

Modeling in Operation Research

OR Models

A model in OR is a representation of an actual object or situation. It shows the relation and interaction of action and reaction in terms of cause and effect **Eg:** Photograph, Roadmap, etc.

The main objective of a model is to provide means for analyzing the behaviour of the system for the purpose of improving its performance.

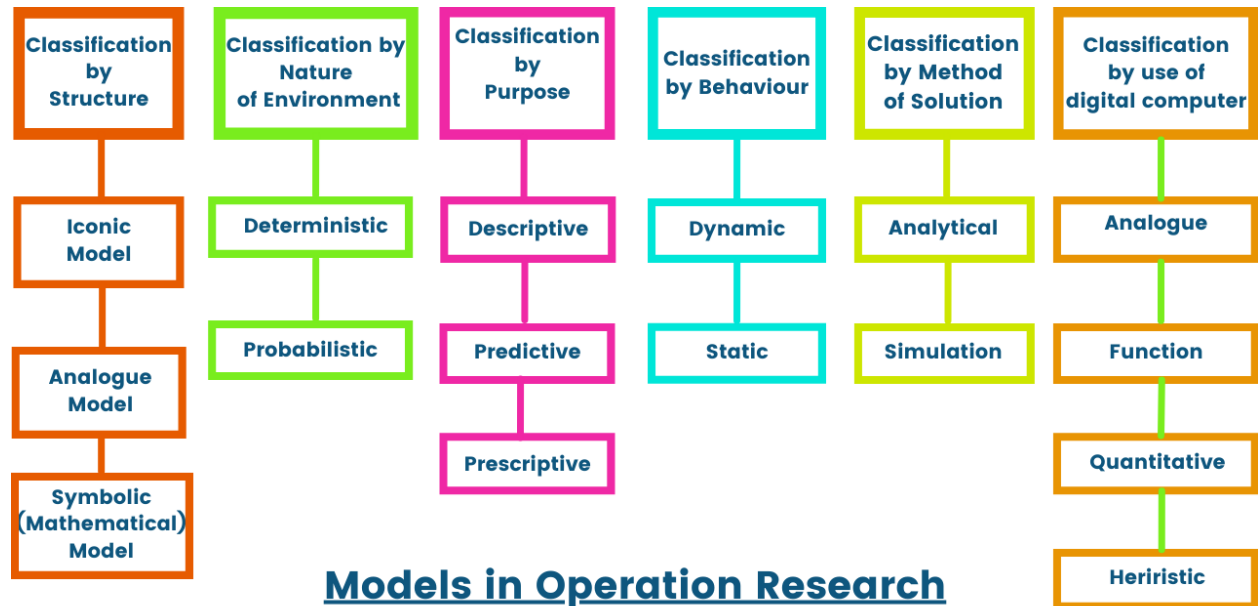
Examples of OR Models: A Map, Activity Charts, Balance Sheets, PERT Network, etc.

"Objective of the model is to provide a means for analyzing the behaviour of the system for improving its performance."

Modeling in OR

Modeling in Operation Research is an art that helps us to visualize architecture or to understand the structure and behaviour of the system. And also it helps us to communicate the details in a visual manner and to make good decision.

Modeling in OR Diagram



www.geekshelp.online

Models can be classified according to the following characteristics:

- **Classification by Structure**

i) Iconic Models: Iconic models represent the system as it is by scaling it up or down. It is an image of the original object. **Eg.** Blueprint of the proposed building.

ii) Analogue Models: The model in which one set of properties is used to represent another set of properties are called analogue models. **Eg.** it Indicates ATM pressure.

iii) Symbolic Models: The symbolic model is one that employs a set of mathematical symbols to represent the decision of the system. **Eg.** Queuing Model, Inventory Model.

- **Classification by Nature of Environment:**

i) Deterministic Models: Such models assume conditions of complete certainty and perfect Knowledge. **Eg.** Linear Programming, Transportation.

ii) Probabilistic Models: These types of models usually handle such situations in which managerial actions cannot be predicted with certainty. **Eg.** Insurance companies are willing to ensure the risk of fire, accidents, etc.

- **Classification by Purpose**

i) Descriptive Model: A model simply describes some aspects of the situation based on observation, survey, questionnaire results or other available data. **Eg.** Plant layout diagram.

ii) Predictive Models: Such models can answer 'what if' type of questions, they can answer predictions regarding certain events. **Eg.** TV predicts election Results.

iii) Prescriptive Models: When a predictive model has been repeatedly successful, it can be used to prescribe a source of action. **Eg.** X-Ray of a healthy man.

- **Classification by Behaviour**

i) Static Models: These models don't consider the impact of changes that takes place during the planning horizon. **i.e.** They are independent of time.

ii) Dynamic Models: In this model, time is considered as one of the important variables and admits the impact of changes generated by time.

- **Classification by Method of Solutions:**

i) Analytical Models: These models have a specific mathematical structure & thus can be solved by known analytical techniques.

ii) Simulation Models: They also have mathematical structures but they cannot be solved by purely using the tools and techniques of mathematics.

- **Classification by use of the digital computer:**

i) Analogue & Mathematical Model: Some analogue models are also expressed in terms of mathematical symbols.

ii) Function Model: Such models are grouped on the basis of the function being performed.

iii) Heuristic Models: These models are mainly used to explore alternative strategies that were overlooked previously, whereas mathematical models are used to represent systems possessing well-designed strategies.

Connect with Geeks Help Team

Website: [Geeks Help](#)

Linkedin: [Raju Sheoran](#)

Instagram: [Raju Sheoran](#)