

Introduction to Operations Management

Learning Objectives

- Define the term *operations management*
- Basics of “Value Addition”
- Compare and contrast service and manufacturing operations
- Basics of “Goods-Services Continuum”
- Describe the operations function and the nature of the operations manager’s job
- Describe the key aspects of operations management decision making

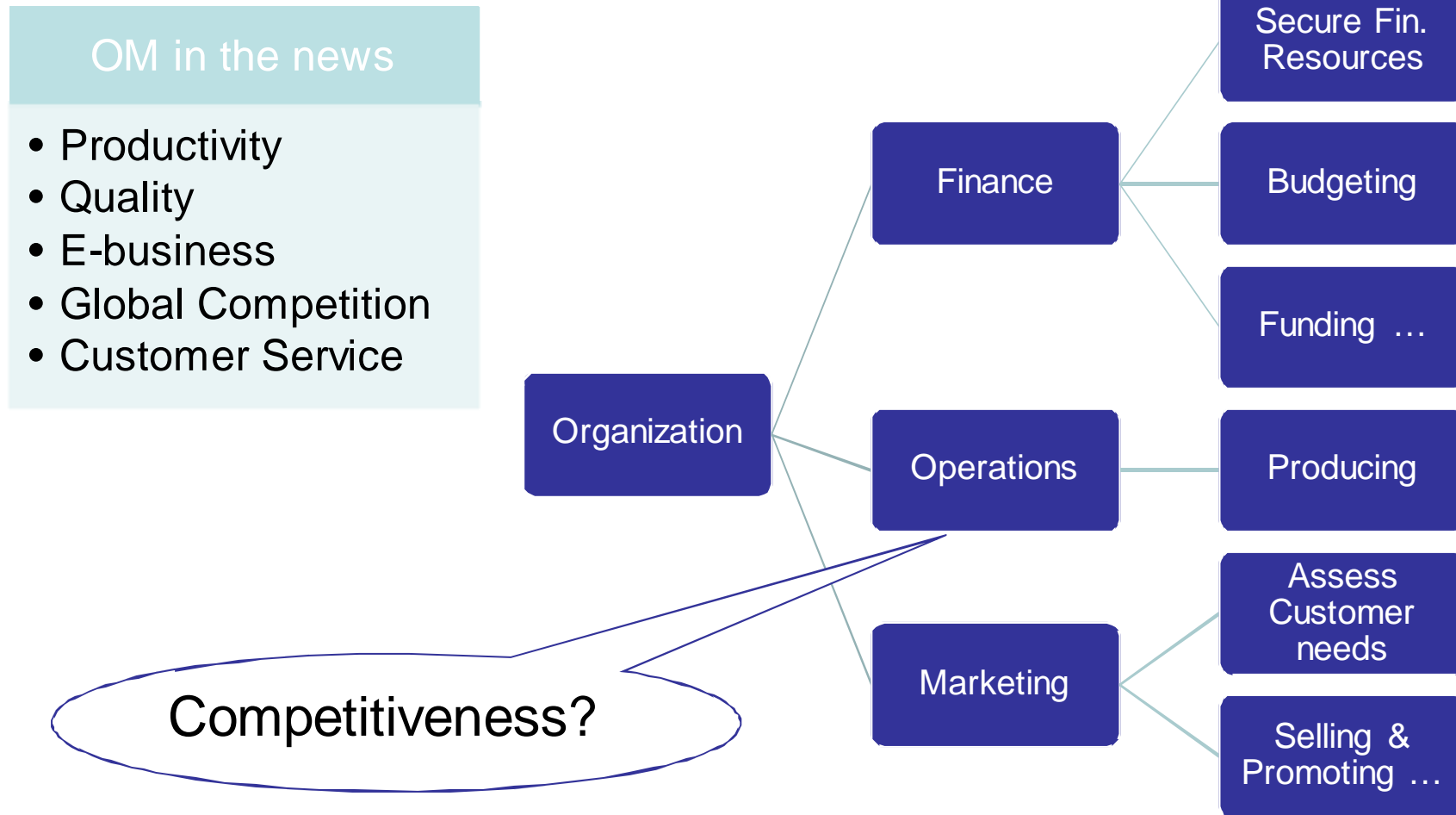
Operations Management

- Managing that part of the organization responsible for producing **goods and services**
- Management of systems or processes that create goods and/or provide services

