
1 Characteristics of a Project

1.1 INTRODUCTION

Change is the essence of human development, and project may be considered as the principal vehicle for this change. Both change and project are associated with human race for a long time. Perhaps the first project of humankind was to build his own habitat – a simple house, and shift there from the cave to live in. Similarly, placing a few branches of trees across a small river to cross it was also an example of an early project executed by man. Advancing further into many centuries of human advancement, we can cite examples of magnificent and formidable projects such as the Great Pyramid of Giza in Egypt, Mayan temples in Central America, Mohenjo-Daro structures in ancient India, Acropolis of Greece and the Great Wall of China, to name only a few. These ancient projects were probably executed without much control on expenses or completion time, and were consequently not built frequently, perhaps no more than once in a generation.

In contrast, in our present-day life, projects are regular features and have become a part of modern human activities. Furthermore, we often come across a number of projects being implemented simultaneously. In addition, these projects are of much wider varieties than were observed ever before. This is primarily because project is a change-creating mechanism, and we have all become aware of its power to use our resources more efficiently to bring about this change. The mechanism can be used by a large customer-oriented organization to deploy its resources efficiently in order to respond quickly to the needs of the target customers.

Eiffel tower in Paris, Taj Mahal in Agra (India), Sydney Opera House, Sutong Bridge (1,088-m-long main span) at Yangtze River Estuary in China, Burj Al-Arab hotel (321 m high) in Dubai etc. are examples of modern projects having comparatively shorter life spans. Illustrations of mega projects are Channel Tunnel between England and France (50.5 km long), China's proposed project to connect the Yangtze, Hai, Huai and Yellow rivers (expected duration: 40 years), Greece's Egnatia Highway (670 km long), etc. Similarly, the mechanism of project can be used to benefit small groups of individual homes to enhance their quality of life more efficiently. Grameen Bank concept for microfinancing self-help groups of needy rural women in Bangladesh is a noteworthy example of a mega project for providing social benefit in a developing country.

1.2 WHAT IS A PROJECT?

One can define a project as an activity involving two or more parties working together in an enterprise involving a number of activities. In other words, we can also define

project as a collection of interrelated tasks to be completed within a fixed period and limited cost.

1.2.1 DEFINITION

Over the years, many professional bodies and individuals have, in many different ways, answered the question, 'What is a project?'; however, the definition given in ISO 21500:2012 'Guide to Project Management' is perhaps the most appropriate one. It defines project as

a unique set of processes consisting of co-ordinated and controlled activities with start and finish dates, undertaken to achieve an objective. Achievement of the project objective requires deliverables conforming to specific requirements, including multiple constraints such as time, cost and resources.

It is apparent from this definition that a project is essentially a vehicle for change and there is a fundamental difference between a project and an ongoing organization. While the former is fundamentally a process of change, the latter carries on with the ongoing operations in a continuous, repetitive and routine manner, often following a well-defined route. Any small improvement (change) in the latter case is performed as a part of day-to-day work without affecting the overhead structure.

1.2.2 DISTINCTIVE FEATURES

Irrespective of their size and nature, all projects are marked by a few common distinctive features. Thus, every project is:

- A mechanism for change with the well-defined goal;
- A cost-oriented venture;
- Time-bound;
- Temporary in nature;
- Unique;
- Resource-dependent;
- People-oriented;
- Subject to uncertainty and risk.

These aspects are briefly discussed in the following paragraphs.

1.2.2.1 Change

Project is a vehicle for change. It provides the means by which an individual, an organization or a country can change from one stable state to another distinctly different stable state, from which the desired operation can be carried out, ideally, in a better way. The change in the operation may be quite significant or trifling depending on the expanse or outreach of the project. Project is a linked set of activities for producing an outcome to achieve a well-defined goal. Examples are constructing a new bridge across a river, launching a new magazine, expanding a business or enterprise and campaigning for election in a local body.

1.2.2.2 Cost

Every project needs investment by way of people's time, equipment, computer hardware, computer software licenses, materials, marketing expenses, etc. Thus, there must be a well-defined budget before the project is conceived. This budget needs to be monitored, and every effort should be made to ensure that the project is completed within the agreed budget.

