

# An Overview on Project Management

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**Abstract** - Project Planning and Management is key framework for successful completion of any project. Planning is a procedural step in project management, where appropriate and standard documents are required to create an intact and comprehensive project. Knowledge, skills, tools and techniques are applied to various project activities to meet the project requirements. Planning without management is of no use. In order to develop a successful project, different project management techniques have been widely established in the areas such as planning and control. In this, various project management methodologies, success and failure, planning activity etc have been proposed.

**Keywords:** Project Management, Controlling, Scheduling.

## 1. INTRODUCTION

A project is composed of jobs, activities, functions or tasks that related one to the other in some manner, and all of these should e completed in order to complete the project. Every project has one specific purpose: it starts at some specific moment and it is finished when its objectives have been fulfilled. For completion of a project two basic things are required:

- i) Material Resources
- ii) Manpower Resources

Many countries, rich in material resources are exceedingly poor in terms of level of production or plan achievement, while there are other countries which have very limited natural resources but have achieved higher level of productivity mainly because of talents, skills experience and know-how of their people. Availability, quality and use of human resources is a single determinant factor in accomplishing project objectives.

Rapid accumulation of scientific technique in the recent past has not been matched by a corresponding improvement in the sphere of human group relations. In other words sociology has not kept pace with technology. We are not in position to utilize fully our technology advancement unless we are also ale to advance in social sphere. Here comes the role of management. While technology deals with material things, management deals with both material things as well as human-beings.

## 2. SUCCESS AND FAILURE OF PROJECT MANAGEMENT

The meaning of undertaking administration proposes a shorter term and more particular connection for achievement. For the fulfillment of the plan, the evident markers are incorporated, thereby fulfilling the undertaking timetable, satisfactory quality principles, and hence meeting the task objective. The various elements which cause's the venture administration to neglect to accomplish this task include the following:

1. insufficient premise for venture;
2. wrong individual as task chief;
3. top administration unsupportive;
4. deficiently characterized undertakings;
5. absence of task administration systems;
6. administration procedures miss-utilized;
7. venture closedown not arranged;
8. Absence of responsibility to extend.

These components would propose that effective venture administration obliges arranging with a pledge to finish the task; watchful arrangement of a talented undertaking supervisor; investing time to characterize the undertaking enough; accurately arranging the exercises in the venture; guaranteeing right and satisfactory data streams; changing exercises to oblige successive changes on dynamic; obliging representatives' close to home objectives with execution and prizes; furthermore committing a new beginning when errors in execution have been distinguished.

Management increases the productivity through technological innovation taking into account human factors involved in these advances.

Each project, whether big or small has three objectives:

- i) The project should be completed with a minimum of elapsed time.
- ii) It should use available manpower and other resources as sparingly as possible without delay.
- iii) It should be completed with a minimum of capital investment, without delay.
- iv) Project management is a highly specified job, to achieve the above objectives.

Project management involves, the following three phases:

1. Project Planning
2. Project Scheduling
3. Project Controlling

Out of the above three phases of project management the first two phases are accomplished before the actual project start. The third phase is operative during the execution of the project, and its aim is to recognize the difficulties during the execution and to apply measures to deal with these difficulties.

### **3. PROJECT PLANNING**

Planning is the most important phase of project management. Planning involves defining objectives of the project, listing of tasks or jobs that must be performed, determining gross requirements for material, equipment and manpower and preparing estimates of costs and durations for the various jobs or activities to bring about the satisfactory completion of the project.

Planning is important because:

- i) It provides direction
- ii) It provides unifying framework
- iii) It helps to reveal future opportunities and threats
- iv) It provide performance standards

In the planning phase, plan is made and strategies are set, taking into consideration the company's policies, procedures and rules.

#### **Plan**

It is a statement of intent, i.e., what is to be done. It is interpreted in terms of what has to be done to resources achieve the intent. The resource to be used may be : office staff, tradesmen, labor, materials, plant and machinery, space and funds. Plans are detailed methods, formulated before hand for doing or making something. Plans simply list the goals (targets) and define the means of achieving them. These listed goals are called events and means of achieving these goals are known as operations or activities in attaining final target set aside by the plan. The size of the activities depends on the nature and scale of project ; however, each activity should be sufficiently well defined, for work on them to proceed without interruption from other tasks. Activities are those operations of the plan which take time to carry out and on which resources are expended.

