

# **A Seed Enterprises Management Institute (SEMI)**

**2017 Training**

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# MANAGING SEED ENTERPRISES OPERATIONS

SEMI's UoN

Seed Enterprises Management Institute

University of Nairobi

# MANAGING OPERATIONS

**Dr. Magutu, Peterson  
Obara (PhD)**

*University of Nairobi, School of  
Business*

*Département of Management Science*

# Introduction

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- ✘ Why are we here? To just talk of “seeds”
- ✘ How different or unique are you from other enterprises like milk processors?
- ✘ Any opportunities/challenges based on numbers of years in operation? (5-6 Years)
- ✘ Do you have the “capacity” to beat the competition?

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## Introduction

- ✘ What do you need most to succeed? Marketing infrastructure, Financial Resources or Efficient operation?
- ✘ Balancing Service Delivery - What is your focus? Quality or Cost, Quantity or Quality, Quality or Quantity?
- ✘ What is your understanding of the term operation in the context of your seed company and your positions?

Those in CEO Position(Participant #17&20)

Those in MDs Position(Participant #8&9)

Those in Finance Position(Participant #2, 3&4)

Those in Production Position(Participant #1&14)

# OBJECTIVES

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- ✘ Describe basic operations management concepts
- ✘ Describe core operations performance objectives
- ✘ Introduce basic capacity management concepts

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# INTRODUCTION

## Concept of Operations Management

- ✦ Operations is not just concerned with what goes on at the point of production..., but is also directly concerned with supplying the materials, the location and layout of facilities, the programming of operations and the motivation of employees.

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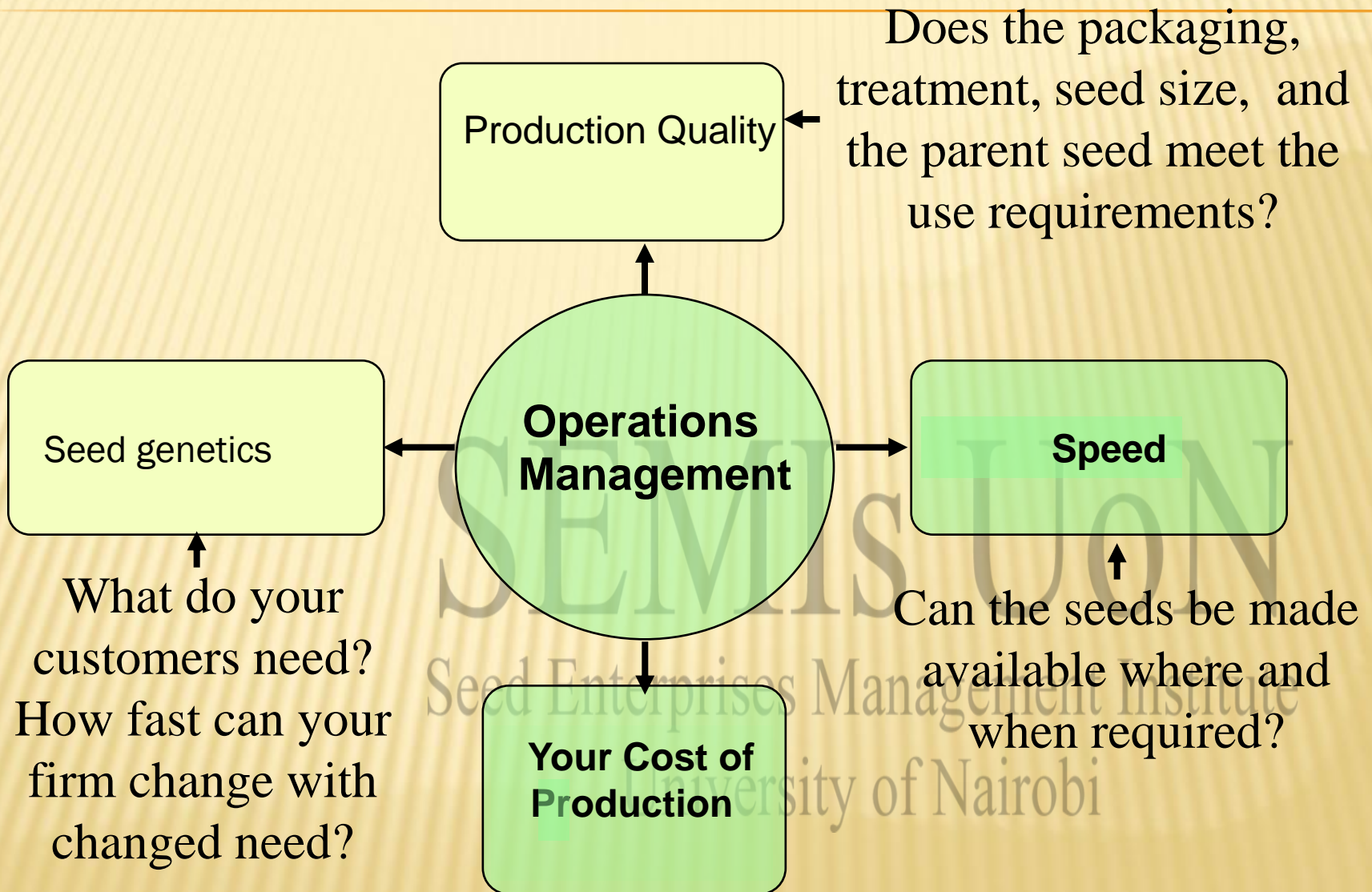
# The Activities of Operations Management



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# CORE OPERATIONS PERFORMANCE OBJECTIVES



# INTRODUCTION

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## Operations Management is:

The *business function* responsible for **planning, coordinating, and controlling** the resources needed to produce products and services for a company

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# OPERATIONS MANAGEMENT IS:

Operations Management is:

- ✘ An organization's core function
- ✘ In every organization whether Service or Manufacturing, profit or Not for profit
- ✘ Operations Management affects:
  - + Companies' ability to compete
  - + Nation's ability to compete internationally

