

INTRODUCTION

Operational Research is a systematic and analytical approach to decision making and problem solving. O.R. is an Branch of applied mathematics that uses techniques and statistics to arrive at Optimal solutions to solve complex problems. It is typically concerned with determining the maximum profit, sale, output, crops yield and efficiency And minimum losses, risks, cost, and time of some objective function. Some of the PRIMARY TOOLS used by operation researchers are STATISTICS,GAME THEORY,PROBABILITY THEORY, etc.

Operation Research

Define OR

- Operations Research is the application of analytical methods designed to help the decision makers choose between various courses of action available to accomplish specified objectives.
- OR is a scientific method of providing executive departments with a quantitative basis for decision regarding the operations under their control.
-Morse and Kimbal
- OR is the art of giving bad answers to problems where otherwise worse answers are given.
-T.L. Satty

OPERATIONS RESEARCH'S HISTORICAL BACKGROUND

- The roots of OR can be traced back many decades, when early attempts were made to use a scientific approach in the management of organizations.
- However, the beginning of the activity called operations research has generally been attributed to the military services early in World War II.
- Because of the war effort, there was an urgent need to allocate scarce resources to the various military operations and to the activities within each operation in an effective manner.
- Therefore, the British and then the U.S. military management called upon a large number of scientists to apply a scientific approach to dealing with this and other strategic and tactical problems.
- In effect, they were asked to do research on (military) operations. These teams of scientists were the first OR teams.

SCOPE AND APPLICATIONS OF OPERATIONS RESEARCH



**Finance
Budgeting
and
investments**



**Purchasing
Procurement
and
Exploration**



**Production
Management**



**Marketing
Management**



**Personal
Management**

Research

SCOPE AND APPLICATIONS OF OPERATIONS RESEARCH



**Research and
Development**



**National Planning
and Budgeting**



Defence Services



**Agriculture and
Irrigation**



**Education and
Training**

SCOPE AND APPLICATIONS OF OPERATIONS RESEARCH

Management

- Leadership
- Decision-making
- planning
- implementation
- monitoring and evaluation
- information Regulation

Economic support

- Public sources of finance
- Employers
- Organized voluntary agencies
- Local community efforts
- Foreign Aid
- Private households
- Other

Videos Links

1. <https://www.youtube.com/watch?v=qKvPmRIDgT4>
2. https://www.youtube.com/watch?v=PSOW3_gX2OU

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Assignment

Q.1 Write a critical essay on the definition and scope of O.R stressing the importance of model building with concrete illustrations.

Q.2 Discuss in detail the three types of models with special emphasis on the important.

Q.3 Discuss the advantages and limitations of using results from a mathematical model to make decisions about operations.

Q.4 What is Operations Research? Describe the historical development and scope of operations research.

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References

- Operations Research: An Introduction, Global Edition** by Hamdy A. Taha
- Introduction to Operations Research** by Hillier Lieberman
- Slide Share : Online Source

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School of basic and applied Sciences

Course Code : MSCM302

Course Name: Operation

Research



Thanks

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Program Name: M.Sc.