



DECISION SUPPORT SYSTEM (DSS)

CODE: IS341

Prerequisites:-

Foundation of information system

(IS101)

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Chapter(2)

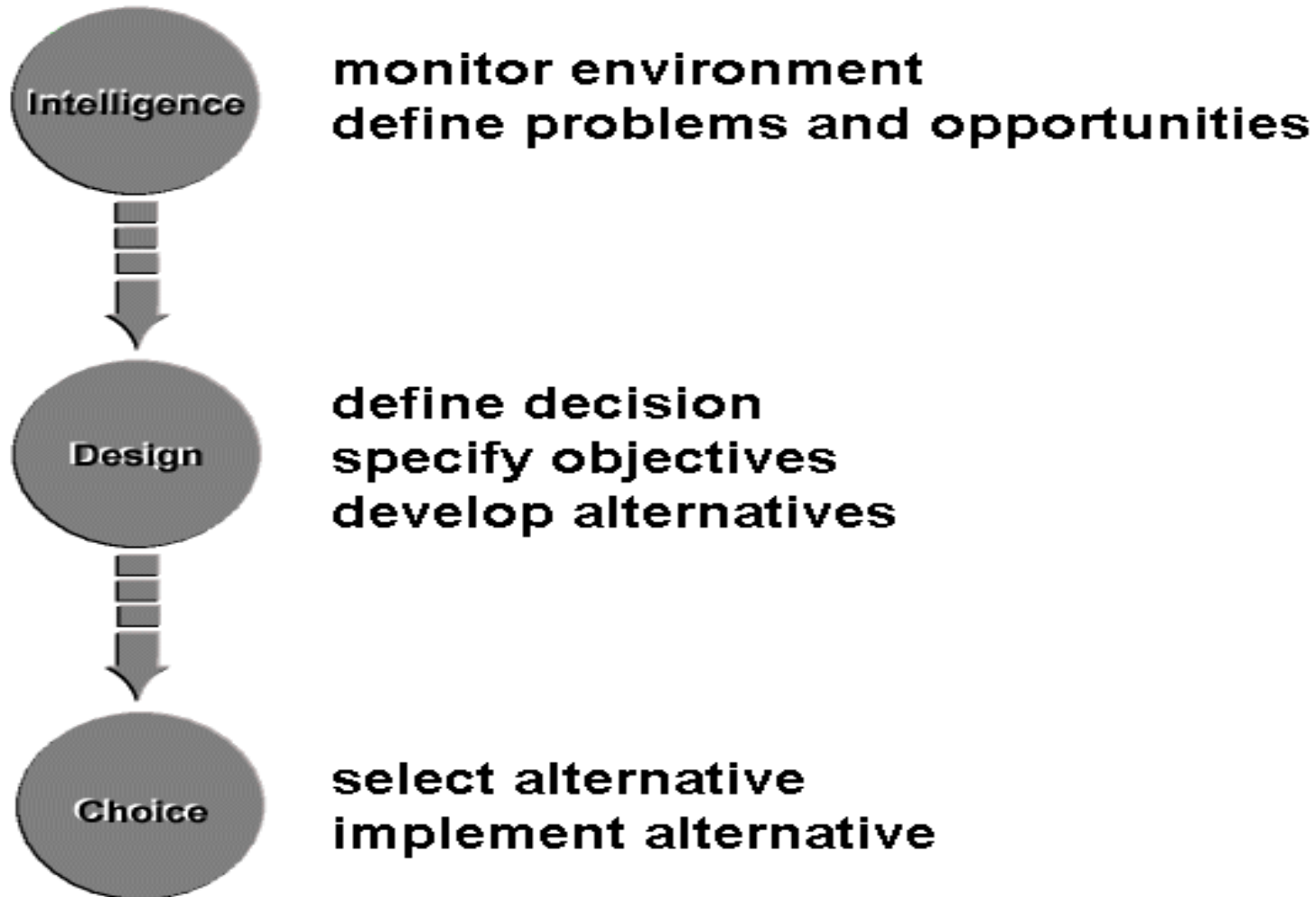
DECISION MAKING

- ❑ **Decision** is a choice among alternatives available to an individual.
- ❑ **Decision** is the result of some consideration of facts and judgments that leads to a specific course of action.
- ❑ The **individual** considers what is known and what is suspected to select the alternative action that is most likely to bring a good outcome to that individual or organization.