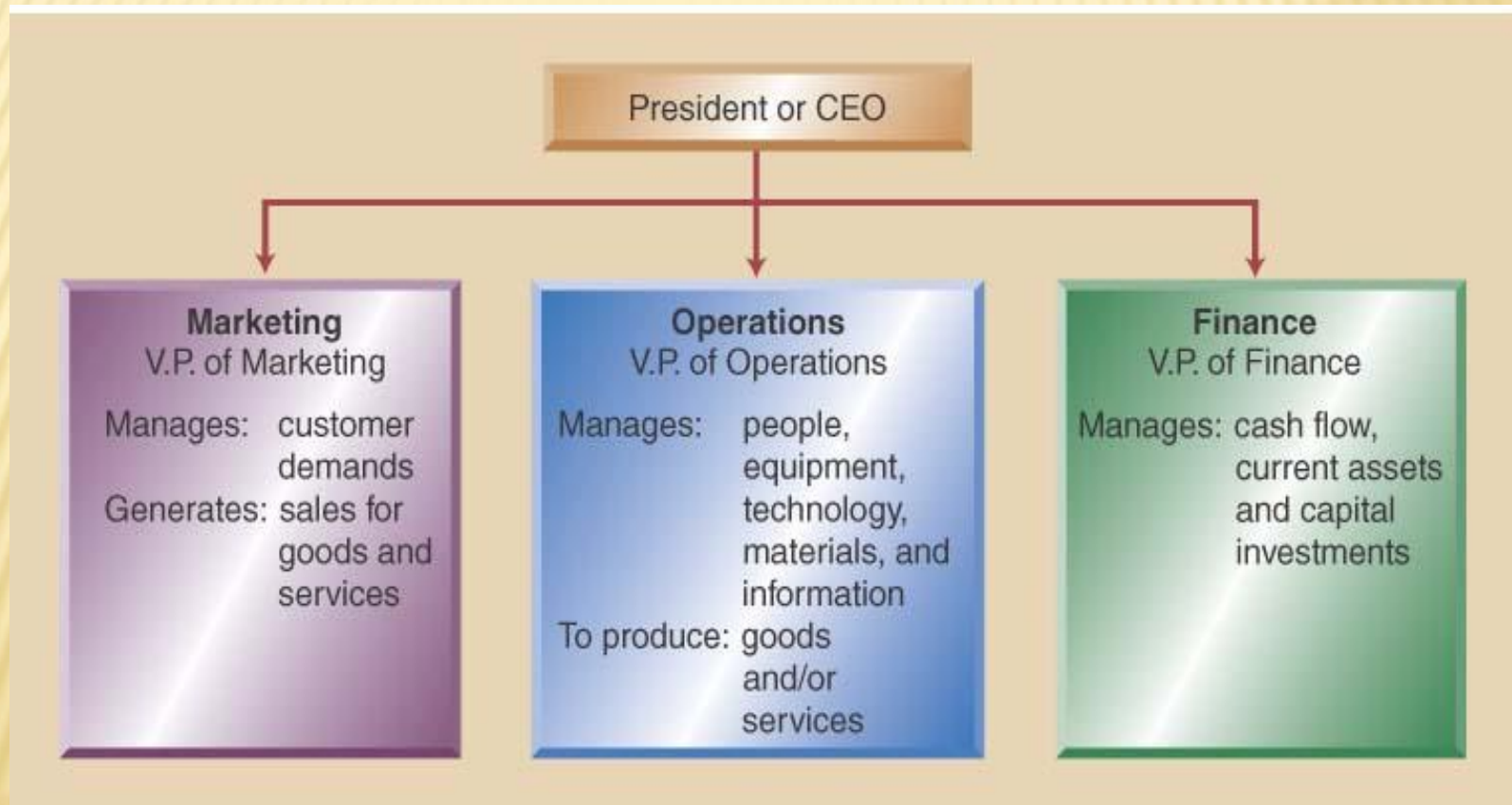


# WHAT IS ROLE OF OM?

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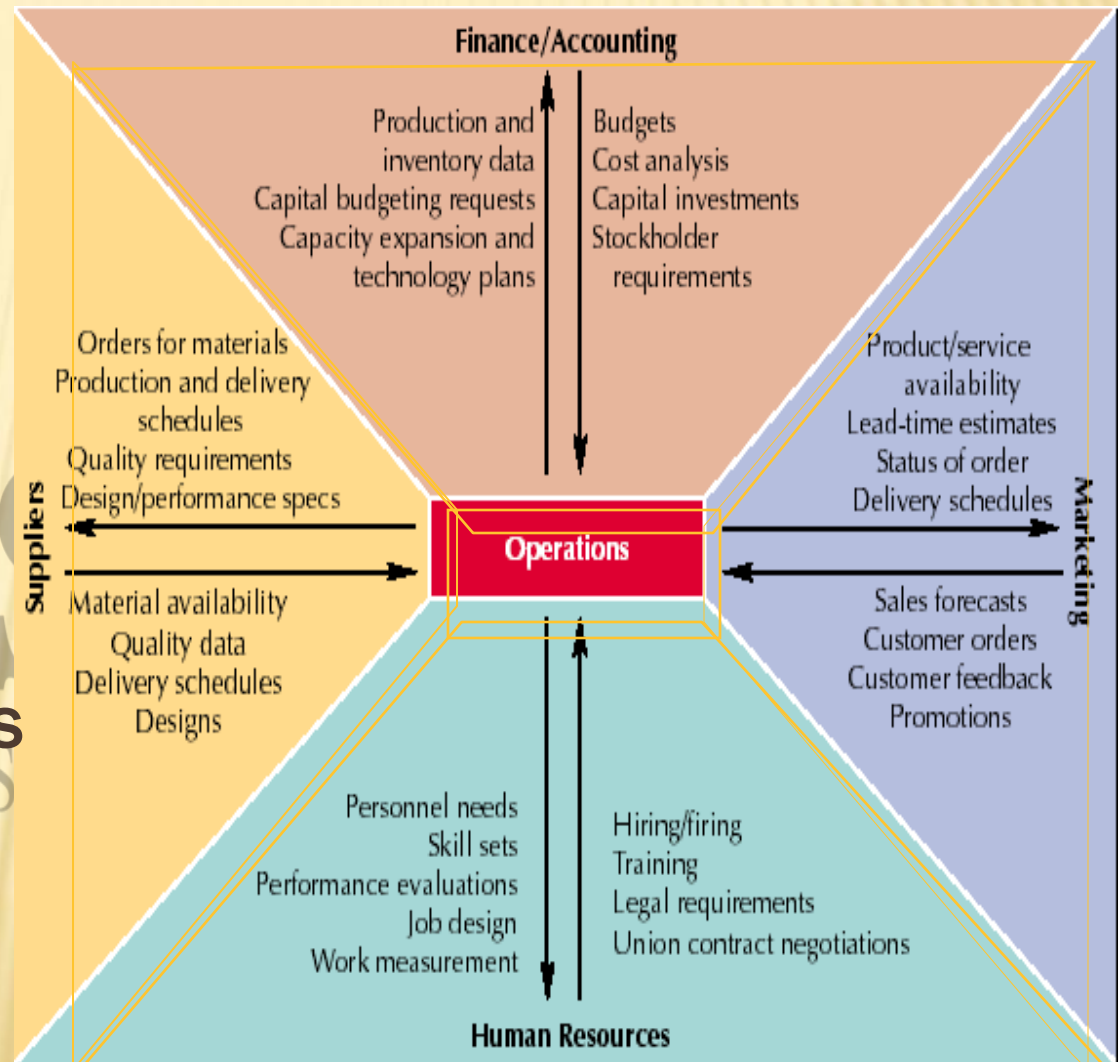
- ✘ OM Transforms inputs to outputs
  - + Inputs are resources such as People, Material, and Money
  - + Outputs are goods and services
- ✘ To add value
  - + Increase product value at each stage
  - + Value added is the net increase between output product value and input material value
- ✘ Provide an efficient transformation
  - + Efficiency – means performing activities well for least possible cost

