

# Review on Project Management

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**Abstract:** *Every single one of us is project manager. This paper all work on various tasks with deadlines, from a housewife to a production employee to a financial analyst, from banker to physician, from engineer to administrator, from teacher to student. Regardless of our profession, training or position within an organization, this paper work on special projects involving people who do not normally work together. The project may have a simple goal that doesn't require a lot of people or a lot of money, or it can be very complicated, calling for different skills and a lot of resources. But the bottom line is that each of us is running projects. Over the years, and more specifically in recent past ventures, this has been used as a delivery mechanism for doing business and achieving goals. No wonder this has become one of the world's fastest-growing occupations. Though understanding what constitutes a project and what does not remain a topic of discussion. This paper aims to find literature about the project, its description, its features, its life cycle, stages, methods etc.*

**Keywords--** CPM, Gantt charts, Projects, Project Management and Procurement.

## I. INTRODUCTION

A project[1] is a people's organization dedicated to a specific purpose or target. Projects generally involve massive, costly, specific or high-risk undertakings with some anticipated level of performance that have to be completed by a certain date, for a certain amount of money. At the very least, all projects need to have well-defined goals and sufficient resources to perform all the tasks required.

In lines of the definition, a project can be defined as possessing the following characteristics:

- A defined beginning and end (specified time to completion)
- A specific, preordained goal or set of goals (performance expectations)
- A series of complex or interrelated activities
- A limited budget

## II. CHARACTERISTICS

Typically, most projects share most if not all of the five characteristics listed below.

- A start and a finish
- A time frame for completion
- An involvement of several people on an ad-hoc basis

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- A limited set of resources
- A sequencing of activities and phases

### **III. CLASSIFICATION WITHIN CATEGORIES AND SUB-CATEGORIES**

- Project size
- Project complexity
- External or internal customer
- Degree of customer involvement in the project
- Levels of risk in projects
- Major and minor projects within a category

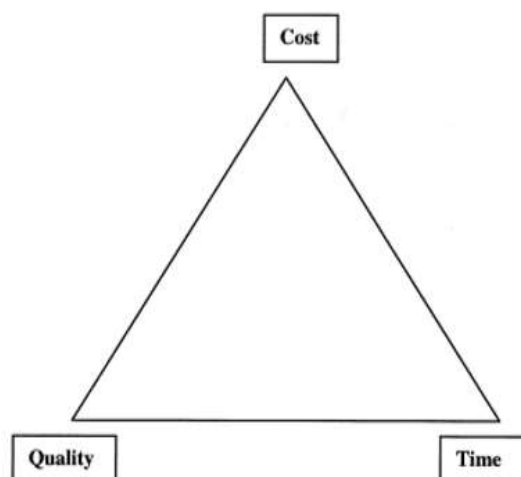
### **IV. PROJECT MANAGEMENT**

It is necessary to develop distinct meanings for the two terms in order to differentiate between the project and project management. A project can be defined to be the accomplishment of a specific objective, requiring a sequence of resource consuming activities and tasks. Within a specified specification it must be done, with defined start and end dates. On the other hand, project management can be described as the process of managing the project goals achievement. Utilizing current organizational structures and resources, it seeks to manage the project by applying a set of tools and techniques, without adversely affecting the company's daily activity. The project management[2] role involves identifying the work requirement, deciding the scope of work, allocating the resources required, planning the execution of the work, tracking the progress of the work and adjusting deviations from the plan.

The two meanings can initially seem to overlap. Both are strongly geared toward project achievement. The important distinction lies in both meanings being emphasized. The project deals with the identification and selection of a mission that will benefit the company overall. This profit may be economical, marketing or technological, but it will continue to be of a long-term nature, geared towards the completed project's expected total life span. It is concerned with on-time delivery, within-budget expenditures and appropriate performance standards.

