# Introduction to Techniques for Decision Making

# Techniques For Decision Making

- Techniques may be defined as methods which provide the decision maker a systematic and powerful means of analysis, based on quantitative data.
- It is a scientific method employed for problem solving and decision making by the management.
- With the help of techniques, the decision maker is able to explore policies for attaining the predetermined objectives.
- In short, techniques are inevitable in decision-making process.

# Techniques For Decision Making

- Techniques for decision making adopt a scientific approach to decision-making. In this approach, past data is used in determining decisions that would prove most valuable in the future.
- The use of past data in a systematic manner and constructing it into a suitable model for future use comprises a major part of scientific management.

- For example, consider a person investing in fixed deposit in a bank, or in shares of a company, or mutual funds, or in Life Insurance Corporation.
- The expected return on investments will vary depending upon the interest and time period.
- We can use the scientific management analysis to find out how much the investments made will be worth in the future.
- There are many scientific method software packages that have been developed to determine and analyze the problems.

# Classification of techniques for decision making

- 1. Quantitative techniques
- 2. Qualitative techniques

# Quantitative Techniques

1. Mathematical Quantitative Techniques
2. Statistical Quantitative Techniques
3. Programming Quantitative Techniques

# Mathematical Quantitative Techniques

- Permutations and Combinations
- Set Theory
- Matrix Algebra
- Determinants
- Differentiation
- Integration
- Differential Equation

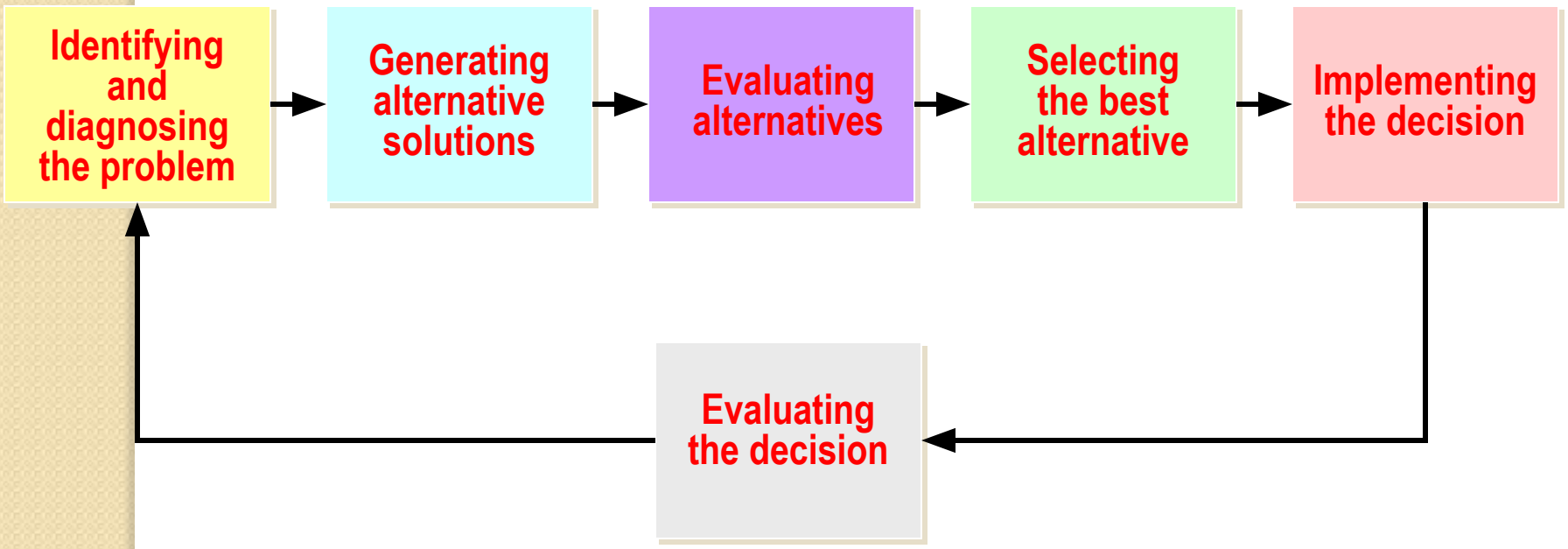
# Statistical Quantitative Techniques

- Collection of data
- Measures of Central Tendency, Dispersion, Skewness and Kurtosis
- Correlation and Regression Analysis
- Index Numbers
- Time series Analysis
- Interpolation and Extrapolation
- Statistical Quality Control
- Ratio Analysis
- Probability Theory
- Testing of Hypothesis

# Programming Techniques

- Linear Programming
- Queuing Theory
- Game Theory
- Decision Theory
- Inventory Theory
- Network programming
- Simulation
- Replacement Theory
- Non Linear Programming
- Sequencing
- Quadratic Programming
- Branch and Bound Technique

