Problem Solving And Decision Making

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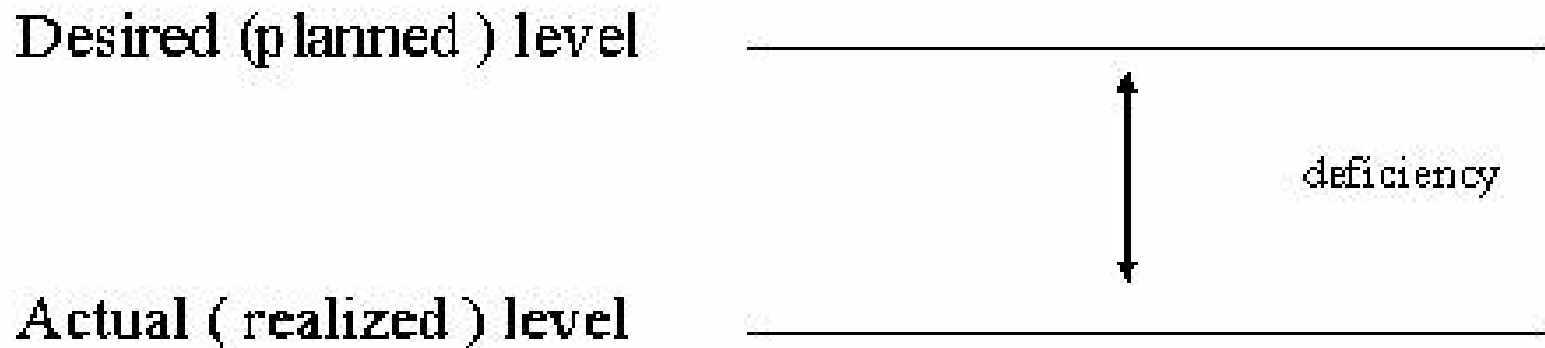# Chapter 1: Problem Solving

1.1 Definition of a Problem

A problem is any difference between an actual situation and a desired situation.

This can be illustrated in the following figure.

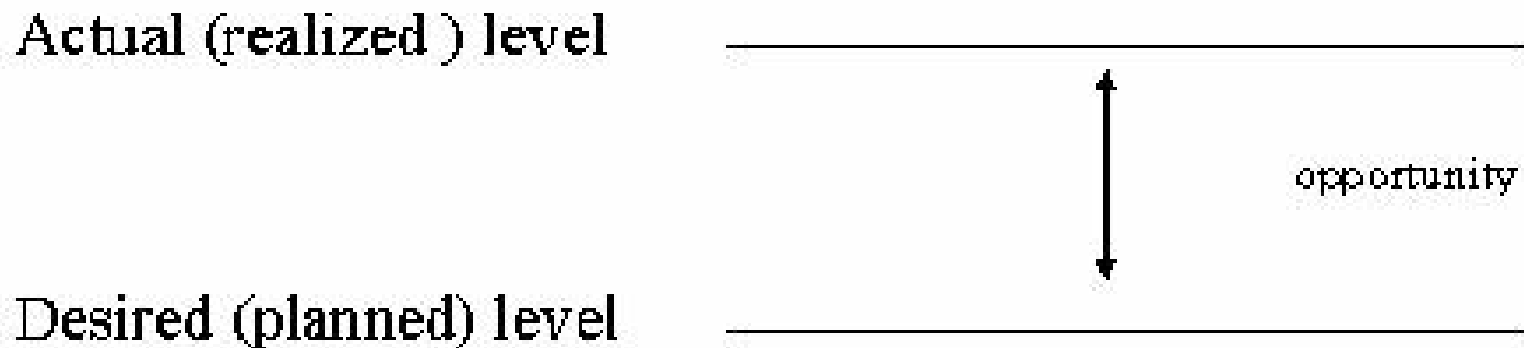# Recognizing a Problem

A.   Performance deficiency problem:

Desired (planned) level _____

deficiency

Actual (realized) level _____

B.   Performance Opportunity problem:

Actual (realized) level _____

opportunity

Desired (planned) level _____

1.2 Problem Situations

Problem situations may be one of the following:

- A performance deficiency, which exists when actual performance is less than desired. For example, turnover or absenteeism suddenly increases is in the work unit

- A performance opportunity, which emerges when an actual situation turns out either better than anticipated, or offers the potential to be so.

