



Business School

UNIVERSITY OF COLORADO DENVER

Information Systems Program

Business Intelligence Concepts, Tools, and Applications

Week 1: Decision Making and Decision Support Systems

Lesson 2: Conceptual Foundations of Decision Making



Conceptual Foundation of Decision Making

Learning Objectives

- Understand the decision styles and rationality of decision makers
- List the four stages of Simon's decision making process
- Identify common strategies and approaches of decision makers



Decision Styles of decision makers

- Perceptive versus Receptive
- Heuristic versus Analytic
- Autocratic Versus Democratic
- Consultative (with individuals or groups)



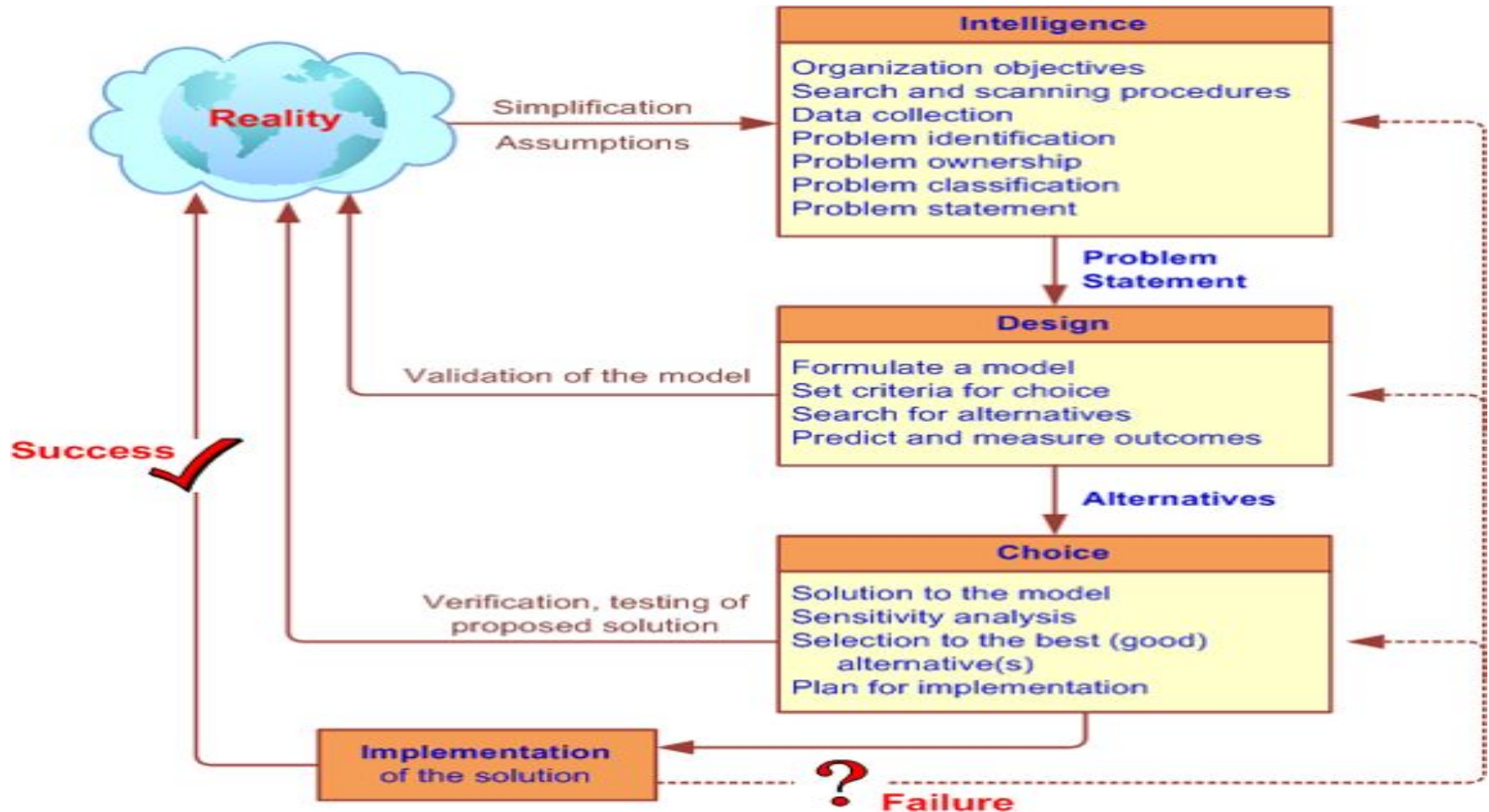
Common approaches of decision makers

- Left-brain approach
- Right-brain approach
- Accommodating
- Integrated

Source: Sauter, V. L. Intuitive Decision-Making, Communications of the ACM, 42(6), June 1999, page 109-115.



Simon's Decision-Making Process



From SHARDA, RAMESH; DELEN, DURSUN; TURBAN, EFRIM,
BUSINESS INTELLIGENCE AND ANALYTICS: SYSTEMS FOR
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Decision Making Process

Intelligence Phase

- Problem Identification
- Problem Ownership
- Problem Classification
 - Classification of problems according to the degree of structuredness
- Problem Decomposition
 - Often solving the simpler sub-problems may help in solving a complex problem.
 - Information/data can improve the structuredness of a problem situation
- Outcome of intelligence phase is a formal problem statement

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Decision Making Process

Intelligence Phase

- Scan the environment, either intermittently or continuously
- Identify problem situations or opportunities
- Monitor the results of the implementation



Decision Making Process Design Phase

- Determine alternatives
 - Finding/developing and analyzing possible courses of actions
- Predict and measure outcomes
 - A model of the decision-making problem is constructed, tested, and validated



Decision Making Process

Choice Phase

- Making the actual decision and the commitment to follow a certain course of action
 - Search
 - Evaluation
 - Recommendation



Decision Making Process

Choice Phase

- Search approaches
 - Analytic techniques (solving with a formula)
 - Algorithms (step-by-step procedures)
 - Heuristics (rule of thumb)
 - Blind search (truly random search)
- Model manipulation
 - Sensitivity analysis
 - What-if analysis
 - Goal seeking



Rationality of decision makers

- Principle of choice
 - is a criterion that describes the acceptability of a solution approach
 - In a model, it is a result variable
- Normative and Rational decision making
 - Optimization (normative models)
 - Sub-optimization (heuristic models)
- Descriptive decision making (simulation models)



Decision Making Process Implementation Phase

- *Implementation*
 - the initiation of a new order of things,
 - the introduction of change;
 - putting a recommended solution to work
- **Issues**
 - resistance to change,
 - degree of support of top management,
 - user training



Common strategies of decision makers

- Optimizing versus satisfying
- Elimination-by-aspects versus incrementalism
- Mixed scanning
- Minimizing risk and uncertainty