Operations	Examples
Goods Producing	Farming, mining, construction manufacturing, power generation
Storage/Transportation	Warehousing, trucking, mail service, moving, taxis, buses, hotels, airlines
Exchange	Retailing, wholesaling, banking, renting, leasing, library, loans
Entertainment	Films, radio and television, concerts, recording
Communication	Newspapers, radio and television, newscasts, telephone, satellites

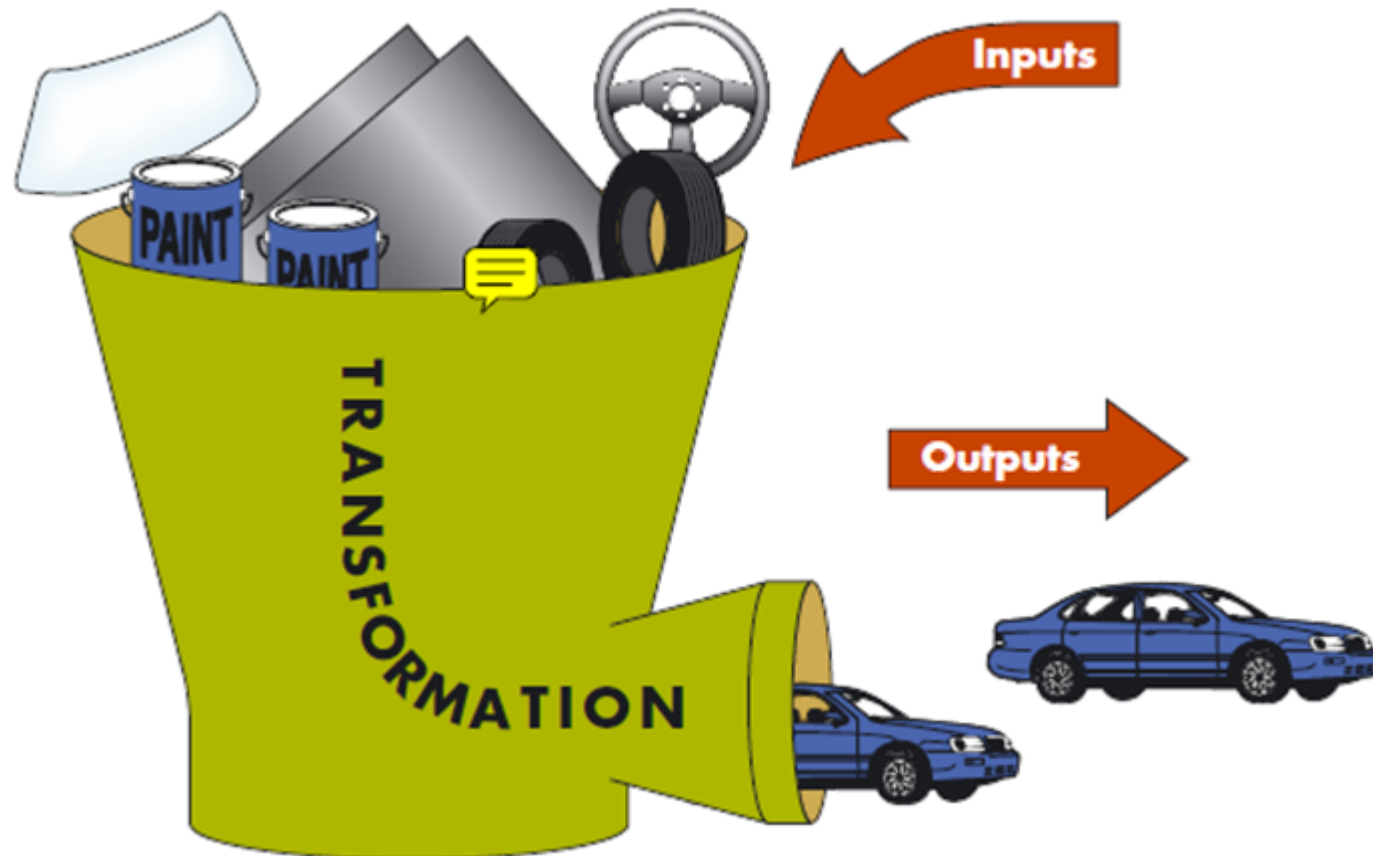
The Organization

The Three Basic Functions