1.2.2.3 Time

The duration for completion may vary from project to project, depending on its size and involvement. However, each project must have a limited and well-defined period of completion time to produce an outcome of certain standard.

1.2.2.4 Temporary in Nature

Every project is a one-off event. It may be installing a new system or software in the office, building a new hospital, replacing machine in a workshop or rehabilitating an existing bridge. In every case, the project is intentionally temporary; it will come and go, leaving behind an intended outcome. Any delay in its completion would not only delay the outcome of the project but also affect the release of the assigned resources for use in other project(s).

1.2.2.5 Uniqueness

Each project is a unique enterprise. No two projects are identical, even though the associated activities may be similar and their outcomes may be the same. As for example, two similar bridges over two different rivers may look alike, but they will have different site conditions, different design norms to comply with, different foundations, different contractors and so on.

1.2.2.6 Resource Dependence

Every project – big or small – is always resource-dependent. Professionals, experts as well as materials and equipment are required for successful execution of any project, right from the conception stage till the project is completed. However, all the resources may not be required simultaneously for the entire duration of the project. Thus, resources for, say, one particular activity may be required only after completion of another preceding activity. Also, it may be that two or more activities may run in parallel, in which case resources for these particular activities will be needed simultaneously. Therefore, to avoid wastage, ideally, resources for each activity should be made available only when needed and taken away when the need is over.

1.2.2.7 Focus on People

All projects are people-oriented and consequently associated with various groups of persons, commonly known as *stakeholders*. Stakeholders are intimately involved in a project, though their interests or priorities may not be similar and may even be in opposition. This aspect needs to be specially noted. For example, one of the stakeholders is the sponsor of a project. This may be an individual or an organization where priority could be to achieve a maximum profit from the project with a minimum cost. On the contrary, the priority of a government or nonprofit private organization would

be to spread the benefit to the maximum number of people (users). Next, a project will need skilled people to conceive, plan and execute it to successful completion. The stakeholders in this group need to be specialists in the respective nature of the project, viz., a railway bridge project, a cancer hospital project or developing new software, etc., as the case may be. The priority of this group is to ensure that the outcome becomes beneficial to the users, in spite of unavoidable uncertainty and possible risks. The third and the most important group of stakeholders is the end users or beneficiaries of the project who will be concerned primarily with the usefulness of the outcome of the project. Depending on the nature of the project, other stakeholders include the politicians, regulatory authorities, environmentalists and social activists, media.

One other aspect regarding ‘cross-linked’ stakeholders needs consideration in this context. A project may need diverse types of expertise from several organizations, each of whom, in turn, may be engaged by several project authorities for its distinctive expertise. The competing demands of these diverse projects may initiate conflicts in the deployment of resources of these expert organizations, creating problems to the customers (the diverse project authorities) in not receiving the expert inputs in time, thereby exposing the project to the risk of slippage in time schedule.

1.2.2.8 Uncertainty and Risk

As already discussed, every project is linked with change, and change always entails a certain degree of uncertainty and risk. Apart from this inbuilt uncertainty, one has to be alert from a number of extraneous uncertainties also. Natural environment has always been uncertain. Earthquakes, floods and hurricanes are examples of such uncertainties. Of late, political, social, economic and technological environments around us have undergone enormous change and are still continuing to do so. As a result, unprecedented instability is being experienced in all spheres of our life, leading to uncertainty and risk. Thus, it is rather impossible to make any project completely free from uncertainty and risk.

1.2.3 BASIC FEATURES

Out of the distinctive features discussed in the previous section, every project has three basic features of topmost importance, which must be monitored throughout the duration of the project. These are:

- Intended outcome, i.e., ‘will the outcome perform its intended task?’
- Time, i.e., ‘how long will it take to complete the project?’
- Cost, i.e., ‘what will be the expense?’

