Project Management

Chapter 5

Project Formulation

Project Formulation

- Formulation consists of identifying the scope, schedule and budget for the proposed project. Scope is identified typically through a sketch prepared by a member of Project Management.
- Once the scope has been identified via the sketch, the Director of Project Management evaluates the plan, estimates its total project cost, and estimates the elapsed time schedule for the project.
- The scope, schedule and budget information is summarized in letter form and sent to the initiator of the request.

What is Project Formulation

❖ Project Formulation is defined as taking a first look carefully and critically at a project idea by an entrepreneur to build up an all round beneficial to project after carefully weighing its various components.

❖If the initiator wishes to proceed, he or she must identify a fund source and confirm the source with the business manager of Facilities Finance and Administration. When confirmed, the project is placed in the Project Management queue for assignment to the next available Project Manager.

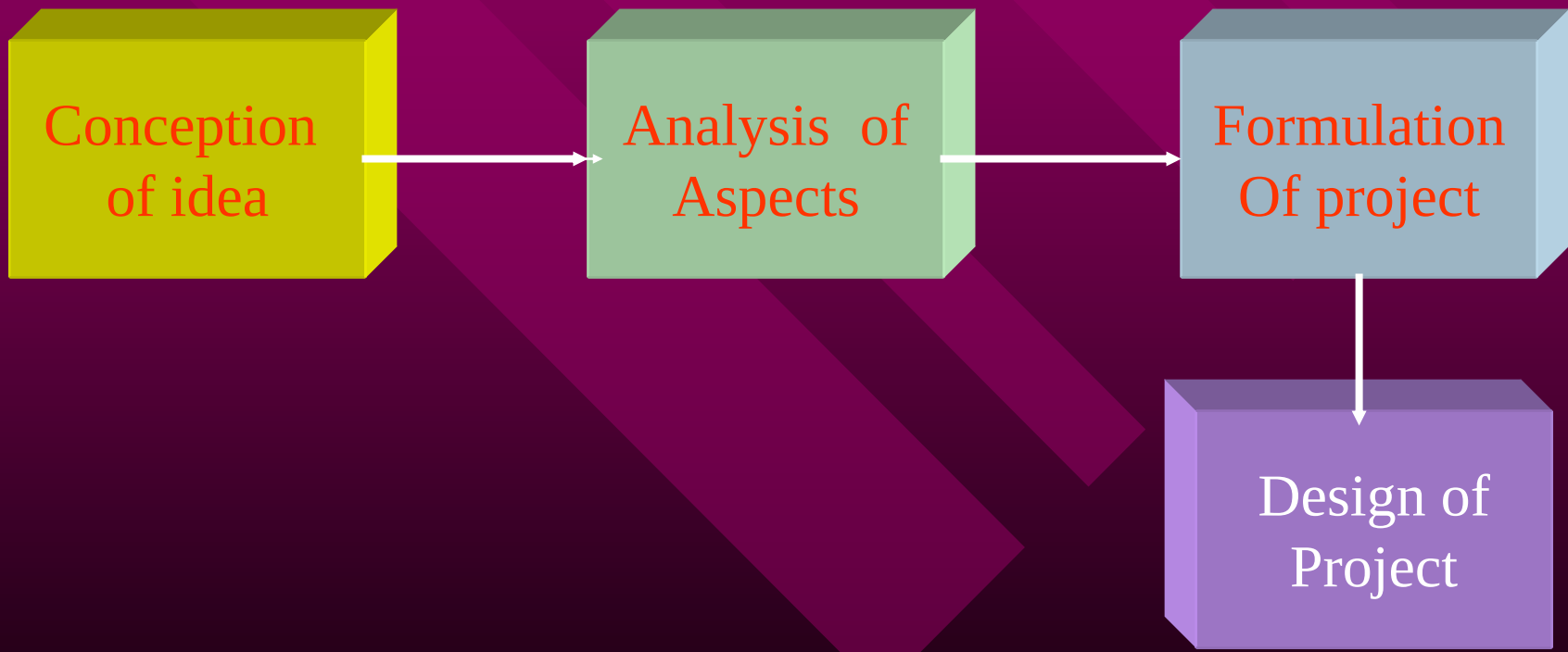
What is Project Formulation

❖ When assigned a project, the first act of the Project Manager is to familiarize himself or herself with the project by reviewing the formulation file. The Project Manager then begins to prepare the required approvals paperwork that must go to the appropriate approvals bodies.

