DECISION MAKING

TOPIC 1

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Decision Making

- Tasked to provide leadership in the quest for the attainment of the organizations objectives.
- To be effective one must learn the intricacies of decision making.
- Decision making skill will be very crucial to his success.
- Good decision will provide the right for continuous growth and success.

TOPIC 1 TOPIC 2

www. **Decision-Making as a Management Responsibility**.com

Decision-Making as a Management Responsibility

- The higher the management level is, the bigger and the more complicated decision-making become:

Ex:

- purchase of an air-conditioning unit or purchase of a forklift: he can only buy one of the two; requested items due to budgetary constraints; His choice, however, must be based on sound arguments

TOPIC 1 | TOPIC 2 | TOPIC 3

www.What/is/Decision/Making?.com

1

What is Decision Making?

- Decision making is the process of identifying and choosing alternative courses of action in a manner appropriate to the demand of the situation.
- Must adapt a certain procedure designed to determine the best option available to solve certain problems.

“The Decision Making Process”

THE DECISION-MAKING PROCESS

Presented by: Group 1

Engineering Management

Table of *Contents*

Presented by: Group 1

Engineering Management

Diagnose Problem

-“Identification of the problem is tantamount to having the problem half solved”

- Difference between an actual situation and a desired situation.

Analyze Environment

- Identification of constraints, which may be spelled out as either internal or external limitations.

Example of internal limitations:

1. Limited Funds

2. Limited Training

3.Ill-designed facilities

Example of external limitations:

1. Patents

2. Limited Market

3. Strict environment of local zoning regulations

2 Components of the Environment

Internal environment

- Organizational activities within a firm.

External Environment

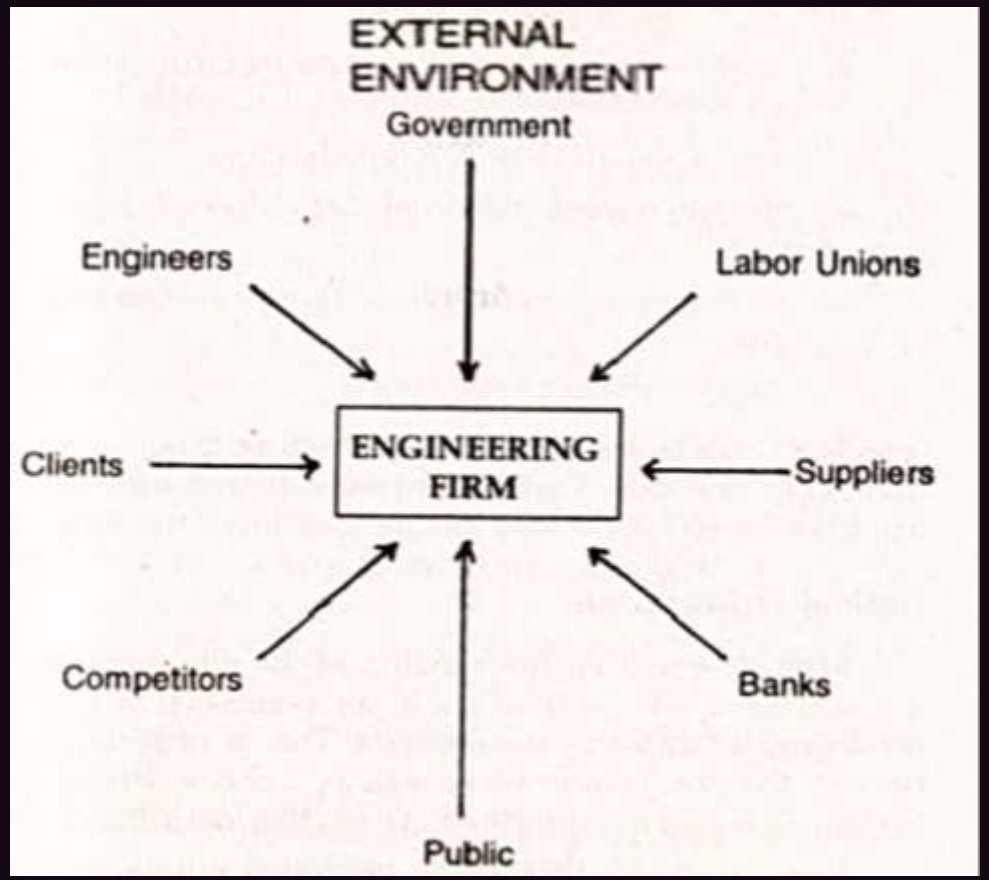
- Variable that are outside the organization and not typically within the short-run control of top management.