Value-Added Process

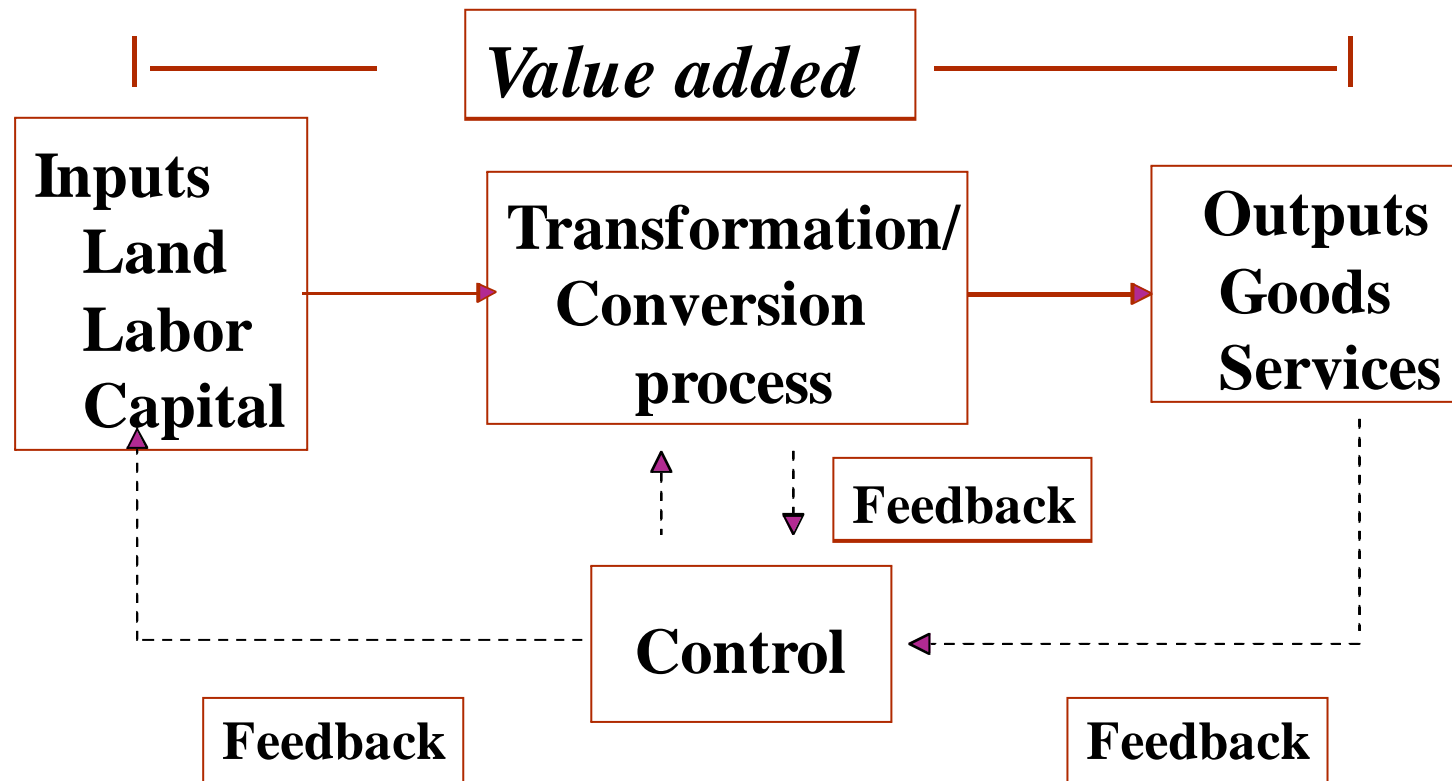
The operations function involves the conversion of inputs into outputs



Value-added = Value or price of outputs – Cost of inputs

Value-Added Process

The operations function involves the conversion of inputs into outputs



Food Processor

Inputs	Processing	Outputs
Raw Vegetables Metal Sheets Water Energy Labor Building Equipment	Cleaning Making cans Cutting Cooking Packing Labeling	Canned vegetables Scraps!