- ❑ The **tools** to address the "simple" decision and alternatives that should be considered are well understood and probably are similar to many other choices that have been considered in the past.
- ❑ Generally DSS used for poorly structured, poorly understood problems for which **neither** the solution **nor** the approaches to solving the problem are well understood.

❑ Decision making process consists of three-step:-

1. Intelligence.
2. Design.
3. Choice.



1) Intelligence:-

1. Identifying a problem or opportunity.
2. Gathers information from the environment.
3. Estimate the organization's performance in terms of the goals.

2) Design:-

1. Frames the particular choice between alternatives.
2. Establishes the specific objectives considered in a particular choice.
3. Examination of factors that might not fit into the model.

1) Choice:-

1. Considers the information.
2. Compares alternatives.
3. Selects the best alternatives.
4. Evaluates that choice for its sensitivity assumptions.

(To help the decision maker, the DSS needs to provide support in a number of areas.)

- ❑ First, DSS must help decision makers identify and define the problem or opportunity in terms of organizational objectives.
- ❑ Second, DSS help decision makers identify alternative actions that would address the problem or seize the opportunity.
 - ✓ DSS to help identify actions and to facilitate creative brainstorming to identify other alternatives.
- ❑ Third, the DSS must help to collect appropriate information and access appropriate models to process that information.

❑ Finally, after the decision is made, the DSS help decision makers monitor the results of the choice and assess the decision in terms of the process and outcome.



❑ the **goal** of the DSS is to help the decision maker make choices better and more easily.

"poor decision making is a serious problem for business (Taylor and Raden, 2007).