❖Simultaneously, the Project Manager begins to develop a Work Plan which is the basis of a Request for Proposal from the Design Team for the project.

❖ The project then follows the normal course of events as outlined in this Manual for the Design Phases, the Construction Phase and the Closeout Phase.

Phases of Project Formulation

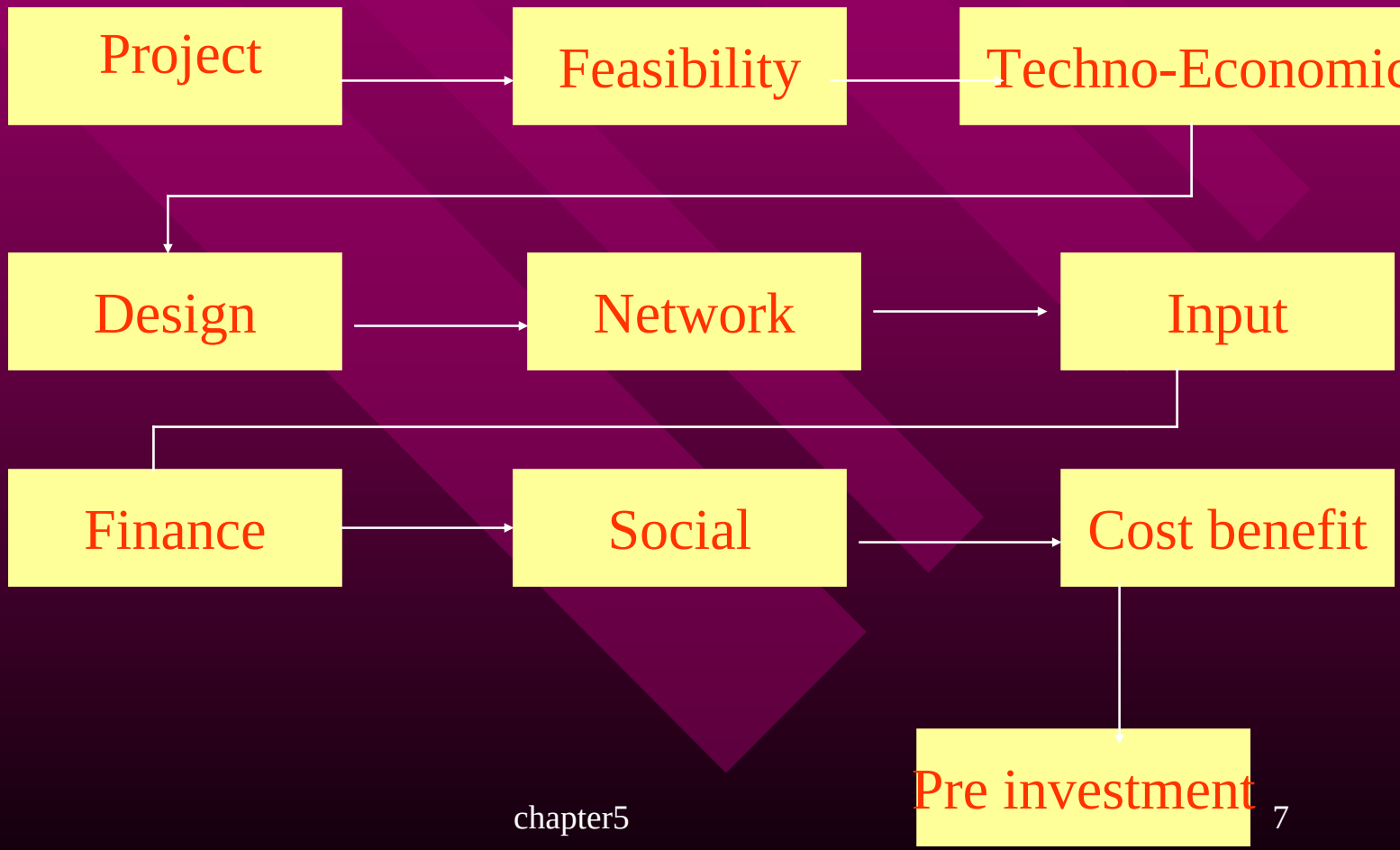


Steps in Project Formulation

The process of Project development has been categorized in seven different steps.