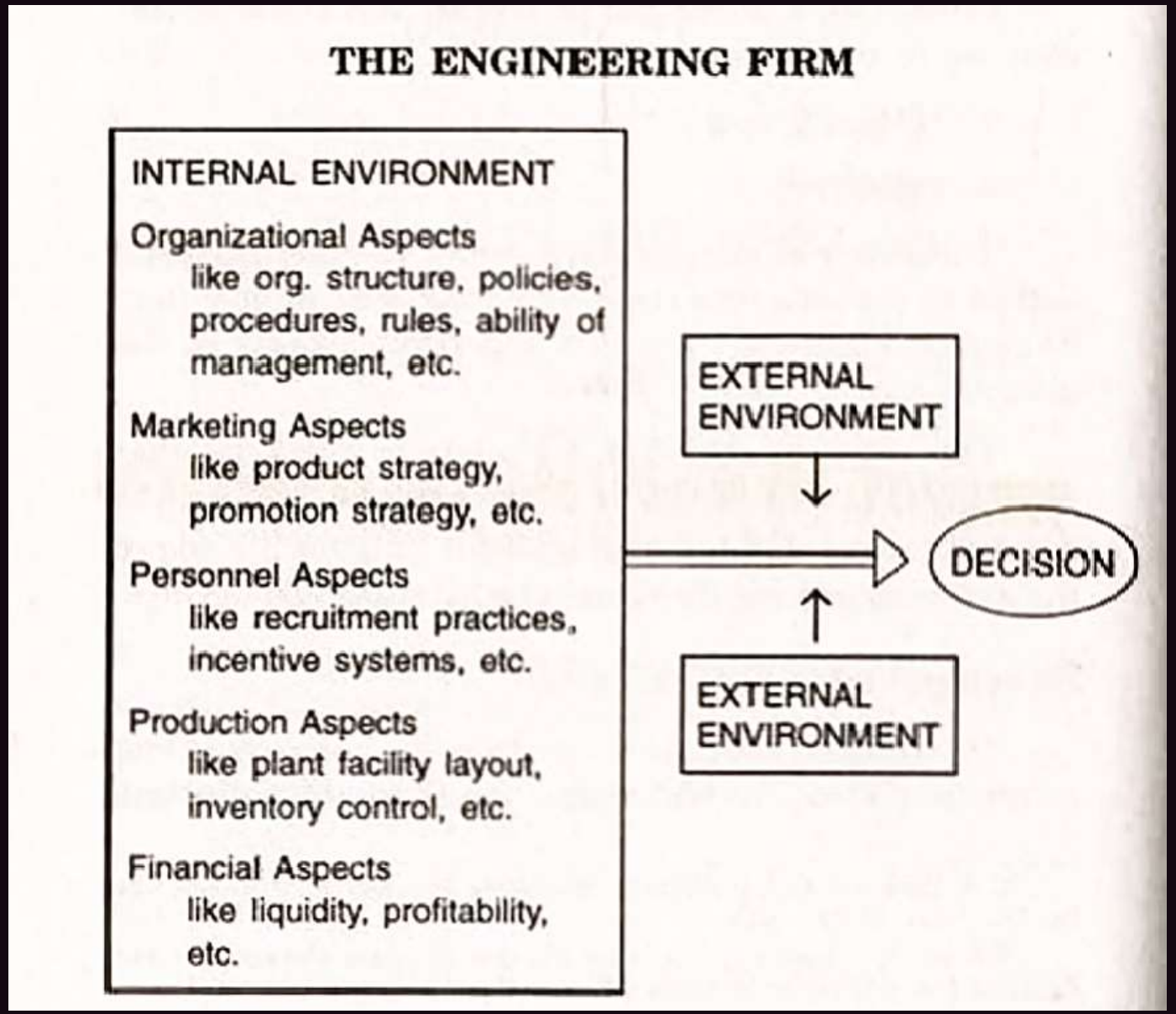
Develop Viable Alternatives

Develop Viable Alternatives

Steps:

1. Prepare a list
2. Determine the viability of each solutions
3. Revise the List





Evaluate Alternatives

- Proper evaluation makes choosing the right solution less difficult.