RATIONAL DECISIONS

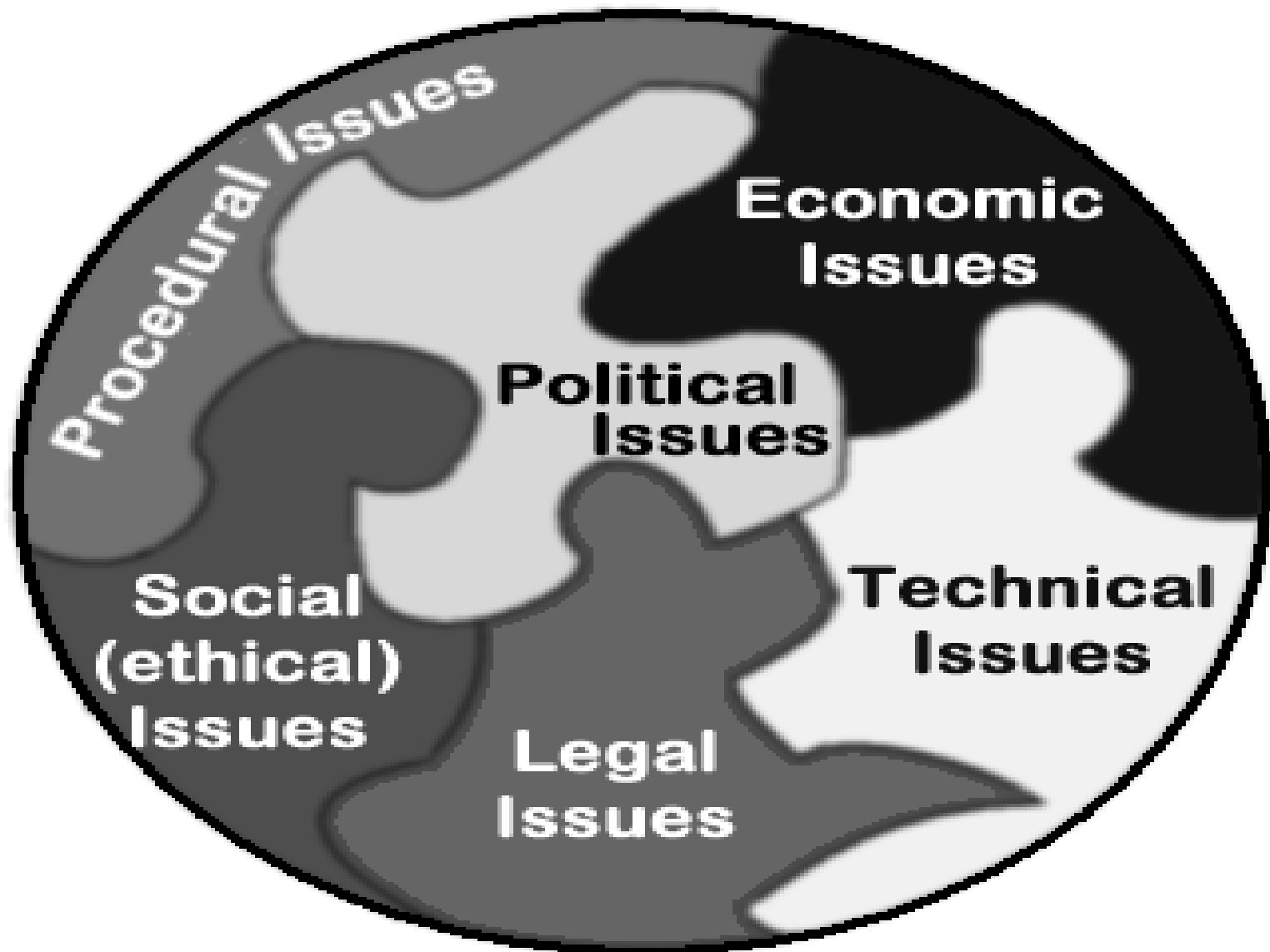
❑ What does "rational" mean???

- The dictionary defines it as "based on, or derived from reasoning . . . implies the ability to reason logically" (Guralink, 1980, p. 1179).