All these features are not only important by themselves, but are at the same time interrelated. In many projects, one or more of the basic features often need adjustment to meet changed priorities. Thus, during the progress of the project, it may be found that the project is running behind schedule. This deficiency may be made up by inducting extra resources (e.g., labor, equipment) to expedite the critical activities. This would, of course, change the estimated project cost. Alternatively, in order to

complete the project within the specified time without incurring extra expense, the intended outcome may have to be compromised and some subsequent project activities modified to keep to the intended time schedule. It also happens that some new activities are added during the progress of the project to achieve additional benefits. In such a case, both time and cost are likely to be increased. Such adjustments of the project profile are quite normal, and it is therefore necessary to closely monitor these basic features of every project to achieve success at the end. Added to these basic features, involvement of the project organization structure is the other internal feature, which largely contributes to the success of a project. Figure 1.1 depicts a model of these four interrelated basic features of a project.

Furthermore, as discussed earlier, there are other external issues that are also associated with the smooth running of a project. These may be collectively termed project surroundings and include issues like timely supply of resources, uncertainty/risk and safety as well as observations/opinions of other stakeholders such as end users, technical experts, consultants, environmentalists and social activists.

1.3 PROJECT LIFE CYCLE

Every project has a life cycle consisting of a number of distinct, value-added and interlinked stages through which it has to proceed in a logical sequence from start to completion. It is a dynamic process in which its status commences from ‘idea (of change for improvement) stage’ to ‘appraisal stage’, followed by actual implementation of the project and culminating in its termination and delivery of the benefits.

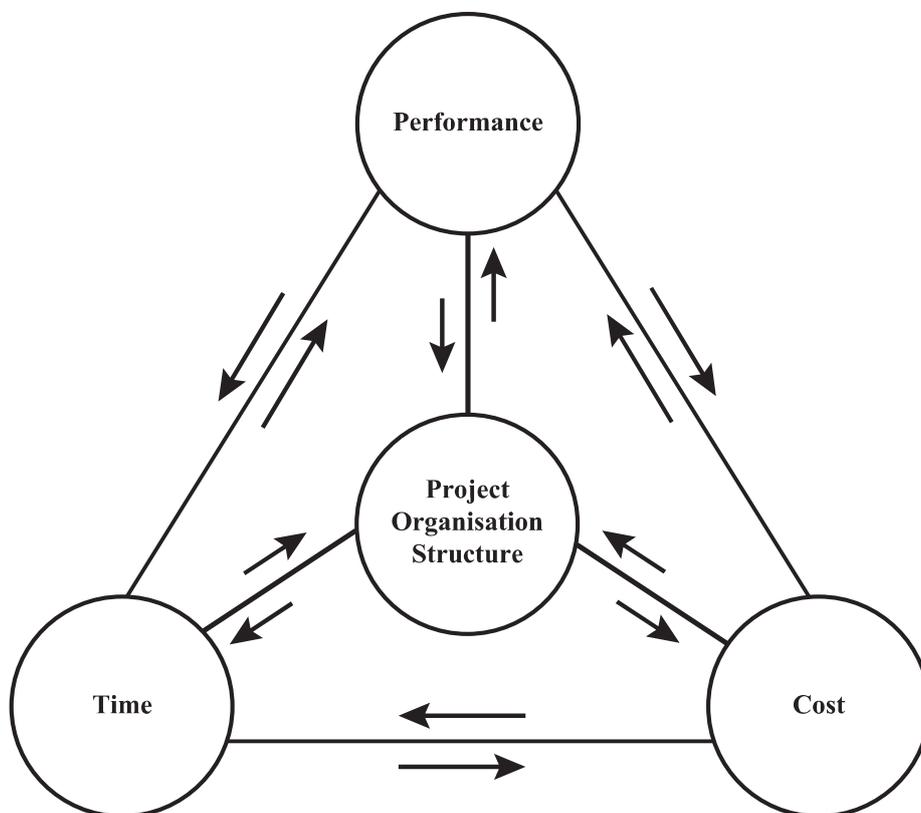


FIGURE 1.1 Model showing the four interrelated basic features of a project.

