

# Developing Management Skills

## **Chapter 3:**

# **Solving Problems Analytically and Creatively**

# A Model of Problem Solving

- Step 1: Define the Problem
  - Differentiate fact from opinion
  - Specify underlying causes
  - Tap everyone involved for information
  - State the problem explicitly
  - Identify what standard is violated
  - Determine whose problem it is
  - Avoid stating the problem as a disguised solution

# A Model of Problem Solving

- Step 2: Generate Alternative Solutions
  - Postpone evaluating alternatives
  - Be sure all involved individuals generate alternatives
  - Specify alternatives that are consistent with goals
  - Specify both short- and long-term solutions
  - Build on others' ideas
  - Specify alternatives that solve the problem

# A Model of Problem Solving

- Step 3: Evaluate and Select an Alternative
  - Evaluate relative to an optimal standard
  - Evaluate systematically
  - Evaluate relative to goals
  - Evaluate main effects and side effects
  - State the selected alternative explicitly

# A Model of Problem Solving

- Step 4: Implement and Follow Up on the Solution
  - Implement at proper time and in the right sequence
  - Provide opportunities for feedback
  - Engender acceptance
  - Establish ongoing monitoring system
  - Evaluate based on problem solution

# Constraints on the Analytical Problem-Solving Model

- Defining the problems
  - Lack of consensus on the problem
  - Acceptance of problem definition
  - Symptoms are often confused with the real problem
  - Confusing information

# Constraints on the Analytical Problem-Solving Model

- Generating Alternatives
  - Alternatives are evaluated as they are proposed
  - Few possible alternatives are usually known
  - The first acceptable solution is usually accepted
  - Alternatives are based on what was successful in the past

# Constraints on the Analytical Problem-Solving Model

- Evaluating and Select an Alternative
  - Information on alternatives is limited
  - Search for information occurs close to home
  - The type of information is constrained by other factors
  - Gathering information is costly
  - Preferences for the best alternatives are not always known



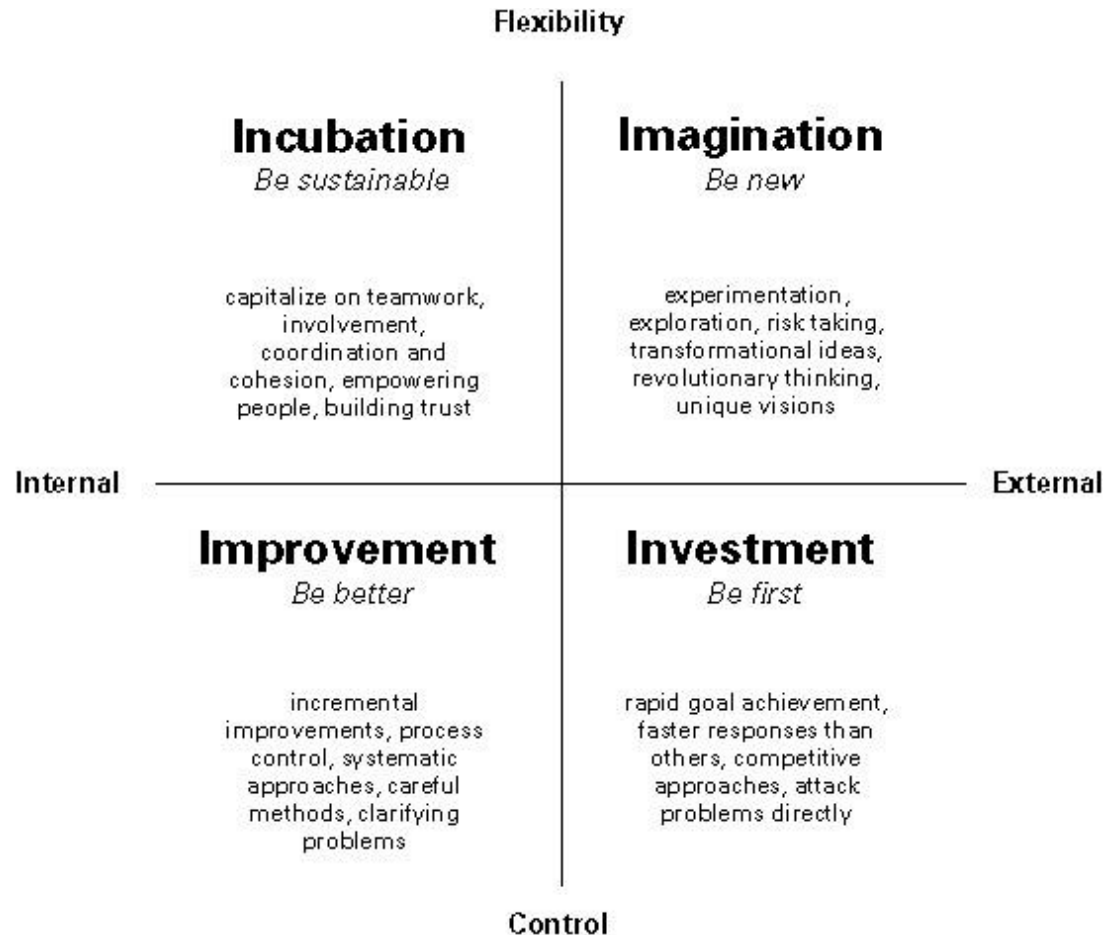
# Constraints on the Analytical Problem-Solving Model