### **V. METHODOLOGY IN PROJECT MANAGEMENT**

The Critical Path Process[3] (CPM) is an important quantitative method developed to manage projects. CPM defines the minimum time needed to complete the project, assuming deterministic completion times for the operation. In general, there is a due date for completion of the project and the project needs to be speeded up. This means some of those activities are completed faster than normal. Normal completion time and crash period are calculated for each operation, and correspondingly normal and crash costs are estimated for the activity. Completing an activity crash may require overtime costs, additional services, and faster equipment wear and tear. Crashing an operation therefore saves time but increases the cost.



**Fig. 1: Iron Triangle**

In the mid-eighties Dr. Martin Barnes developed the Goal Triangle. The triangle shows that the expense of price and time, known as the Iron Triangle[4] interrelate. Concentration or fixation of one point of the triangle affects the other two points. Crash completion of an activity may involve overtime charges, specialized resources, and faster wear and tear of equipment. Thus crashing an activity saves time but increases the cost.

Decide at the beginning of a project which version of the triangle you will be using and agree with the sponsor of the project which of the three or four main objectives is. Evaluate all shifts, risks, and issues against the triangle and weigh your course of action against effects on your vital target. For example, if the main project constraint is expense, it's possible that only the most critical business improvement changes will be accepted. However, if quality is the biggest goal time and cost might move to accommodate enhancement requests.

Scrum is the most popular Agile development framework because it's relatively simple to implement but also because it solves a lot of issues that software developers have been struggling with in the past, such as convoluted development cycles, inflexible project plans, delayed production. In Scrum, a small team is led by a Scrum Master[5] whose main task is to remove all obstacles to more efficient work. The team works in short cycles of two weeks called "sprints," though the team members meet daily to discuss what's been done and where there are any roadblocks that need clearing. This methodology allows for quick development and testing, especially within small teams.

## **VI. THE NATURE**

Every organization acts according to two fundamental modes:

- An operational mode, aiming at the exploitation of competitive advantage and current position on the market and providing profits and renewal or increase of resources
- An entrepreneurial mode, or project mode, focusing on the research of new position and new competitive advantage, consuming money and resources. To ensure their sustainability and development, all organizations need to combine both modes.

Consideration of how an entity is connected to its climate is now necessary. This paper can define strategy as a linkage function between an organization and its environment. If this paper consider the operating mode, the issue is to optimize the efficiency of the system which is the organization's strategy of penetration with regard to its environment and optimize internal output. In the entrepreneurial style, on the other hand, the challenge is to look at opportunities for expansion or diversification and reconfiguration, choosing the most effective role from a set of possible strategies and selecting the most productive among a set of possible organizational structures.

## **VII. PLANS AND PROJECTS**

Projects provide an important means by which investment and other development expenditures foreseen in plans can be clarified and realized. Sound development plans require good projects; just as good projects require sound planning. The two are interdependent. Sound planning rests on the availability of a wide range of information about existing and potential investments and their likely effects on growth and other national objectives. It is project analysis that provides this information and those projects selected for implementation then become the vehicle for using resources to create new income. Realistic planning involves knowing the amount that can be spent on project activities for a particular kind of investment.

Well-analyzed projects often become the tool for receiving outside assistance when both the client and the external funding provider agree on a specific project undertaking and know the amount of money involved, the pace of loan disbursements and the benefits that are likely to be realized. Nonetheless, project research should not be limited to only those projects for which external funding are pursued. If carefully designed and high-yielding projects are offset by essentially unplanned investments, then the net contribution to the organizational objectives is substantially undermined.

Projects[6] are part of a comprehensive development strategy and a broader planning process. Analysts will identify potential initiatives within the specific plan that meet the policy and organizational goals. In general, there is more than one alternative project available to an investment company; all projects being planned and evaluated should use a common set of assumptions, such as relative scarcity of investment funds, foreign exchange and labor. All the project analyses should use the same assumptions about the company policies and objectives to be reflected.