Types of Problem Situations

Problem Situation

Performance deficiency

Performance Opportunity
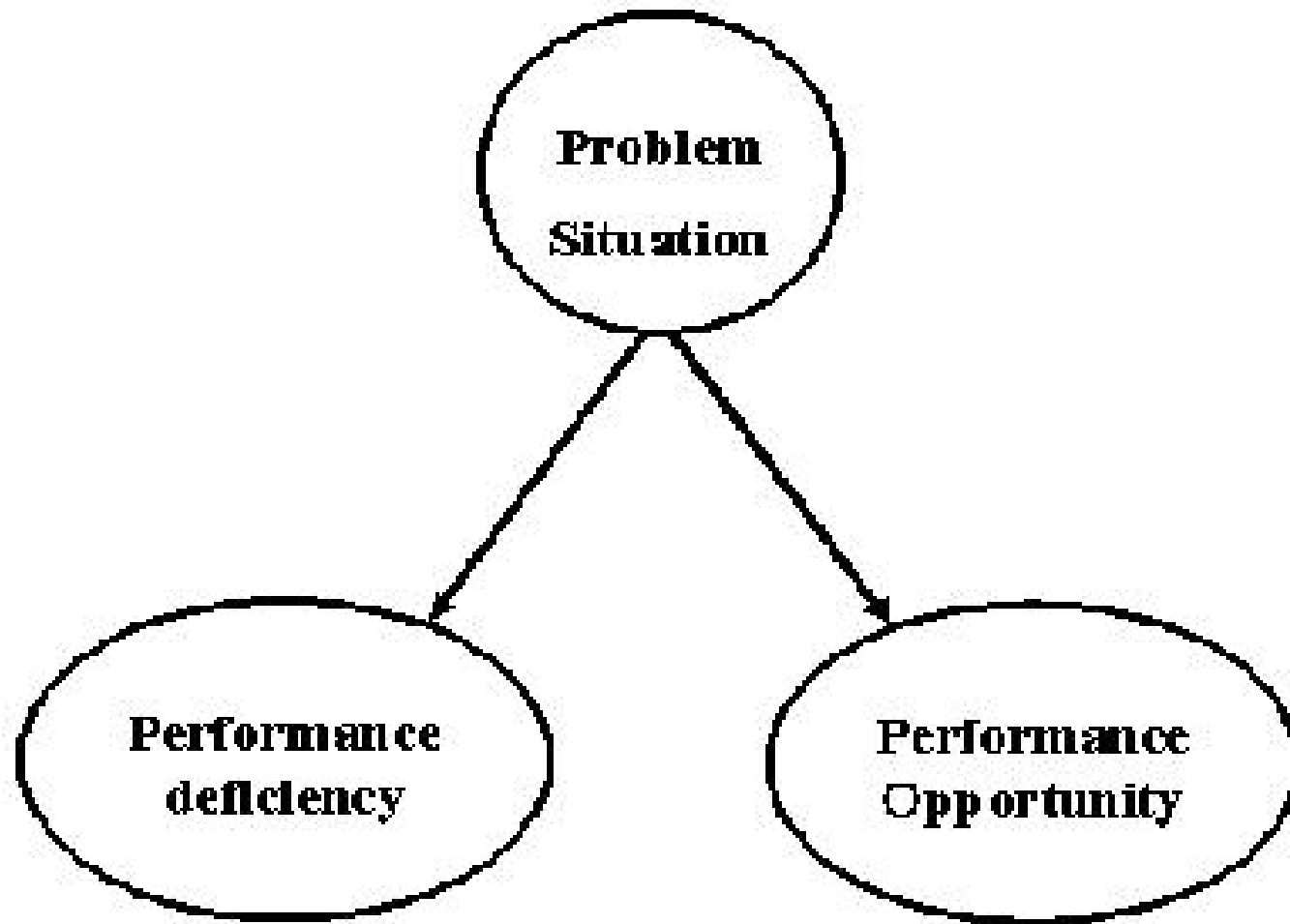
Exists when actual performance is less than desired performance

Exists when actual level is better than anticipated

1.3 Problem Solving

- The Challenge in dealing with any problem, be it a performance deficiency or an opportunity, is to proceed with effective problem solving–the process of identifying a discrepancy between an actual and desired state of affairs and then taking action to resolve the deficiency or take advantage of the opportunity.