- How the alternatives will be evaluated will depend on the nature of the problem, the objectives of the firm, and the nature of alternatives presented. Souder suggests that "each alternative must be analyzed and evaluated in terms of its value, cost, and risk characteristics"

Make a Choice

- Choice-making refers to the process of selecting among alternatives representing potential solutions to a problem.
- Webber advises that “particular effort should be made to identify all significant consequences of each choice”.

Implement Decision

- Implementation refers to carrying out the decision so that the objectives sought will be achieved. To make implementation effective, a plan must be devised.
- Resources must be made available.

Evaluate and Adapt Decision Result

Evaluate and Adapt Decision Result

- Use control and feedback mechanisms to ensure results and to provide information for future decisions.
- Feedback refers to the process which requires checking at each stage of the process to assure that the alternatives generated, the criteria used in evaluation and the solution selected for implementation are in keeping with the goals and objectives originally specified.
- Control refers to actions made to ensure that activities performed match the desired activities or goals

Approaches in Solving Problems

2 Approaches in Solving Problems

- Qualitative Evaluation.
- Quantitative Evaluation.

Qualitative Evaluation

- Using Intuition and subjective judgement.

Feedback as a Control Mechanism in the Decision-Making-Process

1. The problem is fairly simple.

2. The problem is familiar.

3. The costs involved are not great / low cost.

4. Immediate decisions are needed.

Quantitative Evaluation

- evaluation of alternatives using any technique in a group classified as rational and analytical.

Go to QUANTITATIVE MODELS FOR DECISION MAKING

QUANTITATIVE MODELS FOR DECISION MAKING

Inventory Models - is a quantitative technique use for decision-making where mathematical tools are use to manage and control stock levels efficiently.

1. **Economic order quantity model**

   - this one is used to calculate the number of items that should be ordered at one time to minimize the total yearly cost of placing orders and carrying the items in inventory.

2. **Production order quantity model**

   - this is an economic order quantity technique applied to production orders.

3. **Back order inventory model**

   - this is an inventory model used for planned shortages.

4. **Quantity discount model**
   - an inventory model used to minimize the total cost when quantity discounts are offered by suppliers.

Queuing Theory

Determine the number of service units that will minimize both customers waiting time and cost of service.

Cars waiting for service at a car service center, ships and barges waiting at the harbor for loading and unloading by dockworkers, programs to be run in a computer system that processes jobs, etc.

Network Models

- large complex tasks are broken into smaller segments.

The two most prominent network models are:

The Program Evaluation Review Technique (PERT)

- a technique which enables engineer managers to schedule, monitor, and control large and complex projects by employing three time estimates for each activity.

The Critical Path Method (CPM)

- this is a network technique using only one time factor per activity that enables engineer managers to schedule, monitor, and control large and complex projects.

01

Forecasting

- may be defined as "the collection of past and current information to make predictions about the future."

02

Regression Analysis

- forecasting method that examines the association between two or more variables.

- simple or multiple depending on the number of independent variables present. When one independent variable is involved, it is called simple regression; when two or more independent variables are involved, it is called multiple regression.

Simulation

- represent reality, on which conclusions about real-life problems can be used.

- develops a mathematical model of the system under consideration.

- it can evaluate the alternatives fed into the process by the decision-maker.

Linear Programming

- used to produce an optimum solution within the bounds imposed by constraints upon the decision

- supply and demand limitations.

Sampling Theory

- Samples of populations are statistically determined to be used for a number of processes, such as quality control and marketing research.
- Sampling, in effect, saves time and money.

Statistical Decision Theory

- Decision theory refers to the “rational way to conceptualize, analyze, and solve problems in situations involving limited, or partial information about the decision environment.
- The purpose of Bayesian analysis is to revise and update the initial assessments of the event probabilities generated by the alternative solutions.
- Bayes criterion selects the decision alternative having the maximum expected payoff, or the minimum expected loss if he is working with a loss table.