Introduction to Decision Making

Classification of Data Analytics

Descriptive: defines business problems and opportunities

- Reporting
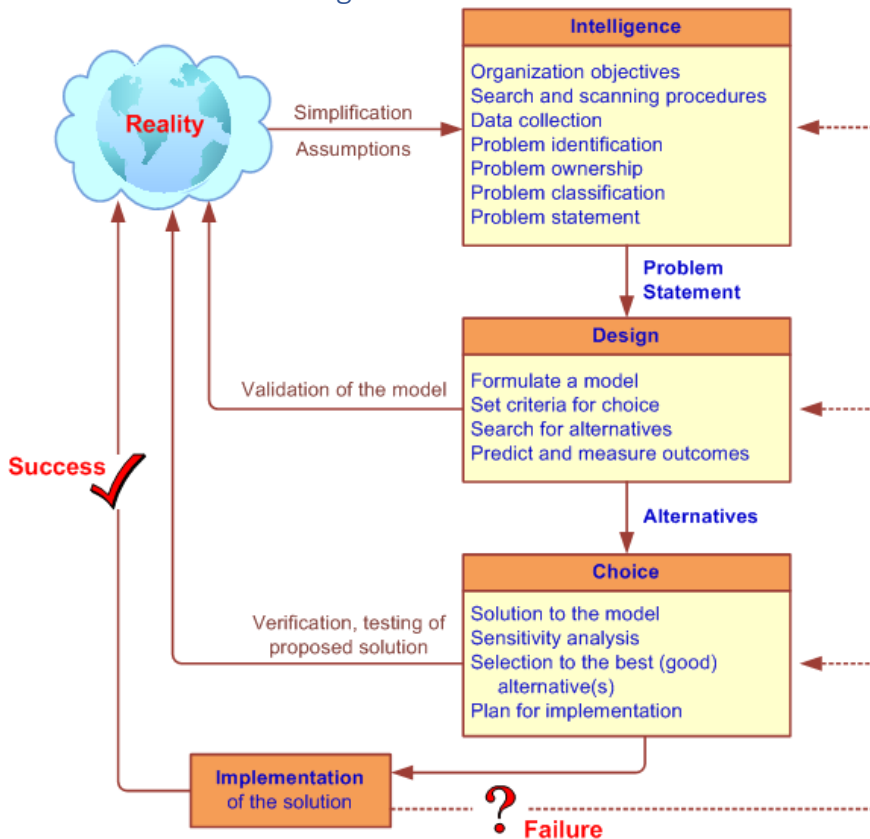- Visualisation
- BPMN
- Data warehousing

Predictive: projections of future states and conditions

- Data mining
- Text mining
- Web analytics
- Forecasting
- Visual analytics

Prescriptive: recognizes what is going on, as well as the likely forecast and makes decisions to achieve the best performance possible.

- Automated Decision Making
- Knowledge Management
- Collaborative Systems
- Optimisation

Simon's Decision Making Process

Models

A simplified representation of abstract or reality

- Important in computer-based decision making
- Assumptions made to simplify

Normative models

Chosen alternative is evidently the best alternative – there is a right answer

- Must assume decision makers are rational
- Eg. Optimisation, Rationalisation, Sub-optimisation

Descriptive models

Describe things as they are or as they are perceived, while investigating the results of alternative courses of action

- No guarantee that a solution is optimal
- Often a solution will be 'good enough'
- Eg. stimulation, cognitive mapping, what-if analysis

Satisficing

Most human decision makers will settle for a 'good enough' solution

- **Trade-off:** time and cost of searching for an optimum versus the value of obtaining one
- Good enough or satisficing solution may meet a certain goal level is attained

Why Satisfice? (Bound Rationality)

- Humans have limited capacity for rational thinking
- Generally construct and analyse a simplified model
- **Rationality is bounded** by:
    - limitation on human processing capacities
    - individual differences

Framework for Business Intelligence

Business Intelligence: descriptive analytics tools and techniques → an umbrella term that combines architectures, tools, databases, application and methodologies

Evolution of Computerised Decision Support to Big Data