# TYPICAL ORGANIZATION CHART & THE THREE BASIC FUNCTIONS



# OPERATIONS FUNCTION & THE THREE BASIC FUNCTIONS

- ✘ Operations
- ✘ Marketing
- ✘ Finance and Accounting
- ✘ Human Resources
- ✘ Outside Suppliers







**THE PRESIDENCY**

**MINISTRY OF DEVOLUTION AND PLANNING**

**DIVISION OF PERFORMANCE CONTRACTING**

**PERFORMANCE CONTRACTING GUIDELINES FOR THE FY  
2015/16**

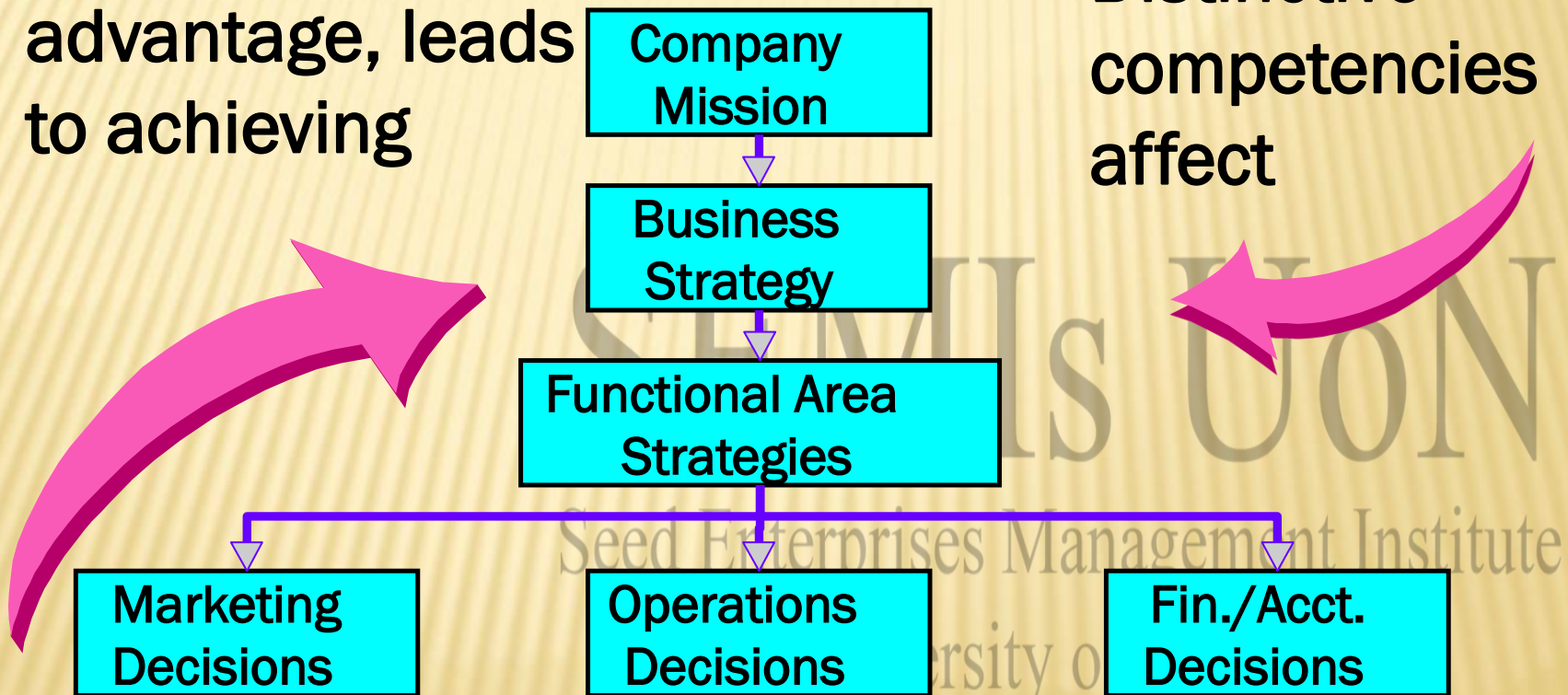
Weights for various criteria categories have been assigned to MDAs as follows:

Performance Criteria Category	Ministries /State Departments	Tertiary Institutions	State Corporations		
			Non Commercial	Public Universities	Commercial
Finance & Stewardship	10	10	10	10	35
Service Delivery	15	15	15	15	15
Non-Financial	10	10	10	10	10
Operations	50	50	50	50	25
Dynamic/Qualitative	5	5	5	5	5
Corruption Eradication/ Governance	5	5	5	5	5
National Cohesion and National Values	5	5	5	5	5

# HOW IT WORKS

If competitive advantage, leads to achieving

Distinctive competencies affect





# OM AND COMPETITIVENESS

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**Identifying consumer wants and/or needs** is a basic input in an organization's decision making process, and central to competitiveness.

**Pricing** is usually a key factor in consumer buying decisions.

**Advertising and promotion** are ways organizations can inform potential customers about features of their products or services, and attract buyers.

# OM AND COMPETITIVENESS

The degree to which a firm can produce goods and services that meet the test of international markets while simultaneously maintaining or expanding the wealth of its shareholders.

*Competing on Cost: Eliminate all waste*

- ✓ Invest in:
  - + Updated facilities & equipment
  - + Streamlining operations
  - + Training & development

*Competing on Quality*

- ✓ Please the customer
  - ✓ Understand customer attitudes toward and expectations of quality

*Competing on Speed*

- ✓ Fast moves
- ✓ Fast adaptations
- ✓ Tight linkages

✗ *Competing on Flexibility*

- + Adjust to changes in production mix, volume or design

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# STRATEGIC OPTIONS MANAGERS USE TO GAIN COMPETITIVE ADVANTAGE

- × 28% - Operations Management
- × 18% - Marketing/distribution
- × 17% - Momentum/name recognition
- × 16% - Quality/service
- × 14% - Good management
- × 4% - Financial resources
- × 3% - Other

If one argues that the quality/service categories really belong in OM, the total for OM reaches 44%.

