



Operation Research

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ABSTRACT

In our research paper we are going to focus on different phases in solving an OR problem, its classification, applications and limitations of it.

INTRODUCTION

Operational research contains a wide range of problem-solving techniques and methods applied in to improve the decision-making and efficiency, such as simulation, mathematical optimization, queueing theory and other stochastic-process models, early all of these techniques used to involve the construction of mathematical models that attempt to describe the system and because of which the computational and statistical nature of most of these fields.

PHASES OF OPERATIONAL RESEARCH STUDY

1. Formulating the problem
2. Constructing a mathematical solution
3. Deriving the solutions from the model
4. Testing the model and its solution
5. Controlling the solution
6. Implementing the solution

APPLICATIONS

1. Purchasing and Exploration
2. Finance and Investments
3. Production management

4. Marketing
5. Research and Development
6. Personnel Management

LIMITATIONS

1. Optimum use of production factors
2. Improved quality of decisions
3. Money and time cost
4. Preparation of future managers
5. Modification of mathematical solutions
6. Combining two or more operating functions
7. Reliability of the proposed solution

CLASSIFICATION MODELS

1. Ionic Model
2. Function Model
3. Quantitative Model
4. Mathematical Model
5. Qualitative Model

METHOD FOR SOLVING THE PROBLEMS

1. Definition
2. Solving
3. Construction
4. Validation
5. Implementation



HISTORY

As a formal discipline, operational research originated in the efforts of military planners during World War II. In the decades after the war, the techniques were more widely applied to problems in business, industry and society. Since that time, operational research

has expanded into a field widely used in industries ranging from petrochemicals to airlines, finance, logistics, and government, moving to a focus on the development of mathematical models that can be used to analyse and optimize complex systems, and has become an area of active academic and industrial research.

Related fields

- Business Analytics
- Data mining
- Decision analysis
- Engineering
- Financial engineering
- Forecasting
- Game theory
- Graph theory
- Industrial engineering
- Logistics
- Mathematical modeling
- Mathematical optimization
- Probability and statistics
- Project management
- Policy analysis
- Simulation
- Social network/Transportation forecasting models
- Stochastic processes
- Supply chain management