- Feasibility analysis
- Techno Economic Analysis
- Project Design and network analysis
- Input analysis.
- Financial analysis
- Social cost benefit analysis
- Pre investment analysis

Sequential Stages of Project Formulation



Feasibility Analysis

- THE **technical capability of the personnel as well as the capability of the available technology should be considered.** Technology transfer between geographical areas and cultures needs to be analyzed to understand productivity loss (or gain) due to differences (see Cultural Feasibility).

- ***Managerial Feasibility.*** Managerial feasibility involves the capability of the infrastructure of a process to achieve and sustain process improvement. Management support, employee involvement, and commitment are key elements required to ascertain managerial feasibility.

Feasibility Analysis & Reports

❖ ***Economic Feasibility.*** This involves the feasibility of the proposed project to generate economic benefits. A **benefit-cost analysis and a breakeven analysis** are important aspects of evaluating the economic feasibility of new industrial projects. The tangible and intangible aspects of a project should be translated into economic terms to facilitate a consistent basis for evaluation.

❖ ***Financial Feasibility.*** Financial feasibility should be distinguished from economic feasibility. Financial feasibility involves the capability of the project organization to raise the appropriate funds needed to implement the proposed project. Project financing can be a major obstacle in large multi-party projects because of the level of capital required.

Feasibility Analysis & Reports

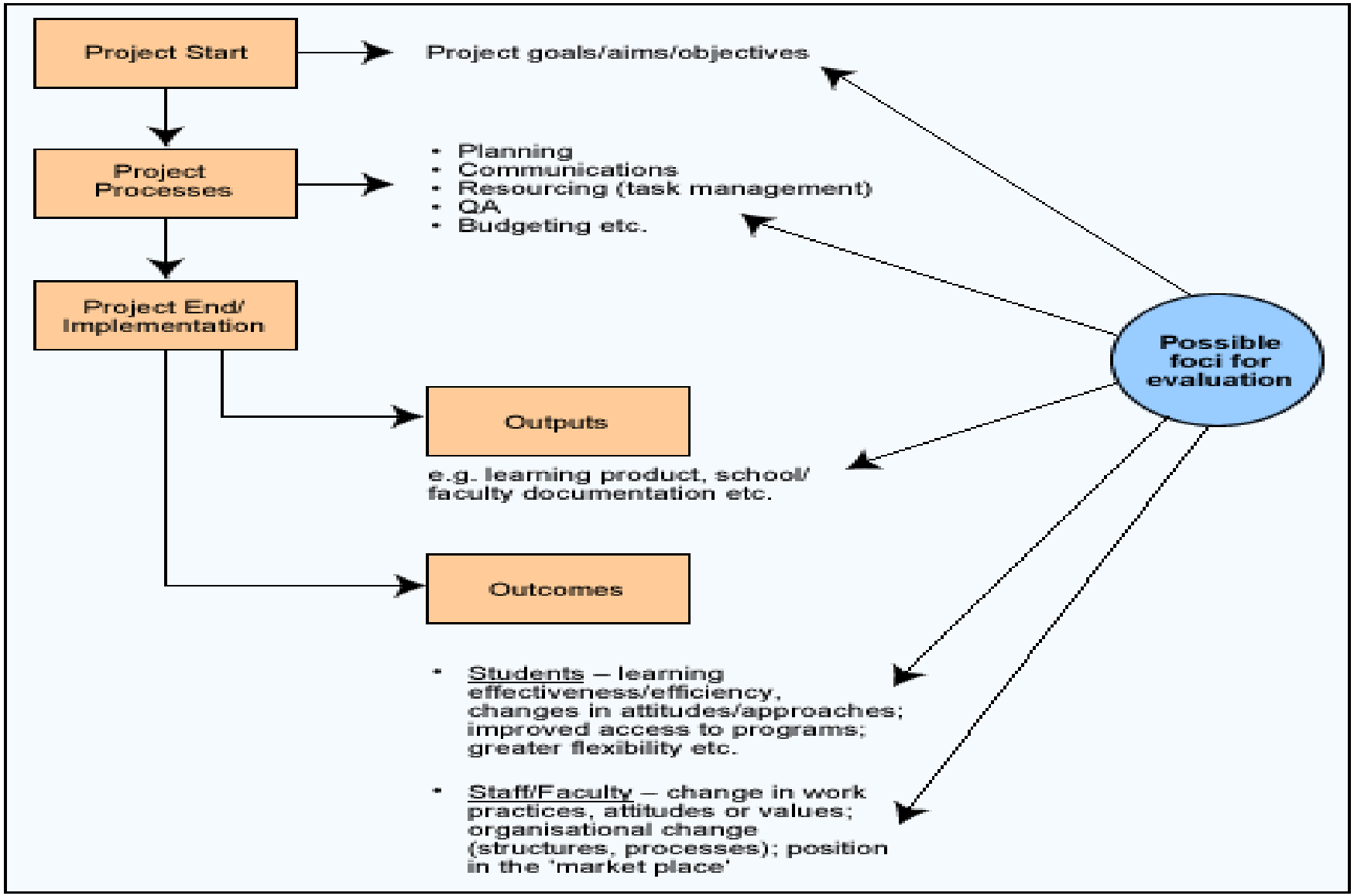
❖ ***Engineering & Design.*** This involves a detailed technical study of the proposed project. Written quotations are obtained from suppliers and subcontractors as needed. Technology capabilities are evaluated as needed. Product design, if needed, should be done at this time.

