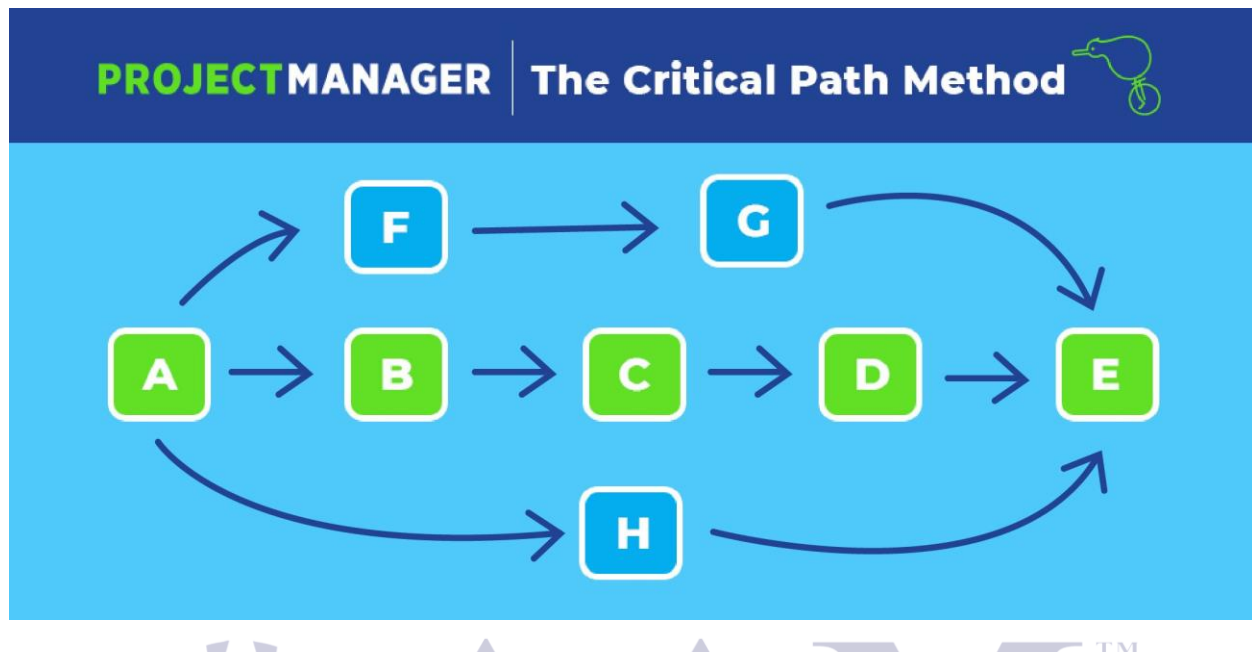
Float. Also known as slack, float is a term that describes how long you can delay a task before it impacts the planned schedule and threatens the project's deadline. When you are collecting tasks for the critical path, they must have zero float. But if the tasks do have some float, then they go on the non-critical path, which means if this task is delayed the project can still finish on time.

Crash duration. This describes the shortest amount of time that a task can be scheduled. You can get there by moving around resources, adding more towards the end of the task, to decrease the time needed to complete the task. This often means a reduction in quality, but is based on a relationship between cost and time.

Critical Path Analysis

As mentioned, the purpose of a critical path is to find the least amount of time you'll need to complete a task. Critical path analysis furthers your ability to make better estimates for scheduling, because you're mapping out every important task that must be done for a successful project.

Critical Path Example



Gain Insight When Planning Tasks

Projects are made up of tasks that have to adhere to a schedule in order to meet a deadline. It sounds simple, but without mapping the work it can quickly get out of hand and you'll find your project off track. When you're analyzing the critical path, you're looking closely at the time it will take to complete each task, taking into account the task dependencies and how they'll impact your schedule. It's a technique to find the most realistic project deadline. It can also help during the project as a metric to track your progress.

Therefore, when you're doing critical path analysis, you're finding the sequence of tasks that are both important and dependent on a previous task. Less important tasks aren't ignored and are part of the analysis; however, they're the ones you know can be jettisoned if time and money won't permit.

Great for Complex Projects

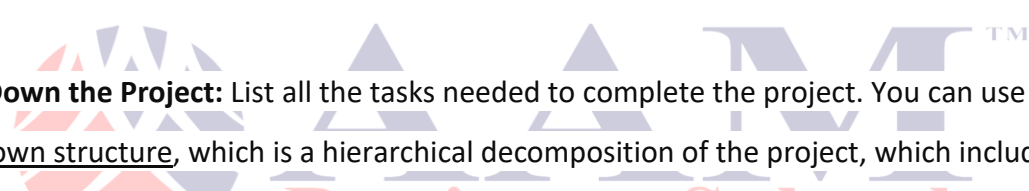
Again, critical path analysis is charting the dependent tasks, which are those that cannot start or finish until another has started or finished. This creates a great deal of complexity, but the

analysis is crucial in order to have a realistic schedule. If your project isn't as complicated, however, it might not require critical path analysis.

But those who are involved in highly complex projects need to know the amount of float or slack time they have for each task while still meeting their deadline. The value in this is obvious, especially if you're dealing with a task that's giving you a hard time. You know when you must resolve the problem or move on.

How to Calculate the Project Critical Path

The technique for figuring out the critical path in your project can be boiled down to five essential steps.

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1. **Break Down the Project:** List all the tasks needed to complete the project. You can use a work breakdown structure, which is a hierarchical decomposition of the project, which includes every deliverable.
 2. **Estimate Task Duration:** Now comes the tricky part, you want to know how long each task will take. If possible, get advice from others who have, so you can have the most accurate estimation of the duration of the various tasks possible.
 3. **Determine Task Dependencies:** If there are any task dependencies, you want to note them, too. A task dependency is when one task cannot start until another one has been finished. It's a key element of good task management.
 4. **Add Milestones:** What are the milestones in your project? Having milestones helps to keep you on track, so you can make sure you're meeting your baseline schedule.