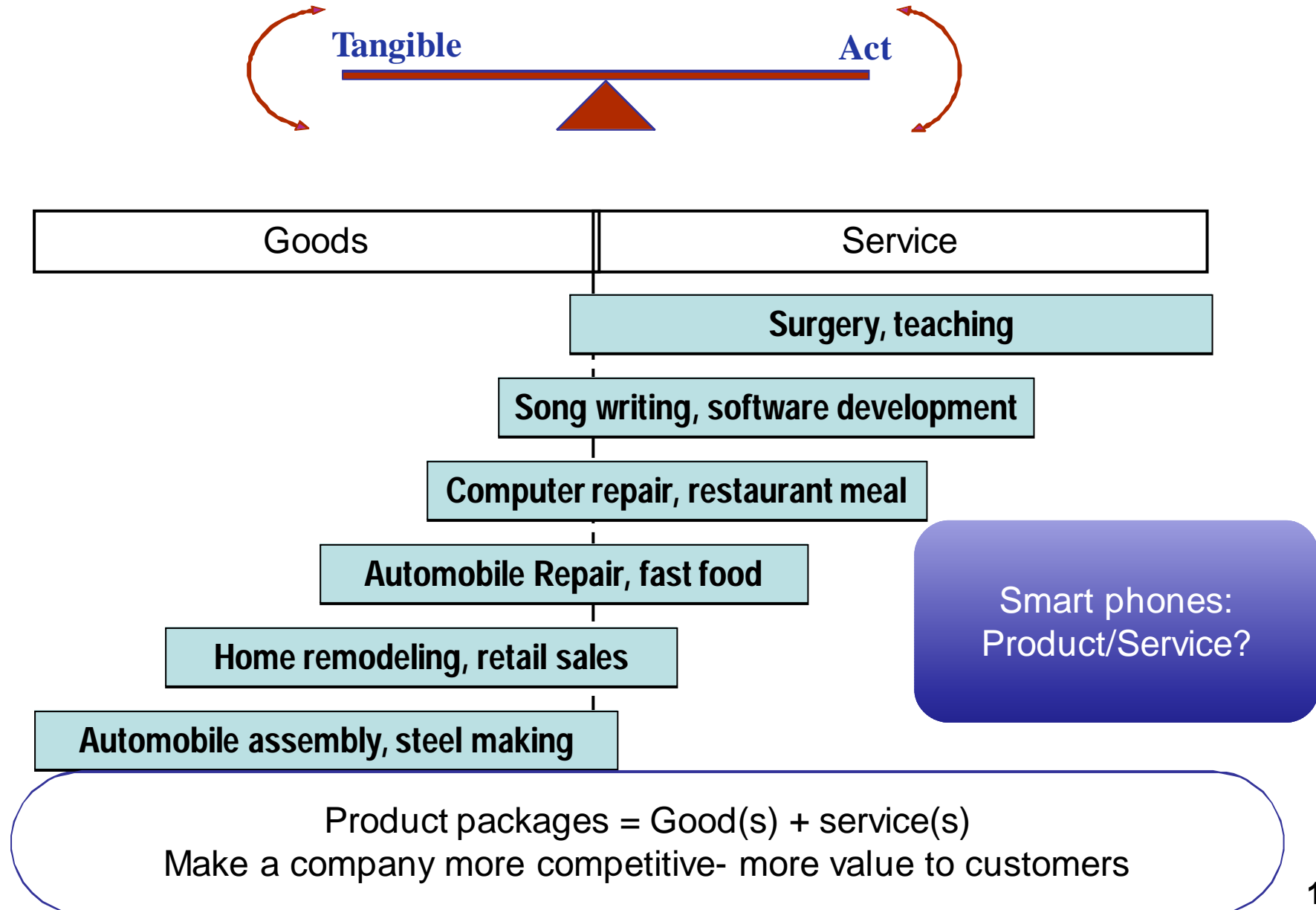
Hospital Process

Inputs	Processing	Outputs
Doctors, nurses Hospital Medical Supplies Equipment Laboratories	Examination Surgery Monitoring Medication Therapy	Healthy patients

Value-Added & Product Packages

- Value-added is the difference between the cost of inputs and the value or price of outputs.
- Product packages are a combination of goods and services.
- Product packages can make a company more competitive.

Goods-service Continuum



Production of Goods vs. Delivery of Services

- Production of goods – tangible output, production oriented
- Delivery of services – an act
- Service job categories
 - Government
 - Wholesale/retail
 - Financial services
 - Healthcare
 - Personal services
 - Business services
 - Education

Goods vs Service: Key Differences

Characteristic	Goods	Service
Customer contact	Low	High
Uniformity of input	High	Low
Labor content	Low	High
Uniformity of output	High	Low
Output	Tangible	Intangible
Measurement of productivity	Easy	Difficult
Opportunity to correct problems	High	Low
Inventory	Much	Little
Evaluation	Easier	Difficult