❖ ***Cost Estimate.*** This involves estimating project cost to an acceptable level of accuracy. Levels of around -5% to +15% are common at this level of a project plan. Both the initial and operating costs are included in the cost estimation. Estimates of capital investment and of recurring and nonrecurring costs should also be contained in the cost estimate document. **Sensitivity analysis** can be carried out on the estimated cost values to see how sensitive the project plan is to the estimated cost values.

Project evaluation

- By definition, a project has:
- a clearly defined beginning and end, with identifiable stages (or phases) between; and
- specified outputs and outcomes that are reflected in the stated goals/aims and objectives of the project.
- In a nutshell, evaluation is about making judgments of 'worth'. In the context of educational projects then, this means judgments about how well the project's objectives have been achieved (in terms of outputs and educational outcomes), and how well the project has run as an enterprise.
- These facets, or aspects, of a project can serve as the key foci or framework for evaluation — see Figure 2.1 below.

Project evaluation



Project evaluation

❖ Organizational Aspect: For successful implementation of project ,it is necessary to have sufficient technical,,skilled or unskilled manpower

❖ Commercial Aspect: This involves the examination of the arrangements for buying or acquiring necessary inputs for the implementation of the projects .

❖Legal Aspects: Adequate security of different types of loans should be made available to the banks as per their requirements.Legal problems relating to the title deeds,land legislation etc that influence the decision with regard to the mortgage of asset

Risk and Uncertainty in investment decision

❖ Each project is characterized by certain amount of risk and uncertainty.The important causes of uncertainty are:

❖ Changes in the price of inputs/outputs

❖ Changes in technology

❖ False estimation of rated capacity

❖ length of construction and running in periods

❖Changes in environment like changes in taste or preferences or the introduction of new substitutes

Project Constraints

❖ The primary impact of project constraints is the likelihood of delaying the completion of the project.

❖There are three types of project constraints: technological, resource and physical. The technological constraints relate to the sequence in which individual project activities must be completed.

❖For example, in constructing a house, pouring the foundation must occur before building the frame. Resource constraints relate to the lack of adequate resources which may force parallel activities to be performed in sequence.

Project Constraints

❖ The consequence of such a change in network relationships is delay in the completion date of the project. We will examine the nature of resource constraints in much greater detail in the next section. Physical constraints are caused by contractual or environmental conditions.

❖For example, due to space limitations an activity such as painting a wall may have to be performed by only one person (Gray and Larson, 2003).

❖In general, from a scheduling perspective, projects can be classified as either time constrained or resource constrained.

Project Constraints

❖ A project is classified as time constrained in situations where the critical path is delayed and the addition of resources can bring the project back on schedule and the project completed by the required date.

❖ However, the additional resource usage should be no more than what is absolutely necessary.

❖The primary focus, for purposes of scheduling, in time constrained projects is resource utilization.