When you have this data collected, you're able to calculate the longest path your planned tasks will take to reach the end of the project, as well as the earliest and latest that each task can start and finish without impacting the project schedule.

Again, all this determines what tasks are critical and which can float, meaning they can be delayed without negatively impacting the project by making it longer. Now you have the information you need to plan the schedule more accurately and have more of a guarantee you'll meet your project deadline.

You also need to consider other constraints that might change the project schedule. The more you can account for these issues, the more accurate your critical path method will be. If time is added to the project because of these constraints, that is called a critical path drag, which is how much longer a project will take because of the task and constraint.

The Benefits of Critical Path Method:

Finding the critical path is a useful tool that project managers use to make better time estimates. It lends itself to complex and larger projects, but it can be a helpful tool no matter the size of your project.

Time is always weighing heavy on a project, and a critical path allows you to see which of the project tasks are not absolutely necessary to end with a quality deliverable. You want to complete every task, but sometimes that's not possible. Critical path helps you determine which you don't need.

Once you have your critical path, you want to keep returning to the analysis and continuing to crunch those numbers as things change when executing your project. That's a lot of work, but when used in conjunction with a robust project management software, you've taken the first steps towards success. If you're looking to calculate the critical path in your project, then you're going to need to measure a lot of variables. You'll need an project management software that can handle those complicated metrics.

Project Audit:

A project audit for a project manager is like a judgement day. That's because work, time and money are at stake

The word 'audit' may have a negative connotation sometimes, particularly for the one who's subjected to it. Although it is not always a joyfully expected event, a **project audit** can lead to a positive result, regardless of whether a project manager overcomes it or not.

Let's take a closer look at what this is about and how to perform it in the best possible way.

What is a project audit?

A project audit is a **formal review of a project**, often intended to assess the extent to which project management standards are being upheld.

Audits are generally carried out by a specially designated **audit department**, the **Project Management Office**, an **approved management committee** or an **external auditor**.

Whoever is responsible for **performing the audit** must be in charge of the designated authority and issue related recommendations.

The final objective of a project audit is to ensure that the **project meets the standards** of project management through investigation and evaluation.

Below are the **five main objectives of a project audit**:

1. Ensure the quality of products and services

A **project audit** acts as a **quality assurance tool**. It reviews the project life cycle evaluating the results yielded during the different stages, from the design phase to implementation.

When reviewing the design phase, a project audit evaluates the thoroughness of the design concepts, including the analysis of alternative designs.

Furthermore, it is assessed whether the solution is ready for the **pilot test** and finally, during the implementation review, the project audit assesses and confirms the implementation at each site where the product is adopted.

The identification of the errors during the process contributes to the resolution of the problems and to understand if the project should continue through a go/no-go decision at each stage.

2. Ensure the quality of project management

A **project audit** ascertains that the project management satisfies the standards by assessing whether it complies with the organisation's **policies, processes and procedures**. It evaluates the

methodology used to help identify gaps in order to introduce the required improvements.

3. Identify the business risk

Project audits support the identification of business factors where **risks may reside**, which could affect **budget, time, environment and quality**.

After all, the organization itself is keen to achieve a positive outcome to the project.

The project audit assesses the feasibility of the project in terms of affordability and performance by providing transparency and assessing costs, time and resources. Apply a review and equalization approach when it comes to controlling the budget, examining data that includes estimated and actual costs, as well as costs of meeting goals.

4. Improve project performance

The monitoring of the various phases of the project life cycle can contribute to the **improvement of the project team's performance**.

The audit also helps to improve the budget and resource allocation.

Identifying priorities, corrective measures and preventive actions can lead to a positive project outcome.

The troubleshooting process allows the project team to provide solutions and helps prevent similar problems from recurring in the future.

5. Learn - A project audit can deliver **learning opportunities** through assessments of project management expertise.

Providing reviews and feedback allows individuals and project teams to ponder their own performance.

Audit policies and activation procedures

In order to achieve the benefits expected from a **project audit**, each stage, element and outcome of the audit process must be clearly set out and openly disclosed, including:

- **Audit mission** statement: this document should clearly define the purposes, objectives, authority and limits of the audit operation, as well as the type of audits to be conducted.
- **Specification of audit competencies**: a detailed specification of the auditor's skills and experience, showing that the audit staff possess adequate expertise to audit the project.

- **Roles and responsibilities of the actors involved:** a detailed statement of all the roles and responsibilities covered by the audit, both for the person conducting the audit and for the project team – including the project manager, team members, project sponsors, clients and any stakeholder.
- **‘Trigger’ audit criteria:** a complete list of all the criteria on the basis of which projects will be selected for an audit. It would be too costly and time-consuming and would defeat the purpose of the audit process itself. Thus, specific criteria should be established to identify projects to be audited on the basis of risk, complexity, internal value, costs, etc.
- **Audit start procedures:** a description of the procedures for the initiation of the audit, including the process by which individual project managers are informed of an outstanding audit and the related preparation requirements.
- **Audit execution procedures:** a list of audit procedures that cover the methods to be used during the audit. This varies according to the type and timing of each audit, but may include personal interviews with project staff, document reviews, questionnaires and more.
- **Audit reporting procedures:** a specification of the audit reporting procedures, which covers how and the way in which the audit results will be reported and reviewed. In order to minimize the threatening nature of the project audit, all parties should be fully aware of how the results will be disclosed and used within the organization.
- **Audit redress procedures:** a specification of all procedures to be followed to appeal and/or dispute the reported audit results.

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