- The entire problem-solving process is dependent upon the right information being available to the right people at the right times.
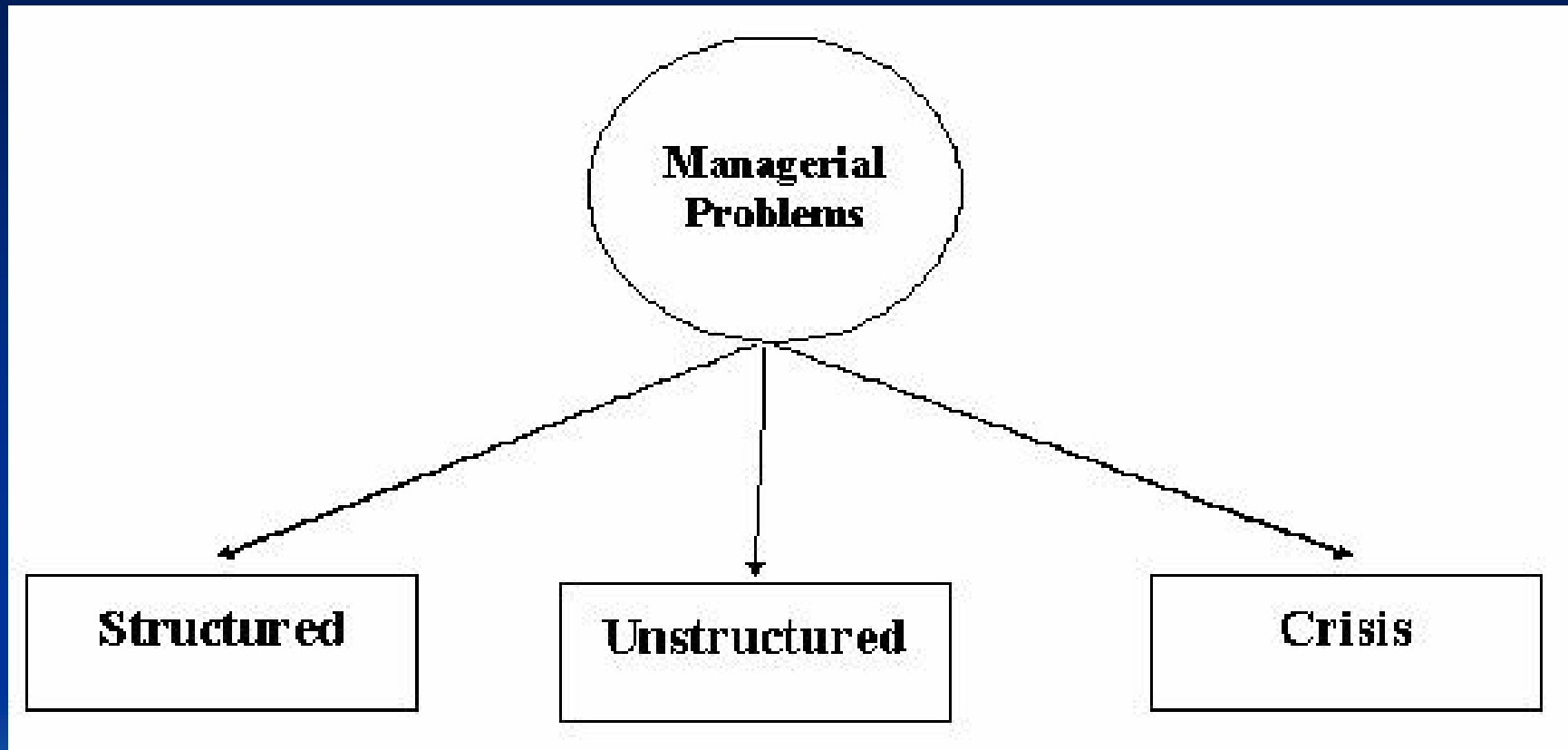
1.4 Types of Managerial Problems