Project Constraints

❖ On the other hand, a project is resource constrained if the level of resource availability cannot be exceeded. In those situations where resources are inadequate, project delay is acceptable, but the delay should be minimal.

❖The focus of scheduling in these situations is to prioritize and allocate resources in such a manner that there is minimal project delay.

❖However, it is also important to ensure that the resource limit is not exceeded and the technical relationships in the project network are not altered.

Project Formulation & Entrepreneur

- During the course of establishment of a new project ,the entrepreneur has to contend with a series of almost impossible situations.
- The second fact which the entrepreneur has to recon with is the absence or non availability of external economics .
- The third problem is the non availability of technically qualified and adequate personnel
- Resources mobilization is the fourth problem
- Over & above the economic hurdles mentioned above,the entrepreneur has to contend with spate of government directive,licensing procedures,import export ,Export policies

Project Profitability Projection

- The results project evaluation depends upon the cost & Profitability projection.The objective in the estimation of cost of production and profitability are primarily to assess:
  - The capacity of the unit to amortize and service the borrowed funds.
  - The earning capacity of the project
  - The capability to share capital
  - the surplus available to license to future growth

In estimating the cost of production ,assessment is made of various inputs and also of production capacity build up

Some of the aspects connected with build up of production capacity over the years are listed below

- Installed capacity,Capacity of utilization
- Product Mix selection,Selling price

Checklist for Feasibility Report

- Examination of Public policy with respect to industry
- Board specification of outputs and alternative techniques of production
- Listing & description of alternative location
- Preliminary estimate of sales revenue, capital costs & operating costs of different alternatives.
- Marketing analysis
- Specification of product specification
- Raw material investigation & specification of sources of supply
- Preparation of layout
- Listing of buildings ,major equipment
- Analysis of profitability

Checklist for Feasibility Report

- **Client Environment - Questions**
- 1. Are all client participants and organizational relationships identified?
- 2. Who are the key decision makers in the client environment?
- 3. Is there clearly defined top-level support for the project? If so who constitutes this support? How much power do they wield?
- 4. Are clients identified as to who are supporters of, resistant to, and indifferent to the system?
- 5. How much time and effort are the clients willing to put into the initial analysis work?
- 6. Do clients clearly understand the current system and its operation?

Checklist for Feasibility Report

- **Client Environment - Deliverables**
- 1. An organizational chart of all participating client areas showing their hierarchical relationship
- 2. A narrative on the political relationships of the major client participants
- 3. A preliminary statement of client expectations
- 4. Identification of any other systems or applications that interrelate with the proposed system
- 5. A description of the client's background and prior experience
- 6. A brief history of previous data systems and procedures used in the application area
- 7. Documentation of client problems with the existing system and the impact of these problems

Checklist for Feasibility Report

- **Problem Statement - Questions**
- 1. Are the reasons for the analysis project clearly defined?
- 2. Are the project limits defined (e.g., resources, time, and funds)?
- 3. Is the development of the system actually planned or is it just under consideration?
- 4. Who are the owners, managers, and users of the proposed system?
- 5. Are objectives set for the new or modified system? If so, what are they and who set them?
- 6. What priority has the organization set for the project?
- 7. What previous systems analysis work has been performed in this application area?
- 8. What is the status of current systems serving the application?

Checklist for Feasibility Report

- **Problem Statement - Deliverables**
- 1. A narrative definition of the project boundaries
- 2. A tentative work plan for the analysis work
- 3. A client contact list
- 4. A tentative resource staffing list
- 5. A priority impact statement concerning the relative importance of the system
- **Information Requirements - Deliverables**
- 1. A comprehensive list of current data bases, files, and supporting implementations
- 2. An evaluation of current data base content with emphasis on: redundancy, missing data or relationships, cleanliness, conversion, and future use

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Planning Commission's Guidelines for Project feasibility report

- The guidelines have been summarized as follows
- General Information : The feasibility report should include an analysis of the industry to which the project belongs .
- Preliminary analysis of alternatives: This should contain present data on the gap between demand and supply for the outputs which are to be produced.
- Project description
- Marketing Plans
- Capital requirement & Costs
- Operating Requirement & cost
- Financial analysis
- Economic analysis

Project Formulation

End Of

Chapter 5