- Implementation and Follow up
  - Acceptance is not always forthcoming
  - Resistance to change
  - Uncertainty about what part of solution to monitor
  - Political and organizational processes must be managed
  - It may take a long time to implement a solution

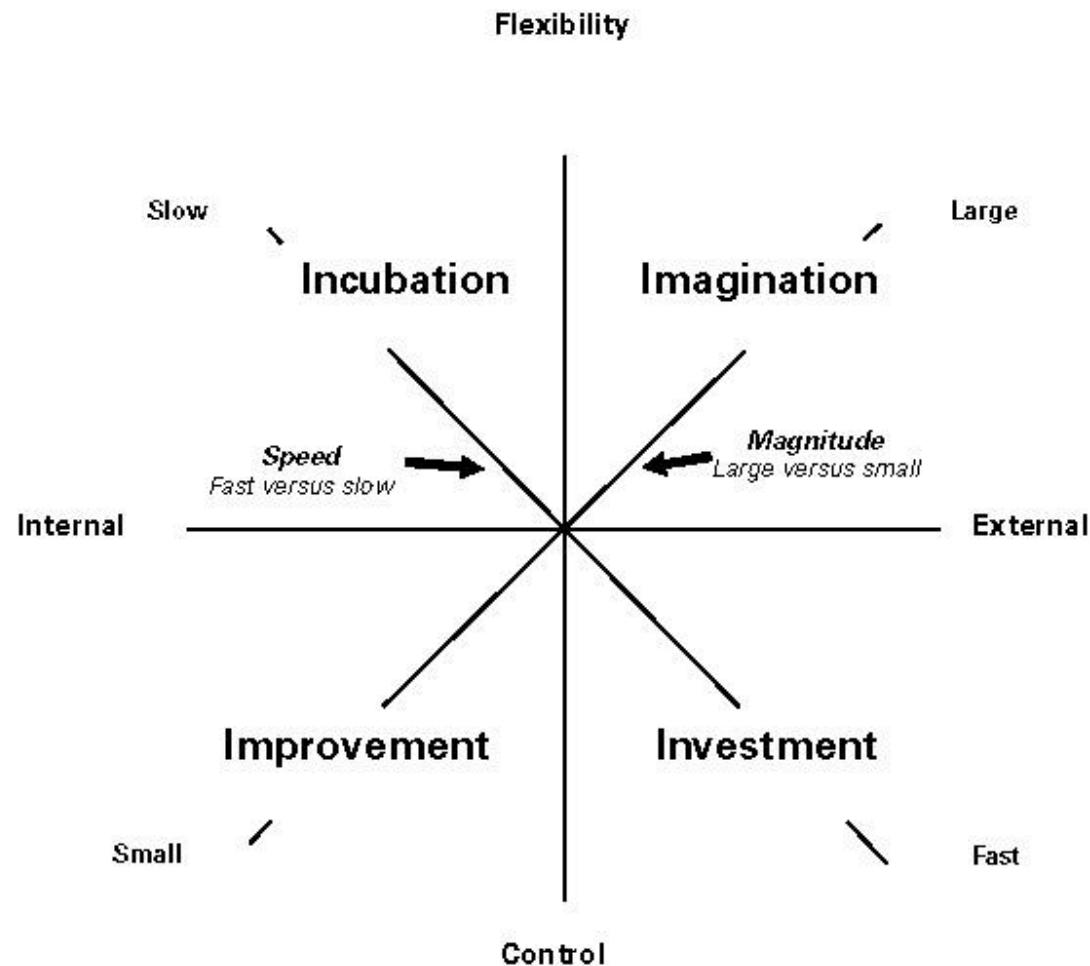
# Impediments to Creative Problem Solving