## **VIII. PROJECT LIFE CYCLE**

Project life cycle generally defines:

- The tasks to be accomplished in each phase or sub phase
- The team responsible of each of the phase

There is a general agreement that the four broad, generic project phases are common alternative terms are shown in parentheses:

- Concept (initiation, identification, selection)

- Definition (feasibility, development, demonstration, design prototype, quantification)
- Execution (implementation, realization, production and deployment, design/construct/ commission, installation and test)
- Closeout (termination, including post-completion evaluation)

The number of phases in a project life cycle depends on a variety of factors like nature of industry, type of output, size of project etc. A researcher has developed a theoretical sequence of phases that may be identified with most of the projects as is outlined below:

- Conceptual
- Planning
- Testing
- Implementation or Execution
- Closure

It is generally better to evaluate incremental increments or distinct phases of operation in planning projects; thus it is possible to judge separately the return to each relatively small increment. As products follow a life cycle of a product, projects follow a life cycle of a project that has certain production stages. Dividing a large project into manageable chunks allows the complex task of managing projects simpler, these chunks can be described in a sequential form as project phases that can be further divided into sub-phases and a compilation of those phases creates what is called a project life cycle. Every phase of a project is characterized by one or more deliverables being completed. Most have four or five phases, but some have nine or more. Sub-projects within projects may also have distinct project life cycles. Importantly, these phases are not always consecutive in nature but are more simultaneous.

For convenience and simplicity points of view, the three commonly known phases is utilized, namely:

- Procurement phase: From inception to the financial closure[7] and beginning of works (tendering; dealing with governments, lenders, insurers, pressure groups, experts)
- Execution phase: Project execution (site installation till routine processes are reached, significant completion)
- Operation and handover phase: From significant completion till the end of defect liability period and handover.

Project execution also known as 'project implementation' phase is the phase where project manager is responsible for allocating work to the various team members, making sure that the team resources are used where most needed and ensuring that the workload is balanced. As intermediate deliverables are completed, they are reviewed for verification (that they are correct and abide by project standards) and validation (that they conform to previous work).

Each of these phases is unique in terms of:

- People allotted to them
- The budget available for carrying out these phases

- Specific time available to finish each of the phases.

## **IX. PROJECT MANAGEMENT TOOLS**

Good management[9] of projects addresses three factors: time, cost and performance. Projects are successful if they are completed on time, within budget, and according to criteria for results. There's a large tool kit of methods, methodologies, and resources to get the many components of a large project under operation. Such methods provide the means for handling the various components involved in a project: planning and scheduling, product development, financial and capital resources management, and progress tracking. However, the success of a project will always rest on the abilities of a project manager and the team members.

- **Work Breakdown Structure (WBS)**

This method is related to project planning and scheduling. This simply is a logical decomposition of the project's activities. The project's overall research is divided into the main subtasks. It begins with the necessary final objective and subdivides it successively into manageable components in terms of size and complexity: plan, mission, framework, subsystem, modules, tasks, subtasks and job elements.

- **Gantt charts**

Developed by Harry Gantt[10] these charts give a timeline for each activity. They are used for planning, scheduling and then recording progress against these schedules.

- **PERT/CPM (Critical Path Method)**

All approaches specifically display precedence relations. Though the two techniques were independently developed during the fifties, they are surprisingly similar. All approaches, PERT and CPM, use a graphical representation of a project called "Project Network" or "CPM diagram" and are used to graphically illustrate the interrelationships between the elements of a project and to display the order in which the tasks are to be carried out.

## **X. CONCLUSION**

This paper can therefore summarize that projects are special in nature and rely on the market, scale, place, design, complexity, business environment, etc. in which they work. The truth seems to be that the one-size concept doesn't fit everything is a good starting point in some cases. To order for a project to be successful, there must first be an increased understanding of the role of project management within the projects and this role must be placed alongside other external requirements and long-term goals in the context of a larger project. Second, the project manager must encourage the client to actively contribute in the planning and manufacturing phases, while at the same time expanding the participation of the project team into the utilization process. This would be properly accommodated in a technique of project evaluation which examines not only the processes of implementation but also the economic and financial results. Finally, one should always bear in mind that successful project management techniques will lead to project accomplishment but project management will not prevent a project from failing. Almost without project management success the right project would succeed, however successful project management will improve its success. To ensure total project success, selecting the right project at the start and filtering out potentially unsuccessful projects will be more important.

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