# Stages of Decision Making



# STEPS OF DECISION-MAKING PROCESS

Step 1: Identification of the purpose of the decision

Step 2: Information gathering

Step 3: Principles for judging the alternatives

Step 4: Brainstorm and analyze the different choices

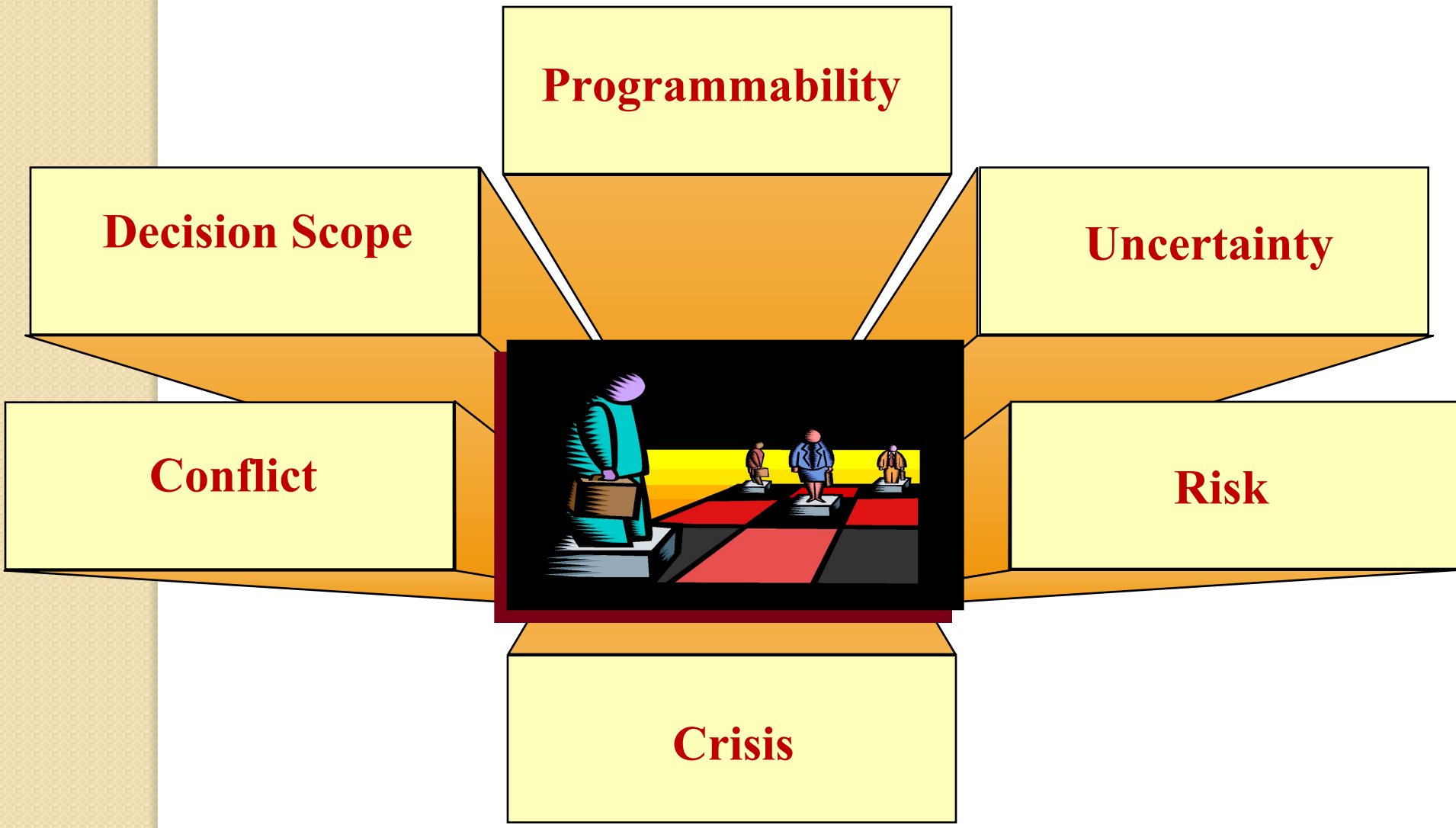
Step 5: Evaluation of alternatives

Step 6: Select the best alternative

Step 7: Execute the decision

Step 8: Evaluate the results

# Characteristics of Management Decision Making



# Evaluating Alternatives

- Decision criteria should be related to the performance goals of the organization and its subunits.
- Decision criteria can include:
  - Costs
  - Profits
  - Timeliness
  - Whether the decision will work
  - Fairness

# Evaluating Alternatives (cont)

- A practical way to apply decision criteria is to consider:
  - *Decision quality* – aspect of decision making based on such facts as costs, revenues, and product design specifications.
  - *Decision acceptance* – aspect of decision making based on people's feelings.

# Approaches to selecting the best alternative

- *Optimizing* – selecting the best alternative from among multiple criteria.
- *Satisfying* – selecting the first alternative solution that meets a minimum criterion.

# Food for thought

- Do you think the day will come when all decisions in a business unit will be made with assistance of quantitative techniques for decision making?
- Give reasons for your answer.

# MCQ

Q1. The first step in decision making is to:

a. establish priorities.

b. establish specific goals and objectives.

c. identify and define the problem.

d. determine courses of the problem.

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ANS: B. establish specific goals and objectives.

# MCQ

Q2. _____ decision making is an organized, exacting, data-driven process.

a. systematic.
b. programmed.
c. non programmed.
d. intuitive.

# MCQ

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ANS:A. systematic.

# MCQ

Q3. An employee in a company is working out a schedule to ensure that all the sales staff arrive at the company conference on time. This is a:

a. non programmed decision.
b. programmed decision.
c. problem decision.
d. crisis decision.

# MCQ

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# MCQ

Q4. _____ refers to the seriousness of a problem's effects.

A. urgency.
B. impact.
C. growth tendency.
D. none of the above.

# MCQ

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A. urgency.
B. impact.
C. growth tendency.
D. none of the above.

ANS: B. impact.

# MCQ

Q5. The concept that a manager's freedom to make totally rational decisions is restricted by internal and external environmental factors and by the manager's own characteristics and decision-making ability is called:

A. bounded rationality.

B. values.

C. objective rationality.

D. A & B.

# MCQ

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C. objective rationality.

D. A & B.

ANS:A. bounded rationality.