- Most people assume creativity is one dimensional
- Almost everyone has created blocks that inhibit our creativity

# Four Types of Creativity



# Key Dimensions of the Four Types



# Conceptual Blocks

Mental obstacles that constrain the way problems are defined.

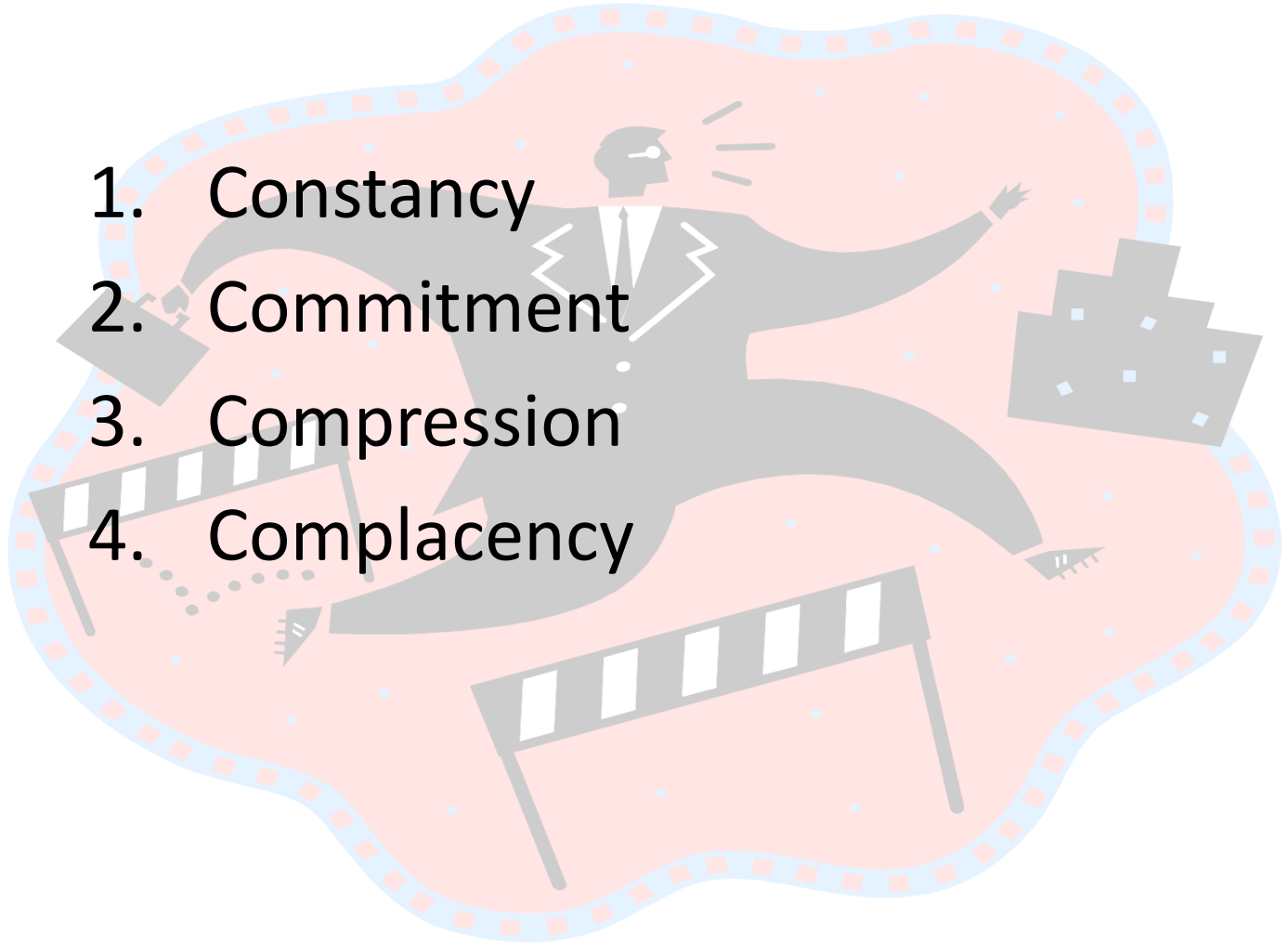


# Two Examples

1. Percy Spencer's Magnetron led to the invention of the microwave
2. Spence Silver's Glue led to the development of the enormously popular Post-It Notes

# Conceptual Blocks

1. Constancy
2. Commitment
3. Compression
4. Complacency