The problems which mangers face are usually classified into 3 main types:

1. Structured problems,
2. Unstructured problems,
3. Crisis problems

Types of Managerial Problems

1.4.1 Structured Problems:

- These are familiar, straightforward, and clear with respect to the information needed to resolve them. They can be expected, and managers can plan ahead and develop specific ways to deal with them, or even can take action to prevent their occurrence.

1.4.2 Unstructured Problems:

- Involve ambiguities and information deficiencies, and often occur as new or unexpected situations. They usually require novel solutions.

1.4.3 Crisis Problems:

- A crisis problem is an unexpected problem that can lead to a disaster if not resolved quickly and appropriately. Managers are installing "early-warning" crisis information systems and developing crisis management plans to deal with them in the best possible ways.

- There is a clear relationship between the types of managerial problems and the decisions applicable to each type .This is shown in the following figure.

Relationship between Types of Managerial problems and Managerial Decisions

Managerial Problem	→	Structured	→	Unstructured	→	Crisis
↓		↓		↓		↓
Managerial Decisions	→	Programmed (Routine) Decisions	→	Non programmed Decision	→	Crisis Management Plans
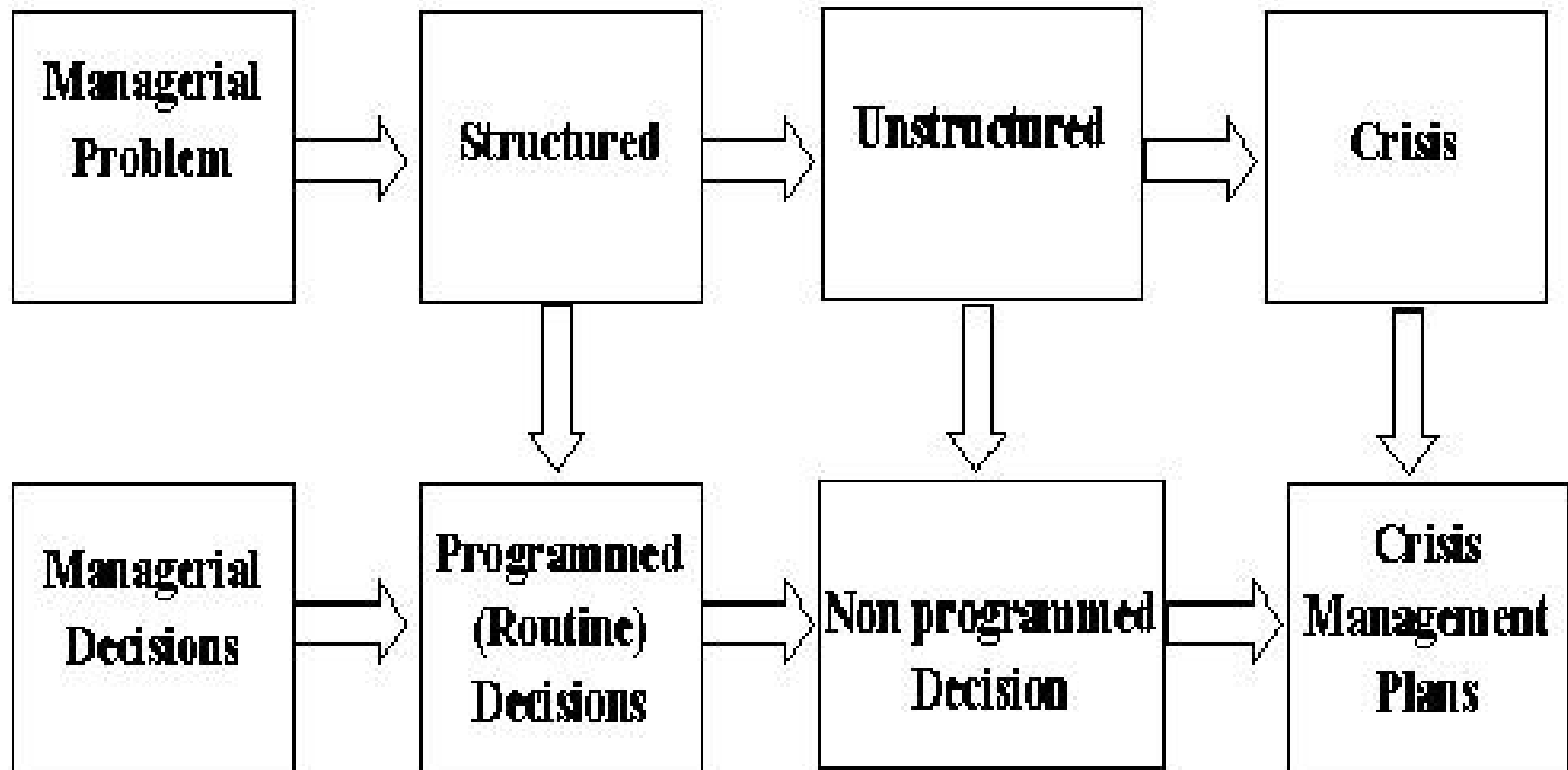
1.5 Problem Environments