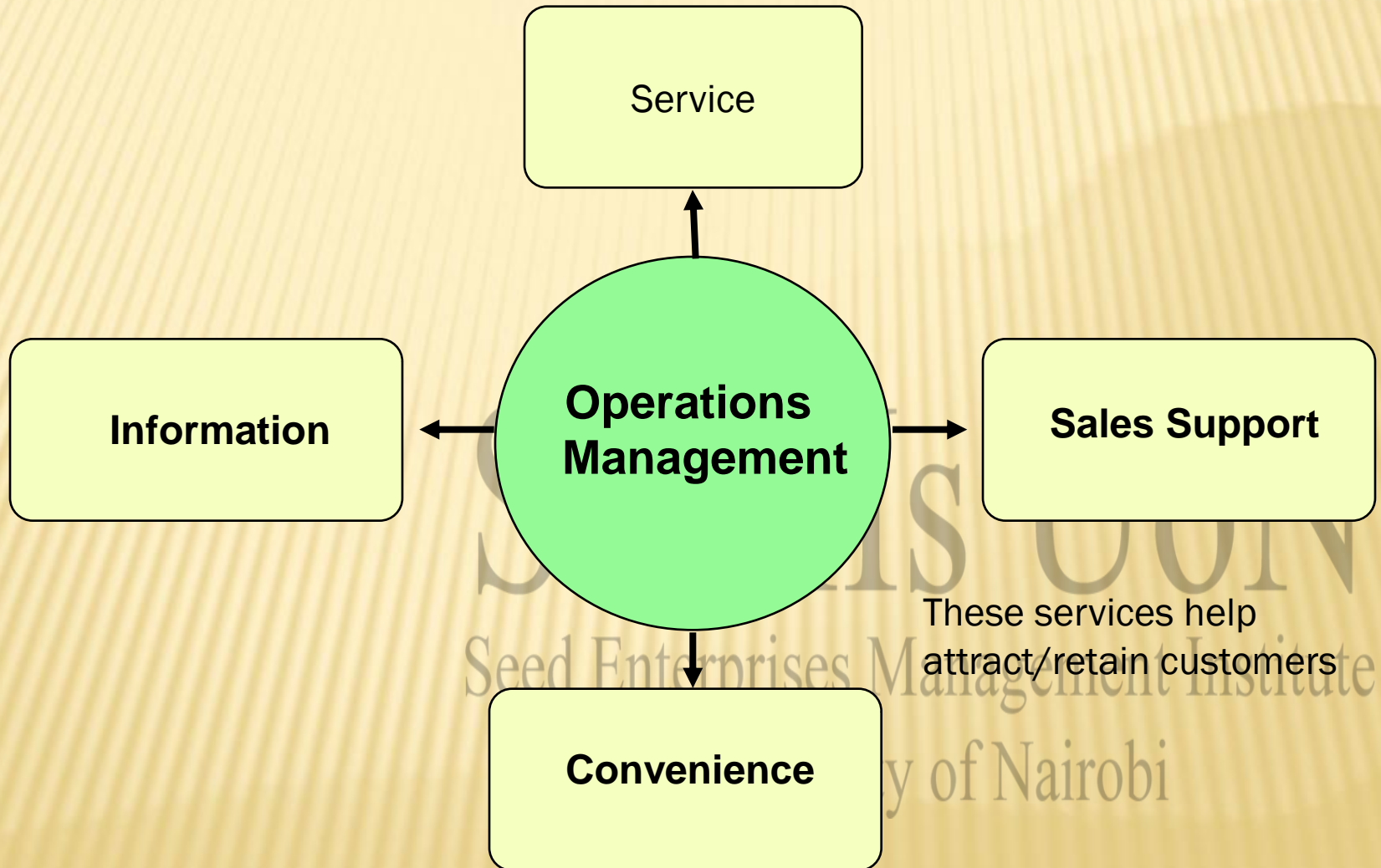


# STRATEGIC OPTIONS MANAGERS USE TO GAIN COMPETITIVE ADVANTAGE IN SEED COMPANIES

## × 28% Operations Management

- + Low- cost Seed product
- + Seed Product-line breadth
- + Seed Technical superiority
- + Seed Product characteristics/differentiation
- + Continuing Seed product innovation
- + Low-price/high-value Seed offerings
- + Efficient, flexible Seed operations adaptable to consumers
- + Seed Engineering research development
- + Location
- + Scheduling

# VALUE-ADDED SERVICE CATEGORIES



# Responsibilities of Operations Management

## Planning

- Capacity
- Location
- Products & services
- Make or buy
- Layout
- Projects
- Scheduling