Patentable	Usually	Not usual

Challenges of Managing Services

- Service jobs are often less structured than manufacturing jobs
- Customer contact is higher
- Worker skill levels are [relatively] lower
- Services hire many low-skill, entry-level workers
- Employee turnover is higher
- Input variability is higher
- Service performance can be affected by worker's personal factors

Scope of Operations Management

- Operations Management includes:
 - Forecasting
 - Capacity planning
 - Scheduling
 - Managing inventories
 - Assuring quality
 - Motivating employees
 - Deciding where to locate facilities
 - Supply chain management
 - And more . . .

Key Decisions of Operations Managers

- What
What resources/what amounts
- When
Needed/scheduled/ordered
- Where
Work to be done
- How
Designed
- Who
To do the work

Decision Making

System Design

- capacity
- location
- arrangement of departments
- product and service planning
- acquisition and placement of equipment

System operation

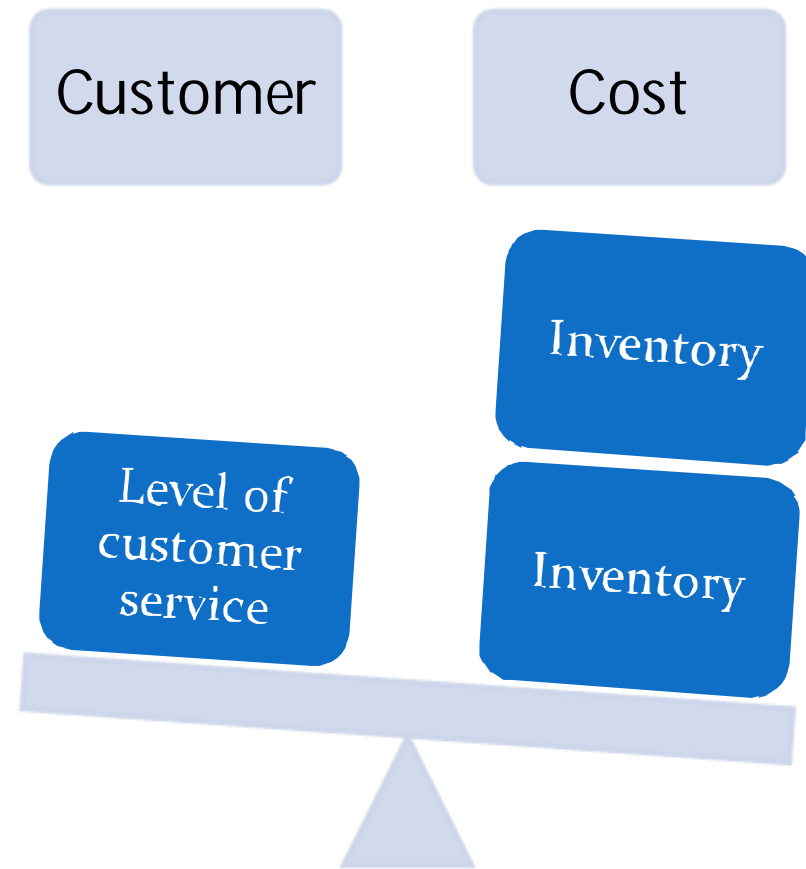
- personnel
- inventory
- scheduling
- project management
- quality assurance