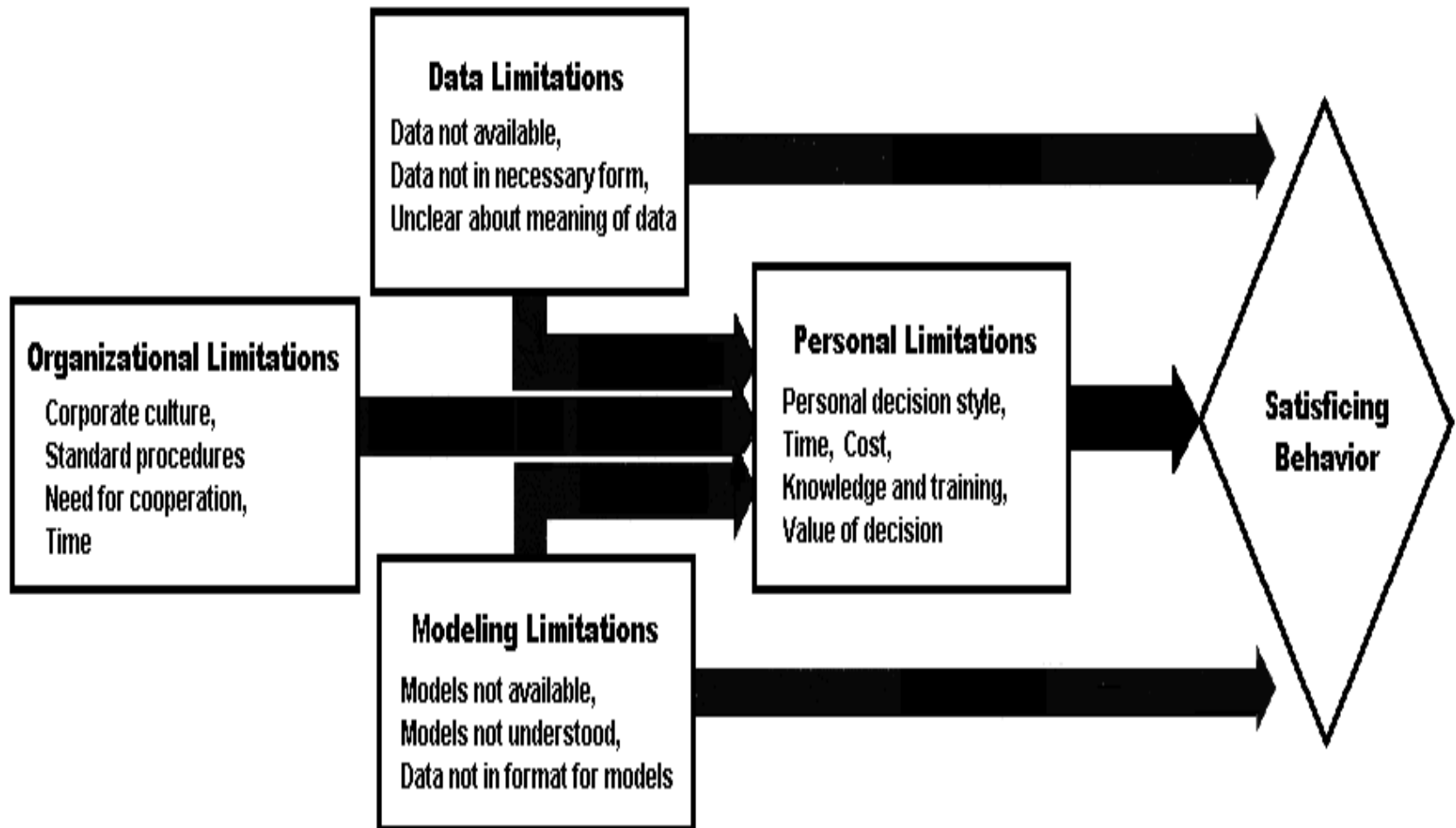
❑ Rational decisions require information about the alternatives, which must be identified and evaluated with regard to some set of criteria and some forecast of future conditions.

❑ Rational decisions certainly are based partly on economic bases and therefore optimize the economic condition of the company, such as minimizing costs, maximizing profits, or maximizing return for investors.


Forms of Rationality




Bounded Rationality and Muddling Through




NATURE OF MANAGERS




Managers prefer informality and efficiency in the manner in which they obtain information.



Managers do not always think in a linear manner.



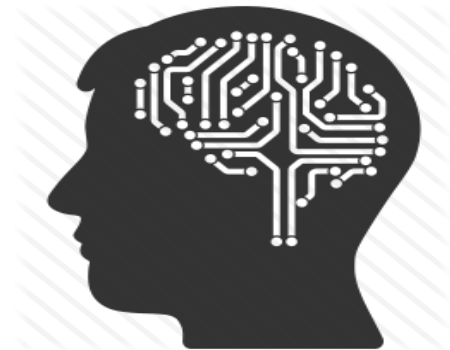
Managers want to know the source of their facts. Many managers make a decision not on the basis of the information presented to them but rather on the basis of who presents the information.



Managers need help in understanding all of the information they receive in a day.

Electronic Memory

A thought can disappear as quickly as it appears.



SO

capturing the thought and what caused it can be critical.

Decision support systems help the user recreate the process to recapture the thoughts.





❑ Re-creation of events requires:-

1. Storage of input screens.
2. Storage of the models used.
3. The input and output of the models and information viewed, and mechanisms to step through changes in the screens temporally.