# deBono's Ways of Thinking

- Vertical Thinking

- Continuity
- Chooses
- Stability
- Searches for what is right
- Analytic
- Where the idea came from
- Develops an idea

- Lateral Thinking

- Discontinuity
- Changes
- Instability
- Searches for what is different
- Provocative
- Where the idea is going
- Discovers the idea



# Multiple Thinking Languages

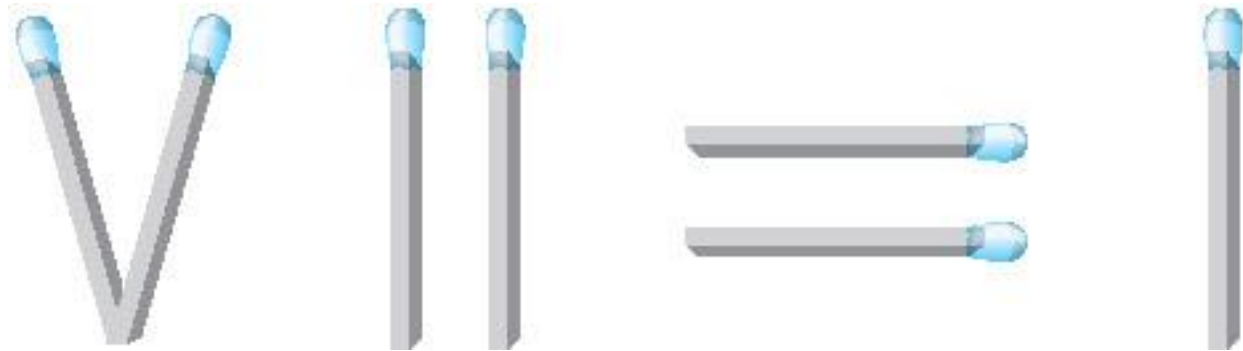
- Words
- Symbols
- Sensory (i.e. smell)
- Feelings and emotions
- Visual imagery

# Multiple Thinking Languages

The more languages available to problem solvers, the more creative the solution will be.