- Environments or conditions for problem solving in organizations are usually one of the following:
  - ➢Certainty
  - ➢Risk
  - ➢Uncertainty

- All managers make decisions under each condition, but risk and uncertainty are common to the more complex and unstructured problems faced by top managers.

1.5.1 In Certain Environment,

There is **sufficient information for the problem solver** to know the possible alternatives and what the results of each would be. This is an ideal condition, but few managerial problems occur in certain environments.

1.5.2 In Risk Environment,

the problem solver lacks complete information on action alternatives and their consequences, *but has some sense of the "probabilities" associated with their occurrence.*

1.5.3 In Uncertain Environment,

Information is so poor that managers are unable even to assign probabilities to the likely outcomes of alternative that are known. This is the most difficult problem environment. Uncertainty forces managers to rely heavily on creativity in solving problems.

Chapter 2: Decision-Making

2.1 The Decision-Making Process

- The following figure describes a **typical approach to decision making** and problem solving.

Steps in Decision making and Problem Solving

Step 1		Step 2		Step 3		Step 4		Step 5
Find and define the problem	→	Generate and evaluate alternative solutions	→	Select preferred solution	→	Implement The solution	→	Evaluate results

Recycle process as necessary
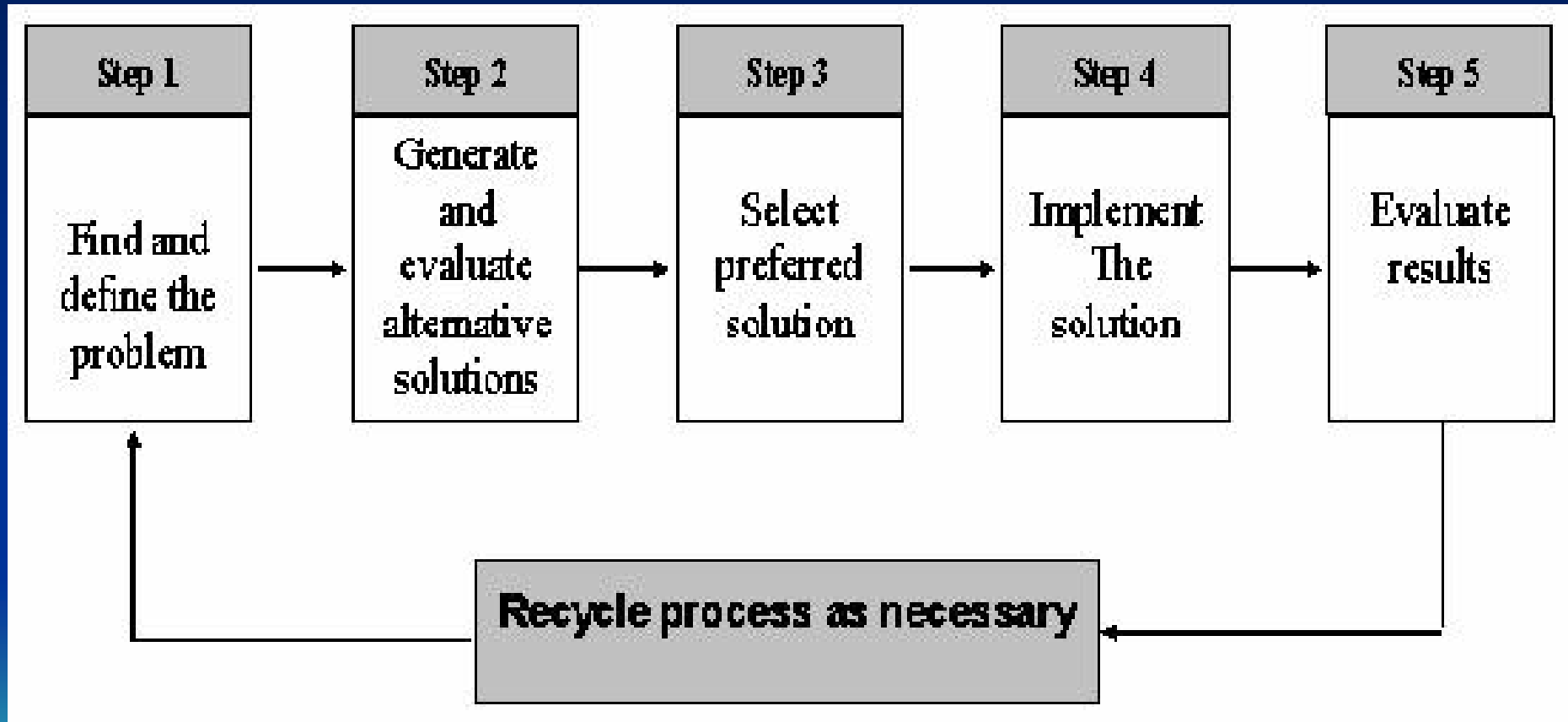
- **Identifying and defining the problem.**
- **Generating and evaluating possible solutions.**
- **choosing a preferred solution and conducting the "ethics double check"**
- **Implementing the Solution.**
- **Evaluating results.**

2.1.1 Identify and Define the Problem

- This is **a stage of information gathering, information processing, and deliberation** . It often begins with the appearance of problem symptoms ،which signal the presence of a performance deficiency or opportunity.