❑ Allows users to:-

1. Review concepts.
2. Review alternatives.
3. Flow of information as they were compiled.

In order to better understand the process and allow identification of lost ideas.

Electronic Memory (cont.)



- ❑ Decision makers **Not only** can get the general impression of the idea.
- ❑ Decision maker can re-create the process leading to the final positions to help him or her understand the "why" behind the "what," potentially generating even more ideas.
- ❑ Designers must show care in providing a complete representation of the data and to preserve the richness of the information associated with the process.



- ❑ Even when decision makers have good data and the right models, they can make bad decisions.
- ❑ One of the reasons for bad decisions is bias.
- ❑ Bias is introduced by **how** evidence is collected and considered in the decision-making situation.
- ❑ Most decision makers will seek those facts that support their hypotheses.
- ❑ They might ignore those facts that do not support the hypotheses or they might not even seek additional information once their hypothesis has been supported.

Bias in Decision Making (cont.)

- ❑ Often decision makers, especially those who are relatively inexperienced, will not look beyond the scope of their experiences.
- ❑ They will consider similar data, similar alternatives, and similar models to what they have used in the past—simply because they are similar.
- ❑ Those things that are not familiar tend to be rejected or deemphasized because they are different.
- ❑ Even when different data, alternatives, and models are provided, decision makers may not perceive them.
- ❑ Decision support systems must provide mechanisms for helping decision makers see beyond their hypotheses and the scope of their experiences.

Bias in Decision Making (cont. 2)

- ❑ Decision makers can be biased by the source of information.
- ❑ If decision makers have a strong feeling (either negatively or positively) about the source of some information, that can bias their perception of the quality of the information (both negatively and positively).
- ❑ If decision makers perceive a good outcome, they will repeat the choice process even when it is not a good one; similarly, if decision makers perceive a bad outcome, they will change their processes even if they were appropriate.
- ❑ DSS help in evaluating the sensitivity of decisions to assumptions and the monitoring of choices is critical to help control these biases.

Bias in Decision Making (cont. 3)

- ❑ Decision makers will attempt to make sense out of situations even when they do not have all of the information. This is a serious source of bias.
- ❑ Some decision makers **over interpret** information and generalize their conclusions beyond what they know.
- ❑ If decision makers perceive a good outcome, they will repeat the choice process even when it is not a good one; similarly, if decision makers perceive a bad outcome, they will change their processes even if they were appropriate.
- ❑ DSS help in evaluating the sensitivity of decisions to assumptions and the monitoring of choices is critical to help control these biases.

De Bono's Six Thinking Hats



Objective



Process



Intuitive



Creative

**Six
Thinking
Hats**

Positive



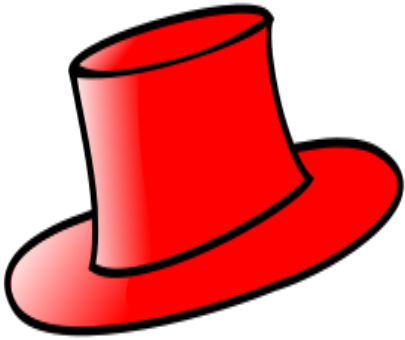
Negative



White Hat

While wearing this hat,

- ☐ **Decision makers are neutral.**
- ☐ **They examine the data available.**
- ☐ **Determine what additional data are needed.**
- ☐ **How far they can extrapolate the information available.**
- ☐ **Decision makers focus on the past trends and historical data.**



Red Hat

While wearing this hat

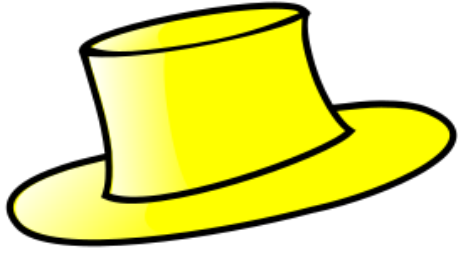
- ☐ Decision makers give into their intuitive side.
- ☐ Ignore the data and consider only their gut judgment.