Quantitative Approaches

- Linear programming
- Queuing Techniques
- Inventory models
- Project models
- Statistical models

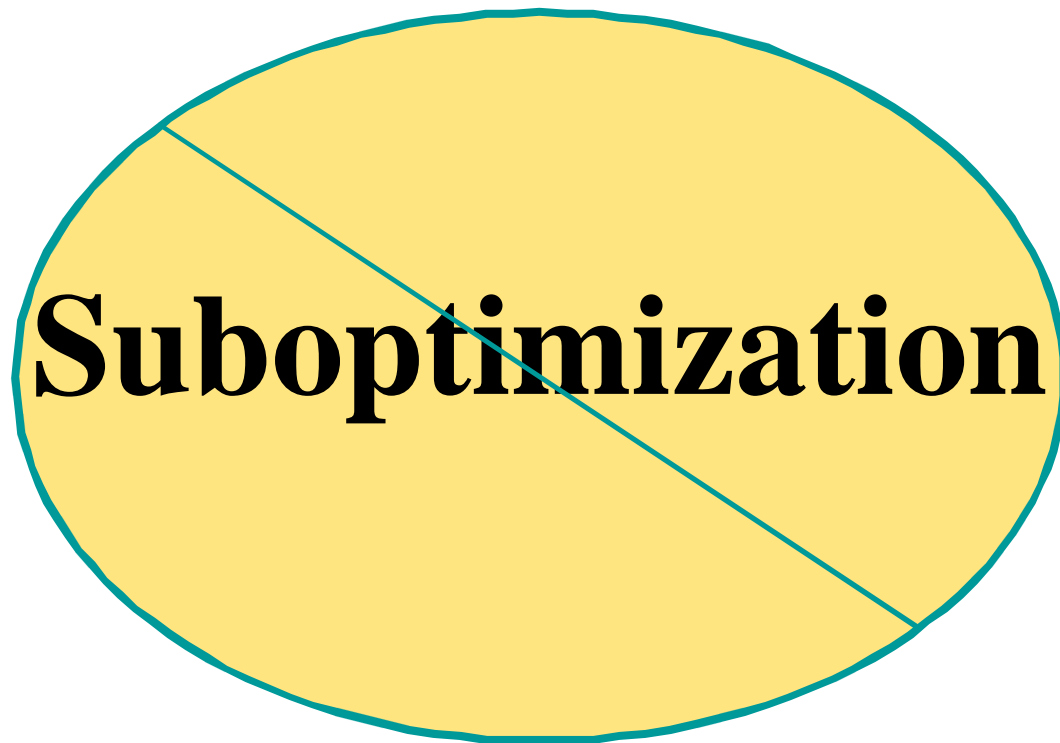
Analysis of Trade-Offs

- Decision on the amount of inventory to stock
 - Increased cost of holding inventory
- Vs.
- Level of customer service



Systems Approach

*“The whole is greater than
the sum of the parts.”*



Trends in Business

- Major trends
 - The Internet, e-commerce, e-business
 - Management technology
 - Globalization
 - Management of supply chains
 - Outsourcing
 - Agility
 - Ethical behavior

Other Important Trends

- Ethical behavior
- Operations strategy
- Working with fewer resources
- Revenue management
- Process analysis and improvement
- Increased regulation and product liability
- Lean production
 - Combination of Mass Production (high volume, low unit cost) and Craft Production (variety and Flexibility)