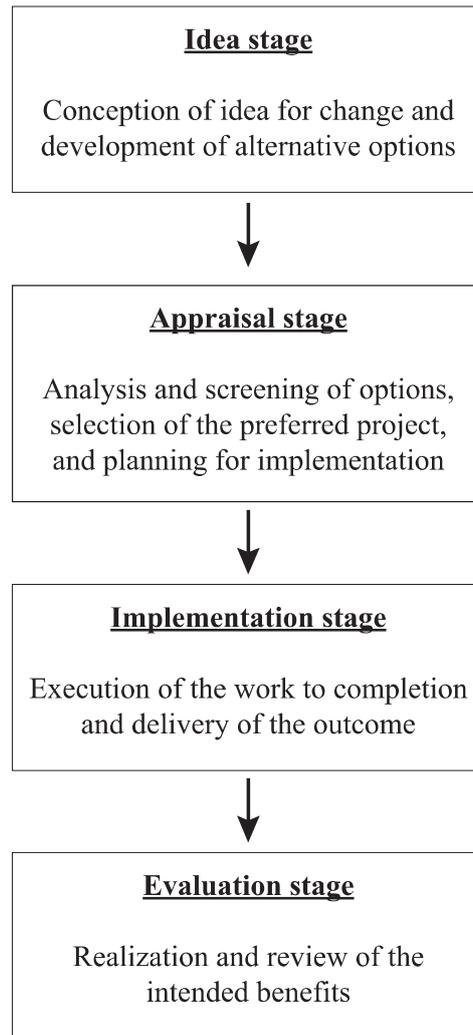


FIGURE 1.2 Typical life cycle of a project.

Normally, a post-project evaluation of realization of the intended benefits is also undertaken. A typical life cycle of a project showing the above stages is shown in Figure 1.2. The salient features of these stages are briefly discussed in the next sections.

1.3.1 IDEA STAGE

This is the first stage of a project when a need for change, i.e., a *prima facie* case for a development idea (change), is conceived, and a series of alternative options for achieving the objective of the development idea are proposed. For example, recurrent traffic congestion may be noticed in a particular road for a considerable period of time. A few alternative solutions, such as widening of the road and by introducing additional traffic lanes or constructing a bypass or a flyover, are offered. Similarly, in an increasing market demand, a special type of chemical product may be noticed and a few alternative schemes are proposed to meet the demand. It is implied that technical feasibility study, estimates of cost and time and other related aspects for successful completion of the options offered are to be examined in a rough but reasonably

comprehensive manner before these are put forward for a detailed analysis and screening in the next stage.

1.3.2 APPRAISAL STAGE

In this stage, the various embryonic options for achieving the objective are analyzed in detail in respect of different aspects.

An important advantage of having a detailed analysis of the issues during appraisal stage is that a relatively small amount of money is involved in learning the success potential of the alternative options and also the uncertainty and risks involved before committing to spend large sums of money in implementing the project. However, awareness of the utility of 'appraisal process' among the stakeholders is sadly still relatively low.

1.3.3 IMPLEMENTATION STAGE

Implementation stage is the most critical stage in the project cycle, when major financial investment takes place. Typically, in terms of duration, this stage is the longest one. Also, the levels of activities reach their peak in this stage. It involves implementation of the diverse tasks evolved during the appraisal stage and finally delivering the outcome. Simultaneously, while these activities are underway, a series of management processes are taken up to monitor and control various aspects of the project. Some of these aspects are:

- Quality assurance;
- Time;
- Financial and other resources;
- Uncertainty and risk;
- Safety.

Once the deliverables have been physically produced to acceptable standards and approved, the project is deemed to have been completed and the outcome is then handed over. This stage also includes releasing the project resources, terminating the input contracts, handing over the relevant project records to the authorities, and finally notifying the stakeholders and interested parties.

1.3.4 BENEFITS DELIVERY STAGE: REALIZATION AND REVIEW OF THE BENEFITS

Once a project is complete, the benefits are obtained. The production starts, direct and indirect employments are created, and other demands are met.

In this stage, a review is undertaken to find out the level of success of the project, i.e., whether the benefits have been delivered as per expected standard and that too, within the stipulated time and financial limit. The findings of both achievements and failures are recorded as a post-implementation review, so that lessons learned from various activities can be utilized for appraisal of future projects.

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