Black Hat

While wearing this hat,

- ☐ Decision makers look at the data and the decision environment cautiously and even pessimistically.
- ☐ Decision makers question assumptions and test the resilience of their alternatives to challenges of the assumptions.



YELLOW HAT

While wearing this hat,

- ☐ Decision makers wearing a yellow hat look at all of their data optimistically.
- ☐ They examine the data for possible positive from the implementation of an alternative.



GREEN HAT

While wearing this hat,

- ❑ Decision makers must be creative in their solution to the problem.
- ❑ They must brainstorm and think freely to find solutions that might not otherwise appear.



BLUE HAT

- ❑ This hat is different from the others because while wearing it decision makers are controlling the process of wearing the other hats.
- ❑ It is the role that is most likely adopted by the DSS itself.

While using !!!

تست الشخصيات



The decision maker must move through each role to evaluate the data, the models, the alternatives, and the solutions in order to understand them all better.

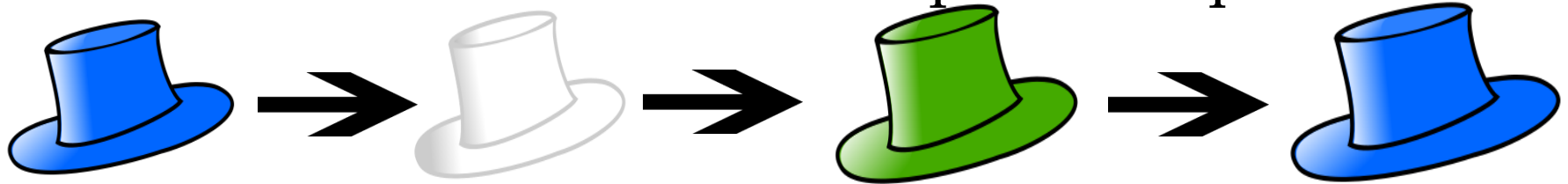
Strategies for using deBono's hats

- ❑ DeBono used specific strategies to using those different analyses at different points in the decision process.