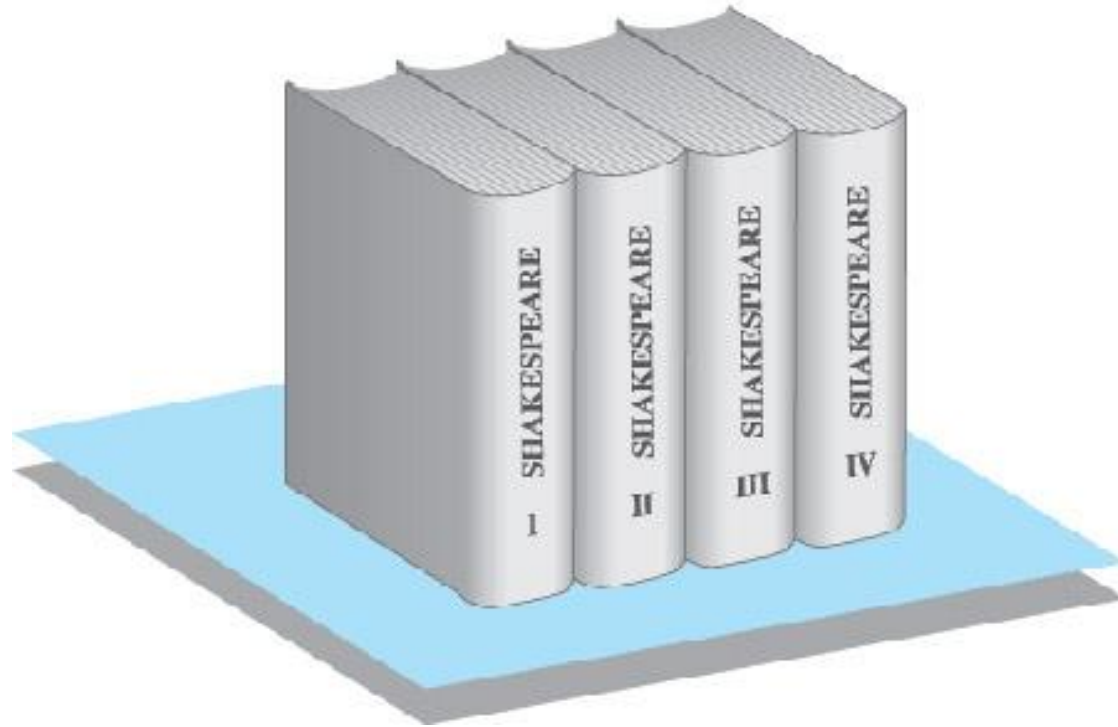
# The Matchstick Configuration



# Perceptual Stereotyping

When individuals define present problems in terms of problems that they have faced in the past.

# Shakespeare Riddle



# Ignoring Commonalities

Creativity is blocked when individuals fail to find the common thread that exists between dissimilar problems.

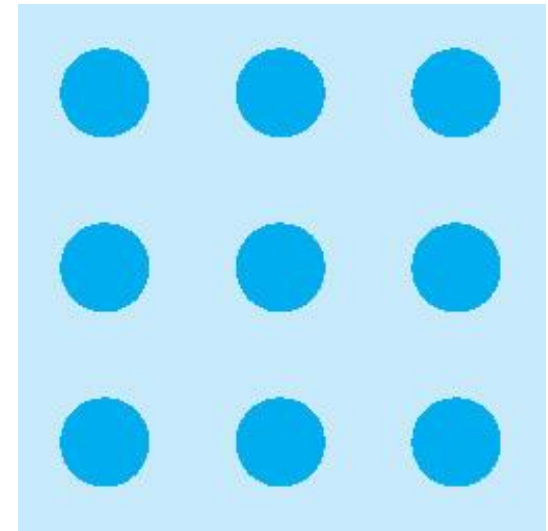
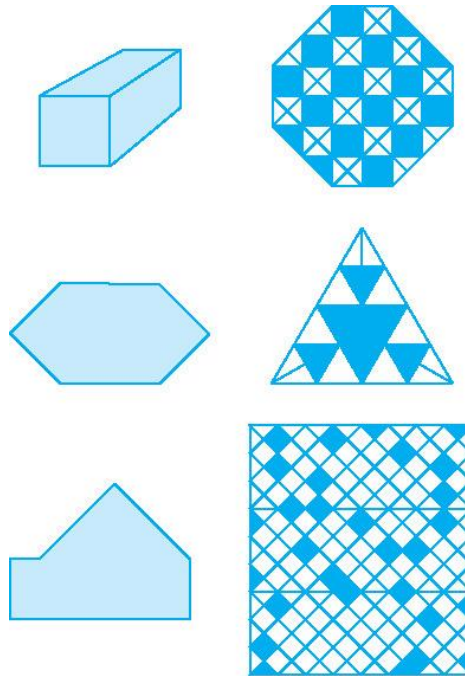