The way a problem is originally defined can have a major impact on how it is eventually resolved .

- **Three common mistakes may occur at this step:**

➤ **Mistake Number 1** *is defining the problem too broadly or too narrowly.*

➤ **Mistake Number 2** is *Focusing on symptoms instead of causes*.

➤ **Mistake Number 3** is *choosing the wrong problem to deal with*. Managers should set priorities and deal with the most important ones first.

2.1.2 Generate and Evaluate Possible Solutions

- At this stage *more information is gathered, data are analysed, and the pros and cons of possible alternatives are identified.*

- The **involvement of other persons is important in order to maximize information and build commitment.**

- **Common errors** in this stage include **selecting a particular solution too quickly, and** *choosing an alternative that has damaging side effects.*

Typical criteria for evaluating alternatives include:

- Benefits
- Costs
- Timeliness
- Acceptability
- Ethical soundness

2.1.3 Choose Solution and Conduct the "Ethics Double Check"

- At this point, **a "decision" is made to select a particular course of action.** Just how this is done and by whom must be resolved in each problem situation. **In some situations,** the best alternative may be selected using a **cost-benefit criterion**; in others, additional criteria may come into play.

2.1.4 Implement the Solution

- After selecting the preferred solution , **appropriate action plans must be established and implemented .**Nothing new can or will happen according to plan unless action is taken . *Managers need the ability and willingness to implement the decision.*

- **Difficulties** at this stage often can trace to **the lack-of-participation error, or the failure to involve those whose support** is **necessary**.

