

Module 4:  
Optimization

# OPTIMIZATION TODAY

**Ramon Miguel C. Panis**

Instructor

Department Industrial Engineering and Operations Research

University of the Philippines – Diliman

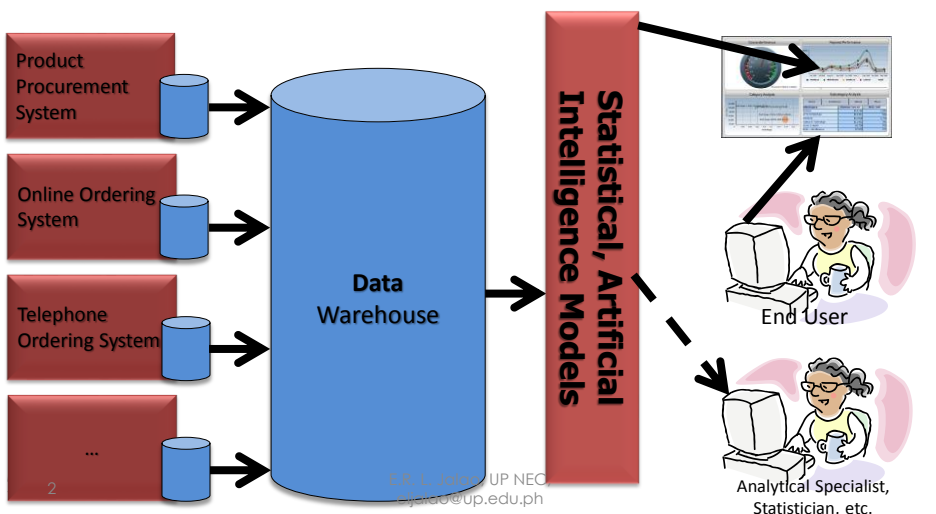
*Module 4 of the Business Intelligence and Analytics Track of UP NEC and the UP Center of Business Intelligence*

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## Recall our Framework



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# Rationale

- How **best utilize** the limited resources available?
  - Oil, Land, Time, Budget, Manpower, Space
- How do we **allocate** the resources in such a way as to maximize profits or minimize costs?

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E.R. L. Jalao, UP NEC,  
eljalao@up.edu.ph

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Operations Research  
Methodology

## According to Taha

1. Define the Problem
2. Construct the Model
3. Solve the Model
4. Validate the Model
5. Implement the Solution

## According to Winston

1. Formulate the Problem
2. Observe the System
3. Formulate a Mathematical Model
4. Verify the Model
5. Select a Suitable Alternative
6. Present the Results
7. Implement the Solution

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## Operations Research Methodology

### 2. Construct the Model

### 3. Formulate a Mathematical Model

### Different kinds of Models

- |                      |                      |       |
|----------------------|----------------------|-------|
| •Linear programming  | •Transportation      | Day 1 |
| •Assignment          | •Network             |       |
| •Integer Programming | •Dynamic Programming | Day 2 |
| •Goal Programming    | •Game Theory         |       |
| •Queuing             | •Simulation          | Day 3 |

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DATA -> MODEL -> DECISION

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WE DO NOT STOP AT THE  
OPTIMAL

WE ANALYZE

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# OPERATIONS RESEARCH IS A TOOL FOR SOUND DECISION MAKING AND ANALYSIS

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