## Controlling/Improving

- Inventory
- Quality
- Costs
- Productivity

## Organizing

- Degree of centralization
- Process selection

## Staffing

- Hiring/laying off
- Use of Overtime

## Directing

- Incentive plans
- Issuance of work orders
- Job assignments



# OPERATIONS STRATEGY

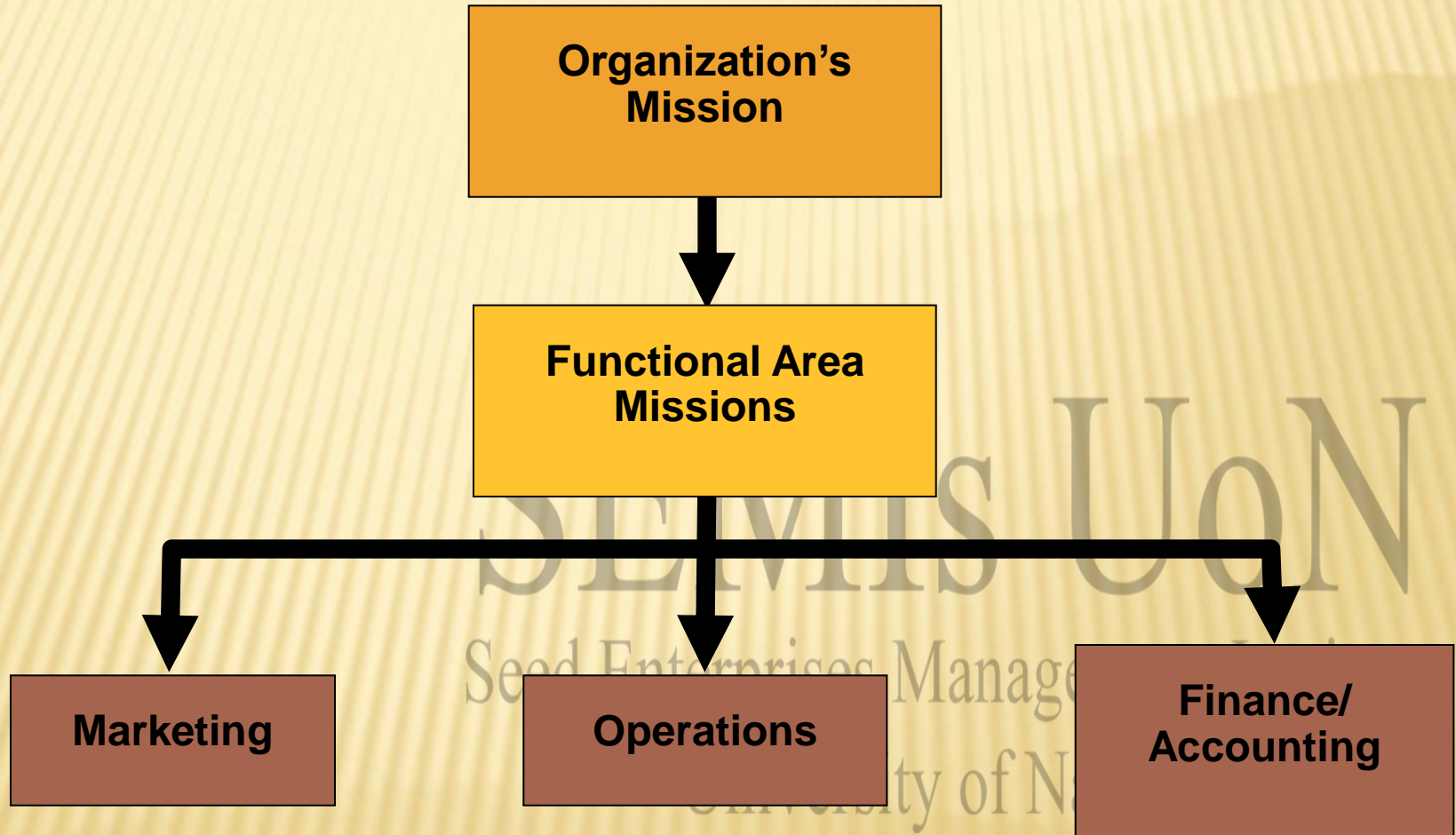
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*“Operations strategy  
defines  
how firms compete”*

***The operations manager’s job is to implement an OM strategy, provide competitive advantage, and increase productivity***

# STRATEGIC PROCESS

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# STRATEGY DEVELOPMENT PROCESS

## Analyze the Environment

Identify the strengths, weaknesses, opportunities, and threats. Understand the environment, customers, industry, and competitors.



## Determine the Corporate Mission

State the reason for the firm's existence and identify the value it wishes to create.



## Form a Strategy

Build a competitive advantage, such as low price, design, or volume flexibility, quality, quick delivery, dependability, after-sale service, broad product lines.



# **Steelmaker DOFASCO Does A Turnaround Through Strategic Refocusing**

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- ✘ It is no secret that Canadian steelmakers are under pressure. The industry is increasingly facing competition from steelmakers in developing countries such as Brazil, China, and India where labour costs are low. While some other Canadian steel makers struggle, Hamilton based Dofasco, in business since 1912, has turned around its losses from a decade ago through a revised strategy. The company also owns or has partial ownership in facilities in the United States and Mexico.
- ✘ Until the late 1980s, the company competed on price by producing as much steel as possible at the lowest possible prices. However by the early 1990s increased competition resulted in Dofasco not being able to compete profitably. As a result, by 1992 it found itself in debt and losing money.

# Steelmaker DOFASCO Does A Turnaround Through Strategic Refocusing

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- ✘ Realizing that the current “competing on cost” strategy (cost leadership) was untenable, Dofasco refocused its strategy to developing new and innovative products, and to providing its customers with solutions for high-quality and specialized applications (product differentiation).
- ✘ The business strategy was called *Solutions in Steel* and focused on operational excellence, technology and innovation, and intimate customer relationships. By 1999 it was the most profitable steel producer in North America. In 2000 it was ranked first in North America among thirty steel suppliers in an independent customer satisfaction survey and was rated one of the best Canadian companies to work for by *Report on Business Magazine*.
- ✘ What did it take to effect a successful transition from the old strategy to the new? Of course, this transformation did not come without effort, resources, or pain. Its workforce was reduced from about 13 000 to 7000. It spends considerable sums on research and development and facility upgrades. Dofasco recognized that employees would be critical to success in such a strategy.



# Steelmaker DOFASCO Does A Turnaround Through Strategic Refocusing

- ✘ Thus employees were provided a variety of training and development opportunities. In addition, the company invested in the health, safety, and wellness in the workplace such that in 2002, the National Quality Institute awarded Dofasco a Canadian Award for Excellence Healthy Workplace Trophy. Studies have shown that investing in health, safety, and wellness can improve productivity and lower costs. Quality at Dofasco has meant paying attention to environmental concerns also. In 2002, Dofasco's Hamilton facilities achieved ISO 14001 certification. This means that the company's Environmental Management Systems comply with an international set of environmental standards (Chapter 6 discusses quality awards and ISO standards in detail).
- ✘ This vignette provides an excellent example of the importance of formulating a successful business strategy and implementing supporting operations strategy decisions to ensure long term survival.

Sources: Priya Ramu, "Report on Canada's Steel Industry," *World at Six*, CBC Radio, August 6, 2003. Gordon DiGiacomo, *Case Study: Dofasco's Healthy Lifestyles Program* (Canadian Labour and Business Centre, 2002), [www.clbc.ca](http://www.clbc.ca).

Dofasco Inc., [www.dofasco.com](http://www.dofasco.com).

National Quality Institute, [www.nqi.com](http://www.nqi.com).

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# VALUE-ADDED & OPERATIONS MANAGEMENT

- ✘ Value-added is the difference between the cost of inputs and the value or price of outputs.