# Name That Ship!



# Examples of Compression

Artificial Constraints



Separating  
Figure From  
Ground



# Examples of Complacency

- Noninquisitiveness: Unwillingness to ask questions
- Bias against thinking:  
Proclivity to avoid doing mental work

**Table 3.4**   **Exercise to Test Ambidextrous Thinking**

LIST 1	LIST 2
sunset	decline
perfume	very
brick	ambiguous
monkey	resources
castle	term
guitar	conceptual
pencil	about
computer	appendix
umbrella	determine
radar	forget
blister	quantity
chessboard	survey

# Stages in Creative Thought

- Preparation
- Incubation
- Illumination
- Verification



# Ways to Improve Problem Definition

- Make the strange familiar and the familiar strange – Synectics
- Elaborate the definition
- Reverse the definition

# Ways to Generate More Alternatives

1. Defer judgment – Brainstorming
2. Expand current alternatives
3. Combine unrelated attributes

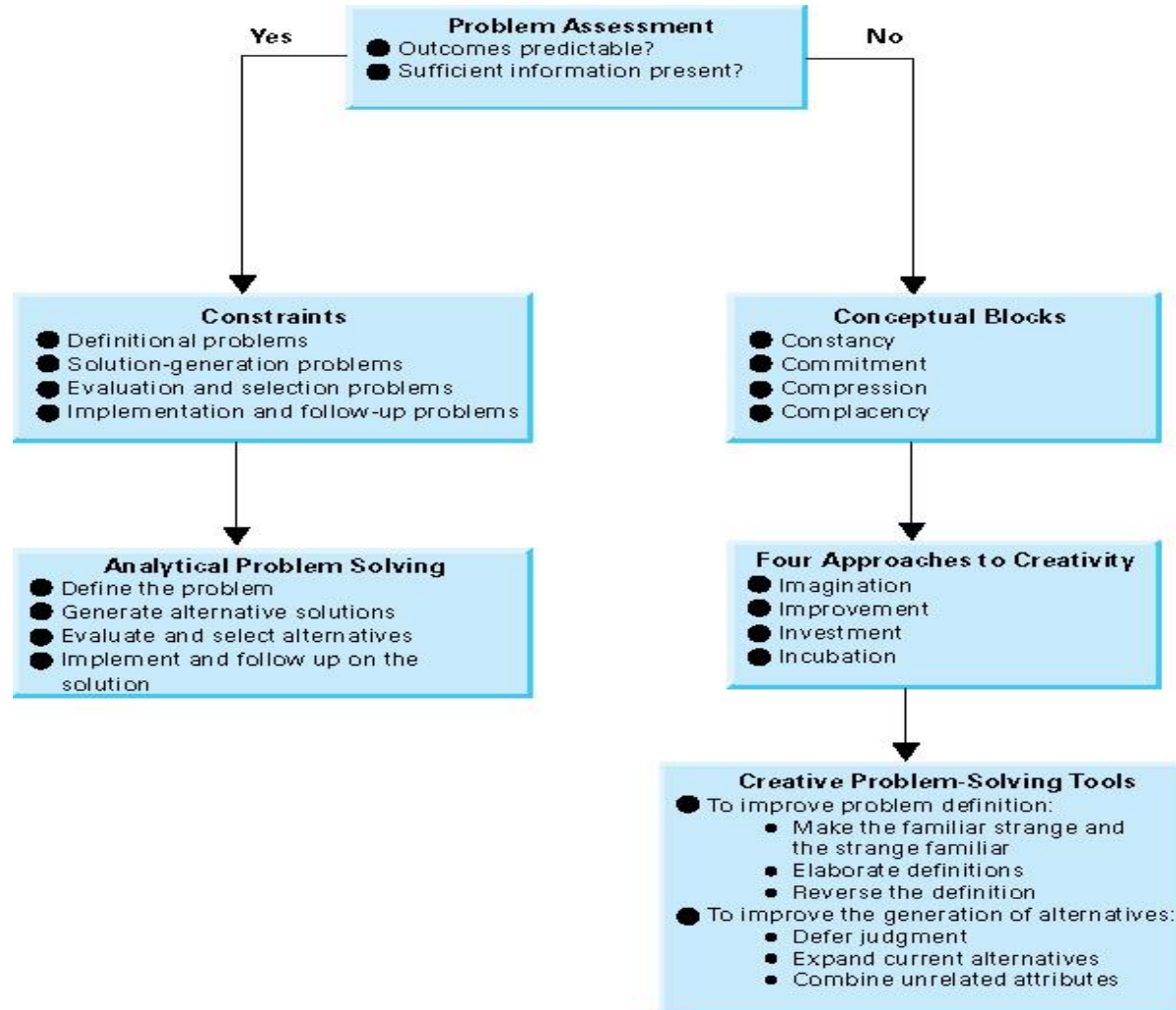
# Rules of Brainstorming

1. No evaluation of ideas is permitted
2. Wild ideas are encouraged
3. Quantity before quality
4. Build on ideas of others

# Hints to Facilitate Creative Problem Solving

- Give yourself relaxation time
- Find a place where you can think
- Talk to other people about ideas
- Ask other people for their suggestions about your problems
- Read a lot
- Protect yourself from idea-killers

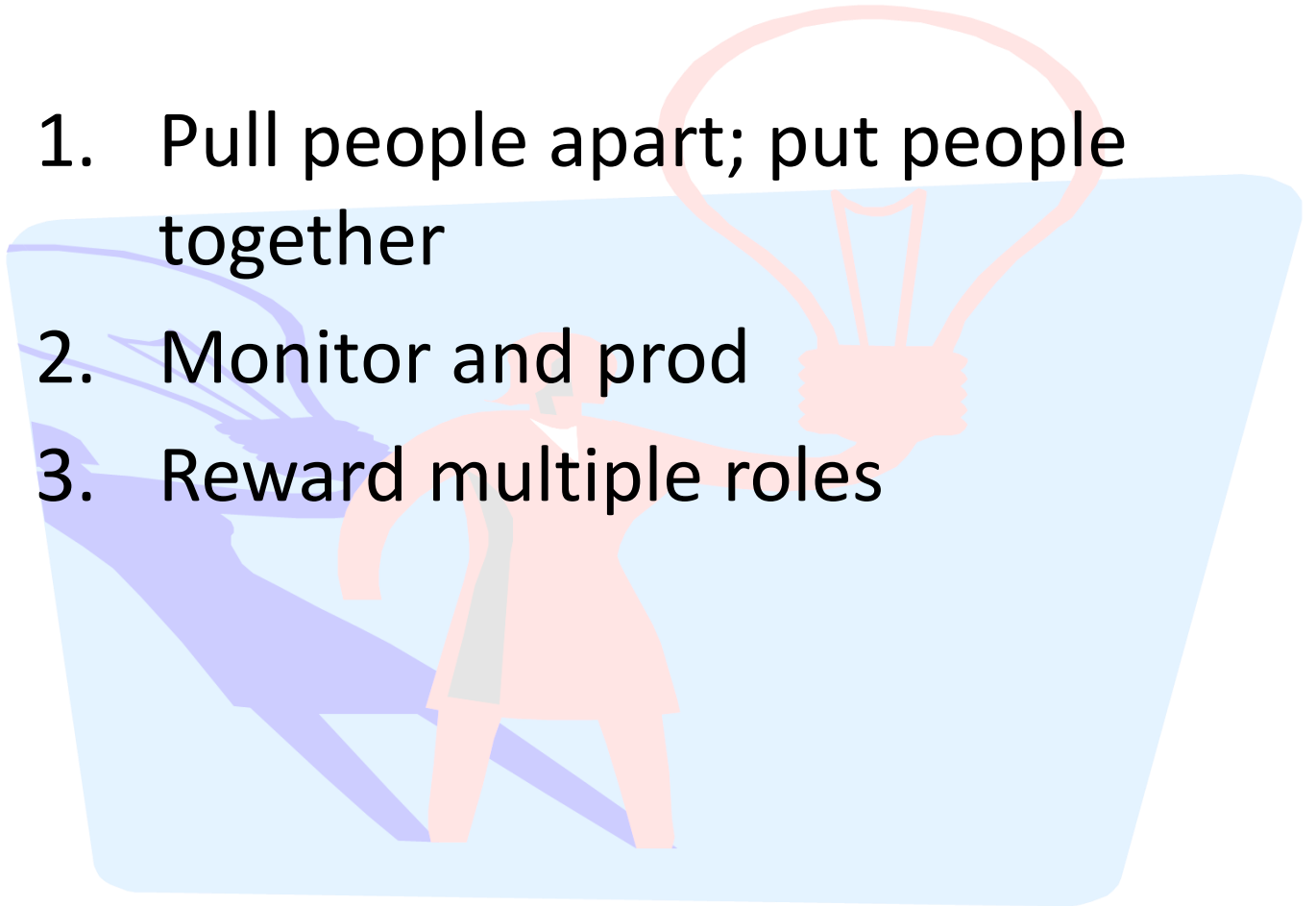
# A Model of Analytic and Creative Problem Solving