example

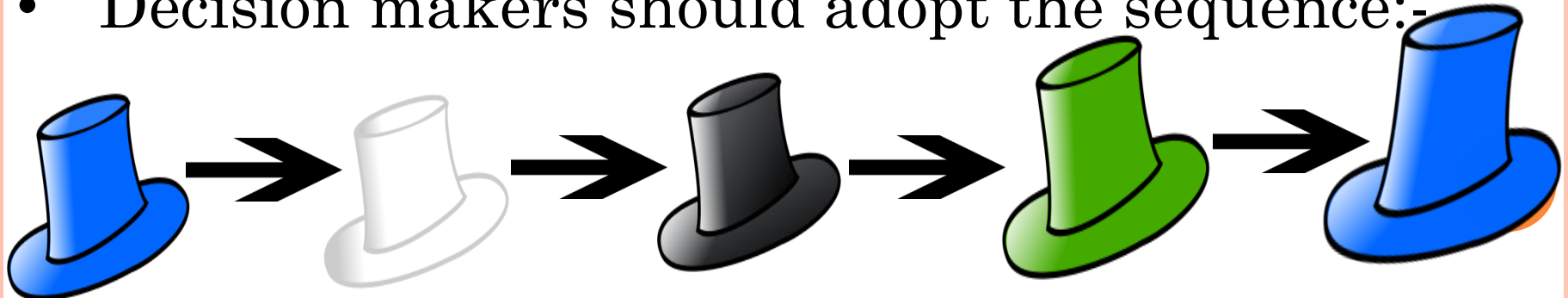
Considering new ideas:-

- Decision makers should adopt the sequence:-



When identifying solutions to known problems:-

- Decision makers should adopt the sequence:-

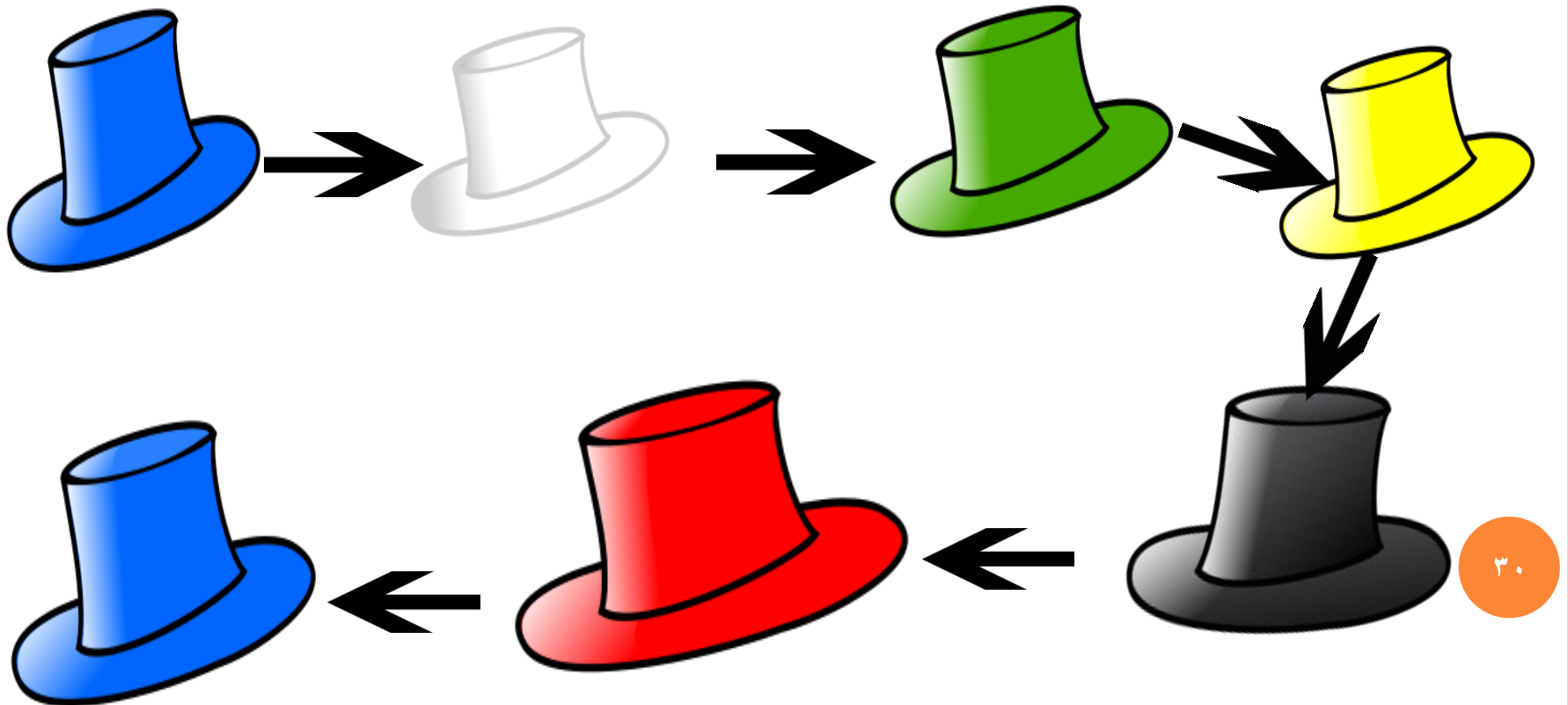


Strategies for using deBono's hats (cont.)

when choosing between alternatives:-

- DeBono suggests the sequence:-

In this case, he suggests looking at the data from all possible perspectives.



Any Questions



Thank
you