## Strategies

Strategy is one of the important type of plan. It specifies the central concept or purpose of the enterprise as well as the means by which it intend to carry that purpose.

## Policies, Procedures and rules

Policies, procedures and rules differ from each other in degree of specificity. Policies usually set broad guide-lines for the enterprise. For example, it might be the policy of a departmental store that if a customer is dissatisfied with any of its sale article, his/her money will be refunded.

Procedure specify how to proceed in some situation. For example, 'before refunding the money of the customer, the salesman should carefully inspect the article to be returned and then obtain approval from the manager for the refund.'

A rule is even more specific guide for action. For example, the departmental store may have a rule that 'under no conditions will the money be refunded to the costumer if he/she brings the defective article after 15 days of purchase.'

Thus, plans should e finalized and strategies should be set only after taking into considerations the company's policies, procedures and rules.

## 3.1 Steps in Project Planning

Following eight steps are generally recognized in the planning process of project :

1. DEFINE : the objectives of the project in definite words.
2. ESTABLISH : goals and stages intermediate to attain the final target.
3. DEVELOP : forecast and means of achieving goals, i.e. , activities.
4. EVALUATE : organizations resources-financial, managerial And operational- to carry out activities and to determine what is feasible and what is not.
5. DETERMINE : alternatives-individual courses of action that will allow to accomplish goals.
6. TEST : for consistency with companies policy.
7. CHOOSE : an alternative which is not only consistent with its goals and concept but also one that can be accomplished with the evaluated resources
8. DECIDE : on a plan.

During the planning phase, the information needed is about all those operations or activities, which have to be carried out before the project is completed, their sequence and their logical interrelationship.

## Resources

In running a project, there is a basic need of resources. These resources classified as under:

- i) Material resources
- ii) Equipment resources
- iii) Space resources
- iv) Effort or man power resources
- v) Time resources

Resources are the starting point of many problems that have to be solved by the manager in the planning phase, before proceeding for scheduling phase of the project

#### 4. SCHEDULING

Scheduling is the allocation of resources. These resources, in conceptual sense, are time and energy, but in practical sense are time, space, equipment and effort applied to material. More specifically, scheduling is the mechanical process of formalizing the planned functions assigning the starting and completion dates to each part( or activity) of the working such a manner that the whole work( or project) proceeds in a logical sequence and in an orderly and systematic manner. In other words, scheduling is the laying out of the actual activities of the project in time order in which they are to be performed, and calculating the manpower and material requirements ( or resources requirements,, in general) needed at each stage of production, along with the expected completion time of each of the activity.

Steps in Project Scheduling Phase

##### 4.1 Scheduling done in the following steps:

1. CALCULATE : detailed control information.
2. ASSIGN : timings to event and activities.
3. GIVE : consideration to the resources.  
The manager is generally concerned with those resources whose availability is limited and which thereby impose a constraint on the project. The important ones are usually skilled, technical and supervisory manpower and capital investment.
4. ALLOCATE : the resources.

In traditional techniques, the term scheduling a project is somewhat is leading because actually some attempt at planning and scheduling are performed as one step.

#### 5. CONTROLLING

As stated earlier, the planning and scheduling phases of a project are undertaken before the actual project starts while the controlling phase is undertaken during the actual project operations. Controlling consists of reviewing the difference between the schedule and actual performance once the project has begun. Project control is the formal mechanism establish to determine deviations from the basic plan, to determine the precise effect of these deviations on the plan, and to replan and reschedule to compensate for the deviations.

Steps in Control Process

##### 5.1 Controlling is accomplished in the following well recognized steps:

1. ESTABLISH : standards or targets. These targets are generally expressed in terms of time.
2. MEASURE : performance against the standards set down in the first step.
3. IDENTITY : the deviations from the standards.
4. SUGGEST AND SELECT : correcting measures. This will involve all the problems-identifying, decision-

making and organizing and leadership

skill of the decision-maker.

## 6. Role of Decision in Project Management

While planning organizing, staffing, leading, scheduling and controlling are the basic functions of management, each of these clearly involve decisions-decision as to which plan to implement, what goals to achieve, what ways to use, and so forth. The success or failure of management is judged from the decisions it takes at various stages. A poor or erroneous decision may lead to the failure of a project. If a poor decision is made and a wrong road is chosen none but luckiest survive.