2.1.5 Evaluate Results

- The decision making process is not complete until results **are evaluated.** *If the desired results are not achieved, the process must be renewed to allow for corrective action.* This evaluation is a form of managerial control.

- **In any evaluation**, *both the positive and negative consequences of the chosen course of action should be examined.* Problem solving becomes a dynamic and ongoing activity within the management process.

2.2 Decision-Making Models

Management theory recognizes differences **between two major models** of decision making. These are:

– **the classical decision model**, and

– The **behavioural (administrative) decision model.** The following figure shows these models, in addition to judgment heuristics approaches to decision making.

Classical Administrative, and Judgmental Heuristics Approaches

Classical model

Views manager as acting with complete information in a certain environment

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? Clearly defined problem
? Knowledge of all possible alternatives and their consequences
? Optimizing decision – choice of the " optimum " alternative

Administrative model

Views manager as having cognitive limitations and acting with incomplete information in risk and uncertain environments

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? Problem not clearly defined
? Knowledge is limited on possible alternatives and their consequences
? Satisficing decision – choice of the " satisfactory " alternative

Judgmental heuristics approach

Heuristics are adopted to simplify managerial decision making

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Decisions are influenced by:
? Information readily available in memory – the available heuristic
? Comparisons with similar circumstances – the representative heuristic
? Current situation –
The anchoring and adjustment heuristic

2.2.1   The classical decision model views the manager as acting in a certain world. Here, the manager **faces a clearly defined problem and knows all possible alternatives and their consequences**.

As a result, *he can make an optimizing decision that gives the absolute best solution*. This model is a very rational approach that assumes perfect information is available.

2.2.2 Behavioural scientists question the assumptions of the classical model.

- They recognize the existence of cognitive limitations, or limits to our human information-processing capabilities. *They create a bounded rationality which means that decisions are rational only within the boundaries defined by the available information.* The administrative decision model assumes that people have only partial knowledge about alternatives and their consequences.

- Consequently, the first alternative that appears to give a satisfactory resolution is likely to be chosen. This tendency is called sacrificing.

2.2.3 Judgmental Heuristics

Faced with complex environments, limited information, and cognitive limitations, people tend to use simplifying strategies for decision making. These strategies are called **heuristics,** and their use can cause decision errors. **Awareness of judgmental heuristics,** and their potential biases can help improve decision-making capabilities.

There are 3 main types of heuristics:

➢ The availability heuristic.

➢ The representatives heuristic.

➢ The anchoring & adjustment heuristic.
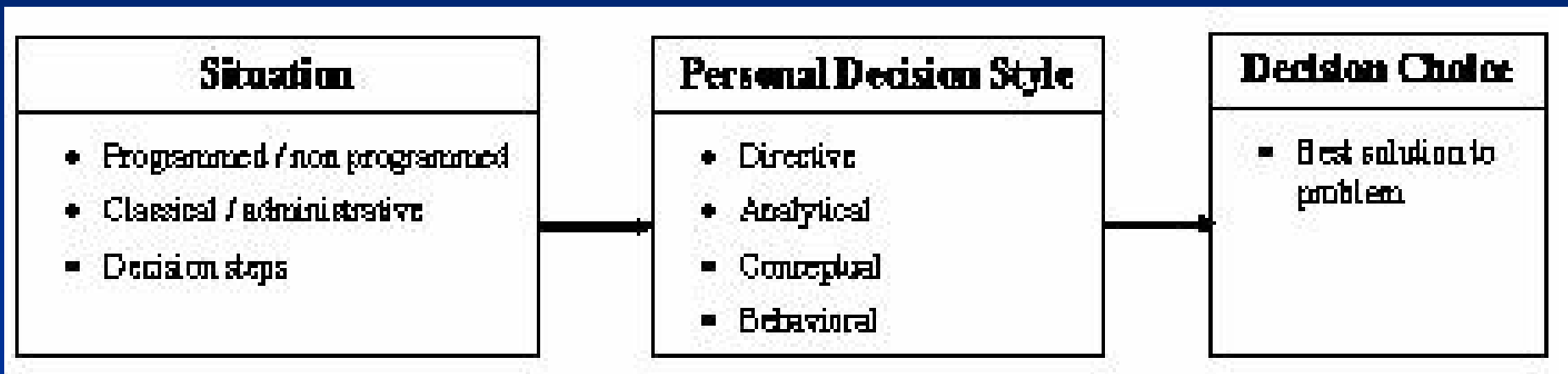
2.4 Personal Decision Framework