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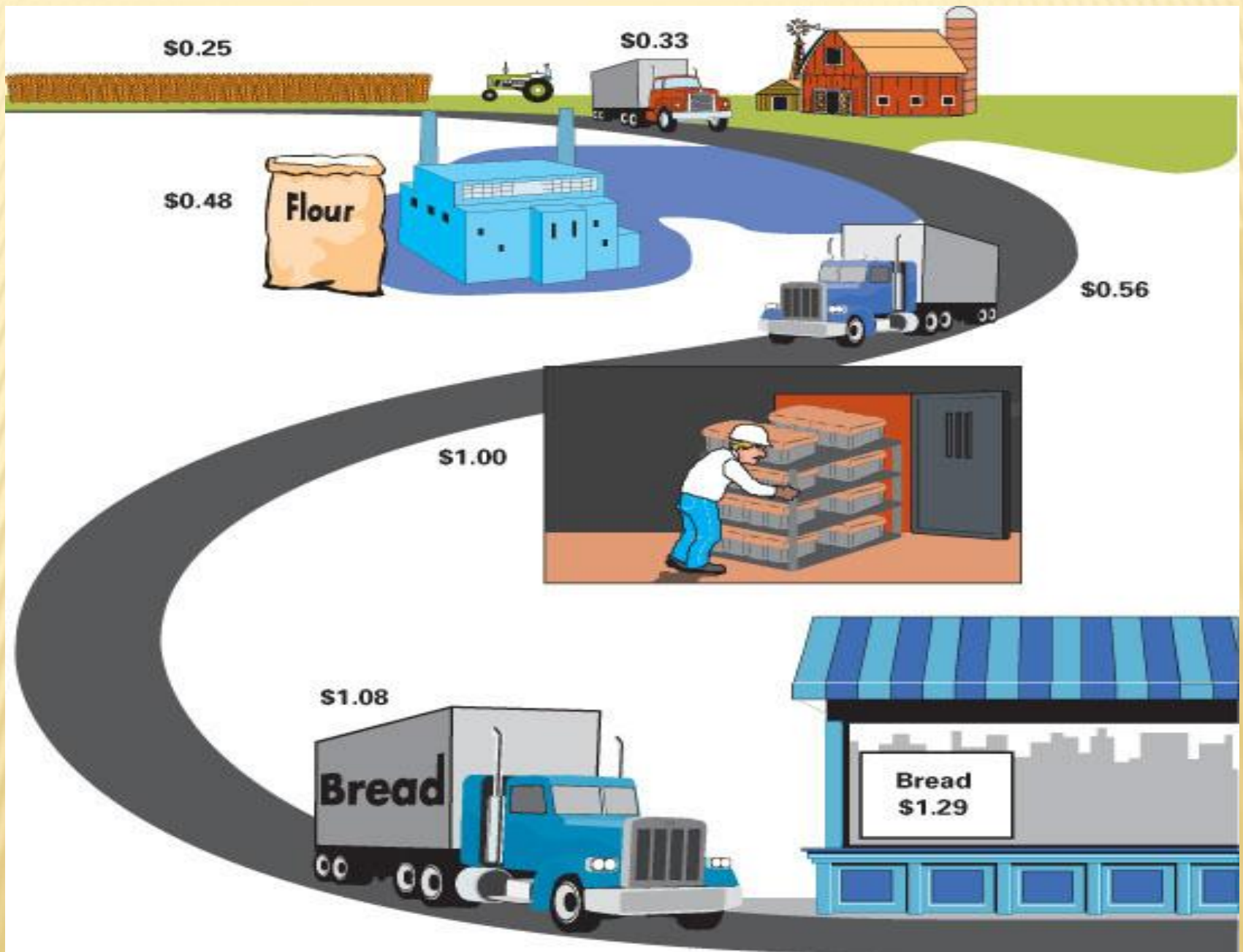
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# A Supply Chain for Bread

Stage of Production	Value Added	Value of Product
Farmer produces and harvests wheat	\$0.15	\$0.15
Wheat transported to mill	\$0.08	\$0.23
Mill produces flour	\$0.15	\$0.38
Flour transported to baker	\$0.08	\$0.46
Baker produces bread	\$0.54	\$1.00
Bread transported to grocery store	\$0.08	\$1.08
Grocery store displays and sells bread	\$0.21	\$1.29
<b>Total Value-Added</b>	<b>\$1.29</b>	



# COMPETITIVE PRIORITIES

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**Cost:** Providing low-cost products. To successfully compete in this niche, a firm must necessarily, therefore, be the low-cost producer. But, as noted earlier, even doing this doesn't always guarantee profitability and success.

**Quality:** Providing high quality products. Quality can be divided into two categories: product quality and process quality. The level of quality in a product's design will vary as to the particular market that it is aimed to serve.



# COMPETITIVE PRIORITIES

**Delivery:** Providing products quickly. Another market niche considers speed of delivery to be an important determinant in its purchasing decision. Here, the ability of a firm to provide consistent and fast delivery allows it to charge a premium price for its products.

**Flexibility:** Providing a wide variety of products. flexibility consists of two dimensions, both of which relate directly to how the firm's processes are designed. One element of flexibility is the firm's ability to offer its customers a wide variety of products. The greatest flexibility along this dimension is achieved when every product is customized to meet the specific requirements of each individual customer. This is often referred to as mass customization.

**Service:** How products are delivered and supported. To obtain an advantage in such a competitive environment, firms are now providing "value-added" service. This is true for firms that provide goods and services.



# OPERATIONS STRATEGY MEANS ADDING VALUE FOR THE CUSTOMER

“**customers want their money’s worth**”? Unfortunately, from a manager’s point of view, it’s not that easy. Customers want more than their money’s worth, and the more they receive for their money, the more value they see in the goods and services they are purchasing.

In determining the value of a product, be it a good or a service, customers take into consideration all of the benefits derived from the product and compare it with all of the costs of that product. If, in the opinion of the customer, the benefits exceed the costs, then customers perceive value in the product. The more the benefits exceed the costs, the more value the product provides.

In other words,

$$\text{Perceived customer value} = \frac{\text{Total benefits}}{\text{Total costs}}$$

When this ratio is  $>1$ , customers perceive value; the greater the number, the more value. When this ratio is  $<1$ , customers feel they have overpaid for the product, that they have been “ripped off,” and are highly unlikely to buy that product again in the future.