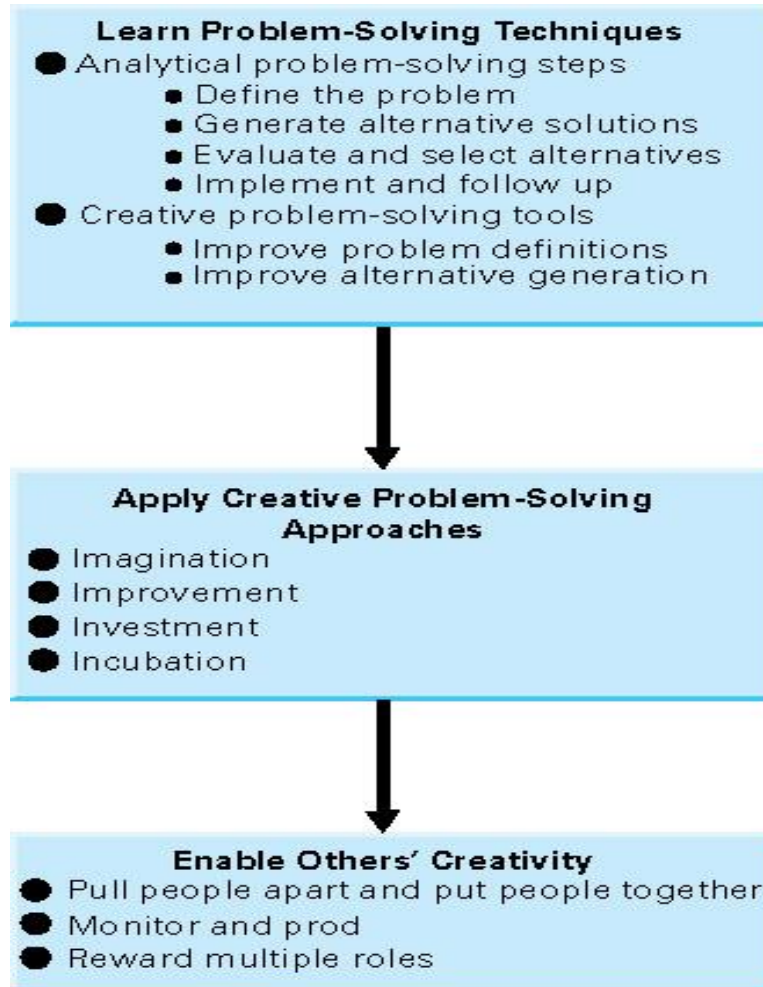


# Three Principles for Fostering Creativity

1. Pull people apart; put people together
2. Monitor and prod
3. Reward multiple roles



# Enabling Creativity in Others



# Behavioral Guidelines

- Follow the four-step procedure for analytical decision-making
- Employ the four types of creative decision-making
- Implement steps to overcome conceptual blocks

# Behavioral Guidelines

- Use techniques to elaborate the problem definition
- Foster creativity among those with whom you work