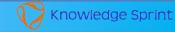# Module 2: Operation Research

This module is on Operation Research

Contains below concepts :

- Nature of Operation Research
- Characteristics or Features of Operation Research
- Applications of Operation Research

Nature of Operation Research

1. It is an application of scientific methodology in several different disciplines to problem solving
2. Can be applied in both public and private organisations
3. Helps management managers to look into management problems, gather information, interpret the data etc
4. Specialists of Operation Research help an organisation to take right decisions to increase effectiveness of carrying the operations
5. In Simple, provides an scientific approaches to decision making

Characteristics or Features of Operation Research

1. Creating a Model
- Operation Research first makes a model
- Here the model refers to a logical representation of a problem, where it shows the relationships between the different variables in the problem.
- Simply it an mathematical formula
- Example : Assets - Liabilities = Capital + Accumulated Reserves.

2. Identifies the core Variables

- Operation Research understands and identifies variables which are important for solving the problem
- Generally, many of the variables are uncontrollable in nature

3. Variables are converted into mathematical notations

- The variables and goals are converted into mathematical expressions and notations or symbols
- These symbols can be easily identified, that later used in calculation purpose
- The Variables are Quantifiable in nature, as results are expressed in numbers

4. Other notable are -
- Provides a proper direction in decision making
- An Scientific approach method, therefore it is reliable
- Objective Oriented
- Can be applied and implemented in any field

Applications of Operation Research

Applications of Operation Research are not limited to any particular field. However, below are few are listed in general in nature where we find the use of Operation Research -

Let us know see now..

1. Financial Field
- Cash flow analysis
- Long range capital requirements
- Investment portfolios
- credit policies, credit risks
- Claim procedures ..etc

2. Procurement and supply chain management
- Rules for buying and selling
- Determine Quantities of purchase
- Determine time period of purchase
- Bidding process analysis and policy design
- Exploring new raw material sources
- Replacement policies

3. Industrial Production Management
- Focus on Physical Distribution
- Location and size of warehouse a distribution areas
- Facility planning
- Transport schedule
- Production schedule
- Stabilise production
- Proper allocation of resources
- Understand and maintain crew size for production

4. Marketing Management
- Product selection over competitive ators
- Staff need for marketing
- Manage Cost of advertising sales
- Understand and implement right time to advertise

5. Human Resource Management
- To Select Right person for right job
- Design best job assignments
- Optimum use of human resources

6. Research and Development
- To find the areas of improvement
- Determine the new areas where business can be expanded
- Maintain Reliability of products and services
- Enhance the features as per need of market analysis based on research

Thank you

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