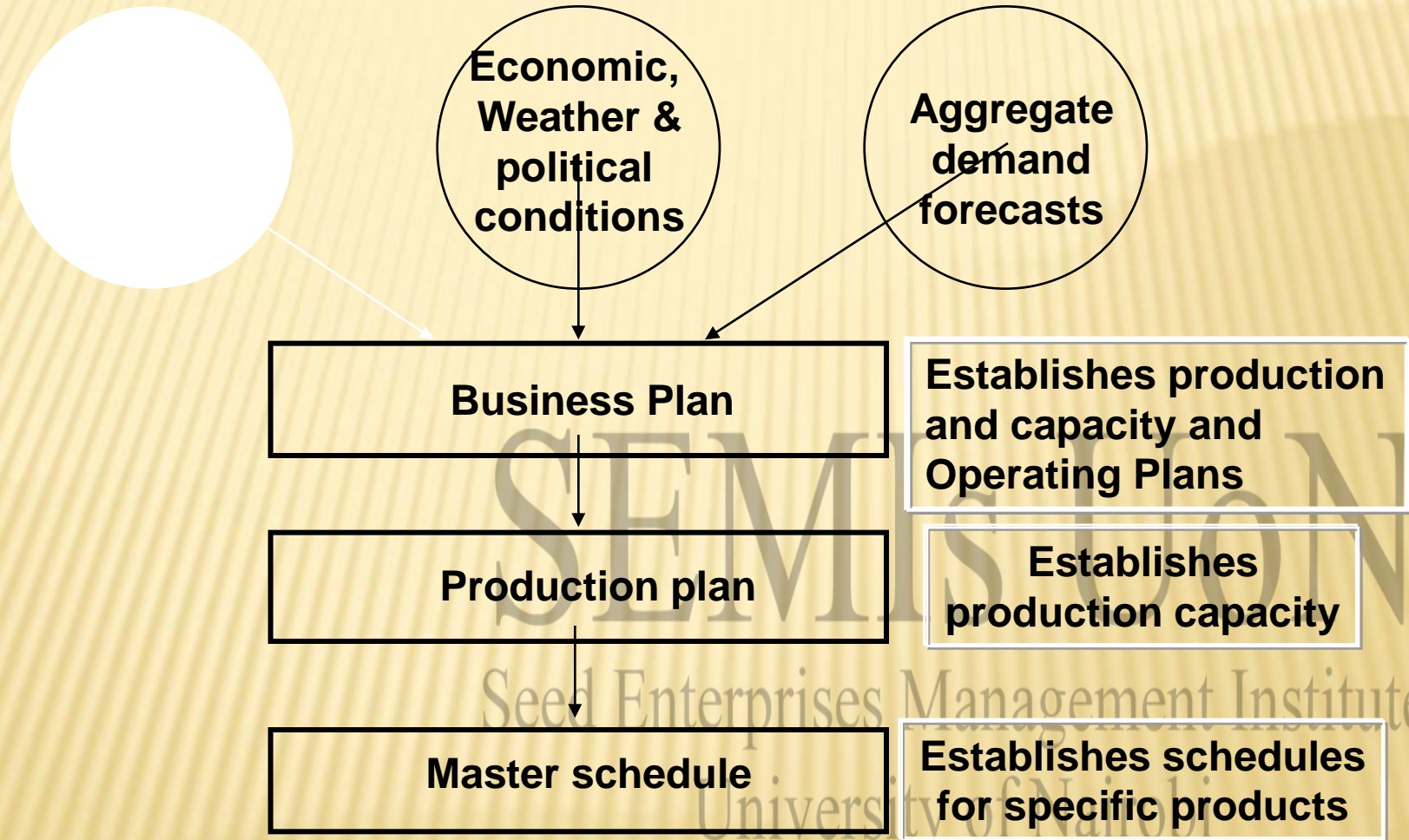
# OPERATIONS STRATEGY MEANS ADDING VALUE FOR THE CUSTOMER

Another way of looking at this is

**Perceived customer value = Total benefits – Total costs**

When the difference between the benefits and costs is positive, customers perceive value; when it is negative, they believe they have overpaid for the product. One of the goals in the development of an operations strategy, therefore, should be to maximize the value added to the goods and services that are provided by the firm

# PLANNING SEQUENCE





# THE MEANING OF CAPACITY

- × **Capacity is** the capability of a manufacturing or service resource such as a facility, process, workstation, or piece of equipment to accomplish its purpose over a specified time period.
- × The capacity of a production unit (e.g. machine, factory) is its ability to produce or do that which the customer requires.
- × Capacity can affect the following 4 dimensions;
  - + Quantity
  - + Quality
  - + Time
  - + Location

At every stage of a chain, sufficient capacity must exist & be coordinated with other stages & processes



# CAPACITY PLANNING

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- × Operations managers must decide on the appropriate levels of capacity to meet current & future demand – hence need for proper planning
- × Capacity planning should take place at multiple levels i.e capacity planning is generally viewed in 3 durations
  - × Long range
  - × Mid range
  - × Short range

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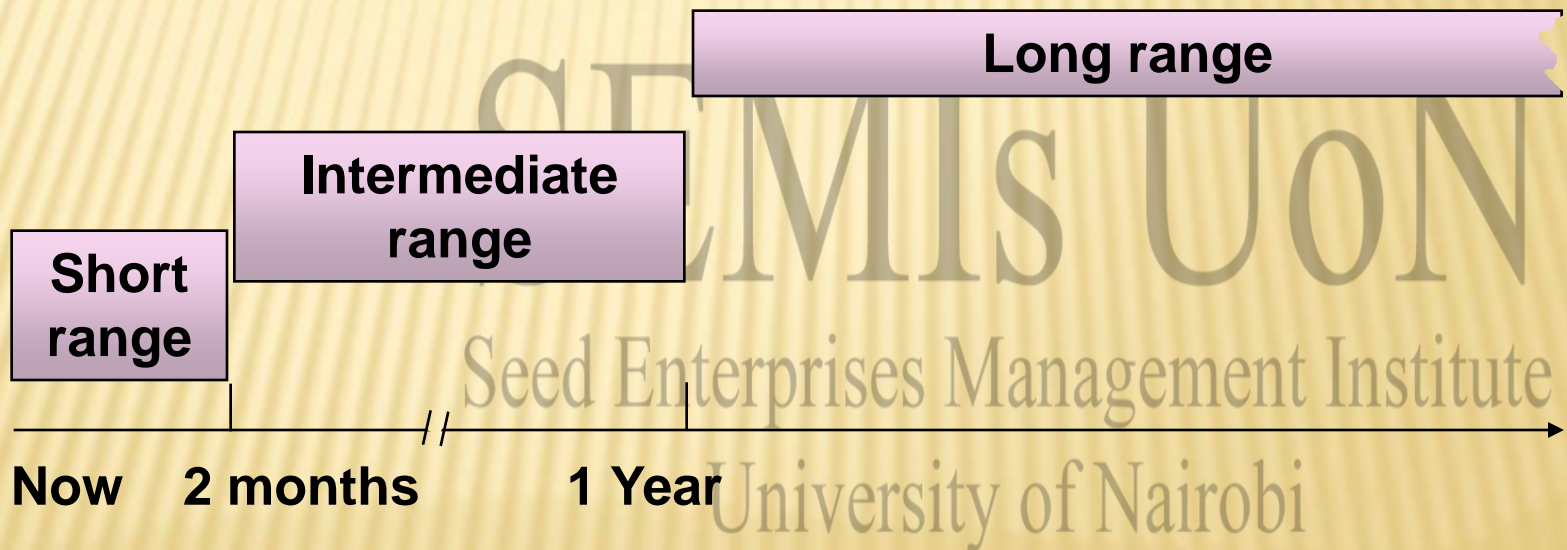
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# PLANNING HORIZON

Intermediate-range Capacity Plans: Usually covering 2 to 12 months.