Steps in Decision-making

Following are steps for a better decision-making:

1. IDENTITY: the central problem.
2. DEVELOP : alternatives.
3. ANALYSE: the alternatives.
4. MAKE: final decision.

Techniques for analyzing alternatives: Operation Research

Generally, we have several alternatives, and it is essential to evaluate the before we can choose the best out of these. This can be successfully done through operation research. The term 'operation research' usually refers to asset of mathematical techniques through which a variety of organizational problems can be analyzed and solved.

### 6.1 Steps in Operational Research Techniques:

1. FORMULATE : the problem.
2. CONSTRUCT: a mathematical model to represent the system under study.
3. DERIVE: a solution for the model.
4. TEST: the model and solution derived from it.
5. ESTABLISH: controls over the solution.
6. PUT: the solution to work and Implementation.

## 7. METHODS OF PLANNING

As stated earlier, complex research and development projects can be managed effectively if project managers have the means to plan and control the schedules and costs of the work required to achieve their technical performance objectives.

When the planning of a project is undertaken a host of questions arise : How should the work be accomplished ? What resources will be needed ? How long will it take ? How much will it cost ? The answer to all these questions can be found by following the modern techniques of project management.

Managers at all levels need improved techniques at all stages in a project to :

- i) Define the work to be performed.
- ii) Develop more realistic schedule and cost estimates based on resources planned to perform the work.
- iii) Determine where resources should be applied to best achieve the time, cost and technical performance objectives.
- iv) Identify those areas developing potential delays or cost overruns in time to permit corrective action.

Following are some of the tools or techniques of project management :

1. Bar charts and Milestones charts.

2. Network diagrams.
1. Bar Charts and Milestone Charts

Bar charts were introduced by Henry Gantt around 1900 AD. Bar charts represent pictorial representation in two dimensions of a project by breaking it down into a number of manageable units or activities for planning and control shown on one dimension or axis and the durations assigned to these activities on the other dimensions or axes. Bar charts were later modified to yield the milestone charts. While the bar chart represents the activities a milestone chart represents the events which mark either the beginning or the end of an activity. The bars of the bar chart are broken into a number of pieces, each one of which represents an identifiable major event. It should be noted that each event is a point in time which the management has identified as important reference point during the completion of the project.

## 2. Network methods

Network diagram is an outcome of the improvements in the milestone charts. The network technique is a major advance in management science. This technique is based on the basic characteristics of all projects, that all work must be done in well-defined steps. For example, for completing a foundation, the various steps are, i) layout, ii)digging, iii)placing side boards and iv)concreting. The network technique exploits this characteristics by representing the steps of the project objective graphically in the form of a network or arrow diagram. It would be difficult to find in the history of management methods any technique which has received such widespread attention as that accorded to network methods for planning, scheduling and controlling.

The network techniques are called by various names such as PERT, CPM, UNETICS, LESS, TOPS and SCANS. However these and other systems have emerged from the following two major network systems;

1. PERT
2. CPM.

The other systems, by and large, differ from their parents only in non-essentials.

## CONCLUSION

An increasing number of organisations are currently project oriented or use projects, and their success is dependent on the success of their projects. The study of relevant literature has revealed that each success is a complex category and that the project success and the project management success are related in that the project management success contributes to project success. The project success is defined as a cross-section of empirical facts and perceptions of interested groups and, at that, the approach is different in case of public and private projects and, depending on the evaluator or project environment influences, the evaluation can vary over time. Project manager and his team are responsible for the success of project management, and they have to regard success of management activities as a function of the project success, which is a higher level objective. In order to enhance success of project management, and hence to improve overall project results, it is highly significant to continuously develop competencies and improve management methods. In the study of a framework for enhancing success of management activities, the focus is placed on project management documents and three hierarchical levels in the organisational structure of the project, and on their connection with the project management success, i.e. with the success of the project. In the proposed project management success enhancement model, the key role is attributed to management of project risks, changes and constraints, which define the style of management under variable conditions dictated by the interests of project participants, and by influences of project environment. If there were no risks, changes, and constraints, the project management would be very simple, but such projects do not exist. That is why these three elements directly influence the style of management giving higher priority either to forcing – acceleration of implementation, or to control – slowing down of implementation, which directly influences the project management success based on the criteria defined through the overview of research focusing on this issue. The project management success can be improved, and hence project results can get better, through development of management frameworks and management models that link key organisational components of management activities.

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