- Not all managers go about making decisions in the same way. **There are significant differences in the ways managers may approach problems** and make decisions concerning them.

These differences can be explained by **the concept of personal decision style.**

- This concept refers to differences among people with respect to **how they perceive problems and make decisions.** There are **4 major decision styles**:

    a) directive

    b) analytical

    c) conceptual, and

    d) Behavioural.

The role of personal style in the decision making process

Situation	Personal Decision Style	Decision Choice
• Programmed / non programmed • Classical / administrative ■ Decision steps	• Directive • Analytical ■ Conceptual ■ Behavioral	■ Best solution to problem

2.4.1 The directive style,

- It is used by people who prefer simple, clear-cut solutions. Managers who use this style often make decisions quickly because they don't like to deal with a lot of information and may consider only one or two alternatives.

- People who prefer this style generally are efficient and rational and prefer to rely on exiting rules or procedures.

2.4.2 In the analytical style,

on the other hand, managers like to consider complex solutions based on as much data as they can gather, they carefully consider alternatives and often base their decisions on objective, rational data. They search for the best possible decision based on the information available.

2.4.3 In the conceptual style,

People like to consider a broad amount of information. However they are more socially oriented than those with an analytical style and like to talk to others about the problem and possible alternatives for solving it. They like to solve problems creatively.

2.4.4 The behavioural style

is often adopted by managers having a deep concern for others as individuals. They like talk to people one-on-one and understand their feelings. They are usually concerned with the personal development of others and may make decisions that help others achieve their goals.

2.5 Increasing Participation in Decision Making

- Managers do make decisions as individuals, but decision makers more often are part of a group. Indeed, major decisions rarely are made entirely by an individual. Effective decision making often depends on whether managers involve the right people in the night ways in helping them solve problems.

The following are the advantages and disadvantages of participative decision making:

A- Advantages: Broader perspective for problem definition and analysis. More knowledge, facts, and alternative can be evaluated. Discussion clarifies ambiguous problems and reduces uncertainty about alternatives. Participation fosters member satisfaction and support for decision

B -Disadvantages: Time-consuming; wasted resources if used for programmed decisions. Compromise decisions may satisfy no one. Groupthink: Group norms may reduce dissent and opinion diversity. No clear focus for decision responsibility

2.6 Improving Decision-Making Breadth and Creativity

- In today's fast-changing world, **decisions often must be made quickly** and an organization's ability to stimulate the creativity and innovativeness of its employees is becoming increasingly important.

- **Competitive pressures are challenging managers to create environments** that foster and support creative thinking and shaping of diverse opinions. In addition, the growing use of information technology is making it easier than ever to share information.

- An environment in which bosses make all decisions and hand them down to frontline workers is becoming inappropriate and inefficient.

- **How can managers pursue the advantages of participation and overcome some of the disadvantages?**

A **Number of techniques** have been developed to help individuals and groups **make better decisions**.

The two common techniques are:

a) **Brainstorming and**

b) **Devil's advocate.**

a) **Brainstorming**

- **uses a face-to-face, interactive group** to spontaneously suggest ideas for problem solution.

- *The technique encourages members to suggest alternatives regardless of their likelihood of being implemented.*

- No critical comments are allowed until all suggestions have been listed. The object of brainstorming is to promote freer, more flexible thinking and to enable group members to build on one another's creativity.

b) Another technique is to **assign a devil's advocate** the role of challenging the assumptions and assertions made by the group. **The devil's advocate forces the group to rethink its approach to the problem and to avoid reaching premature consensus** or making unreasonable assumptions before proceeding with problem solutions.