Comes from what is referred to as aggregate planning



# CAPACITY MANAGEMENT - MEASURING

## CAPACITY

- ✘ The decision to increase capacity is not easy and can be extremely costly.
- ✘ Make sure you've fully analyzed all of your options and backed them with financial calculations.
- ✘ If you do purchase a new piece of equipment, there's a tendency to want to operate them at full-capacity to reduce the return on investment. This is a false way of thinking. You should be operating to meet your demand, not to keep the machines running. This line of thinking will lead to excess materials and increased costs.

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# MEASURING CAPACITY

In operations management, three types of capacity are often referred to:

- ✘ **Design/ Potential capacity**

This is the maximum theoretical output of a system

Maximum output rate or service capacity an operation, process, or facility is designed for. The capacity that can be made available to influence the planning of senior management. This is essentially a long-term decision that does not influence day-to-day production management. Normally expressed as a rate

- ✘ **Effective capacity**

This is the capacity a firm expects to achieve given current operating constraints An important concept. Not all productive capacity is actually used or usable. It is important for production managers to understand what capacity is actually achievable. Design capacity minus allowances such as personal time, maintenance, and scrap

- ✘ **Actual output or Immediate Capacity**

The amount of production capacity that can be made available in the short-term. This is the maximum potential capacity - assuming that it is used productively rate of output actually achieved—cannot exceed effective capacity.



# MEASURING CAPACITY : UTILIZATION AND EFFICIENCY

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$$\text{Efficiency} = \frac{\text{Actual output}}{\text{Effective capacity}}$$

Efficiency is the percent of effective capacity achieved

$$\text{Utilization} = \frac{\text{Actual output}}{\text{Design capacity}}$$

Utilization is the percent of design capacity achieved

Both measures expressed as percentages

# EFFICIENCY/UTILIZATION EXAMPLE

Design capacity = 50 tones of seed/day

Effective capacity = 40 tones of seed/day

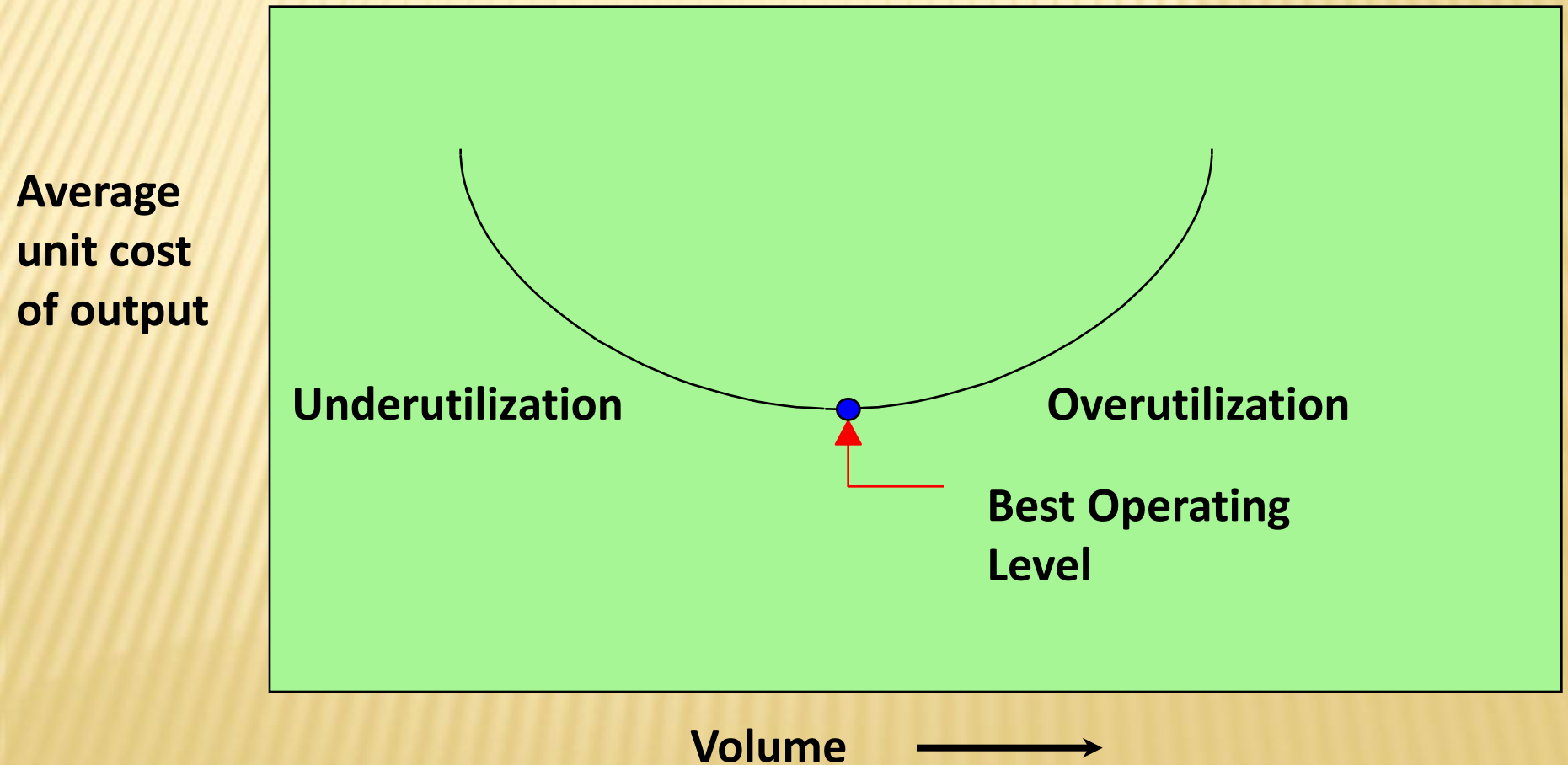
Actual output = 36 tones of seed/day

$$\begin{aligned} \text{Efficiency} &= \frac{\text{Actual output}}{\text{Effective capacity}} = \frac{36 \text{ units/day}}{40 \text{ units/day}} = 90\% \\ \text{Utilization} &= \frac{\text{Actual output or used}}{\text{Design capacity}} = \frac{36 \text{ units/day}}{50 \text{ units/day}} = 72\% \end{aligned}$$

*Design capacity is a.k.a best operating level  
Actual output is a.k.a capacity used*

# CAPACITY UTILIZATION AND BEST OPERATING LEVEL

Example: Engineers design engines and assembly lines to operate at an ideal or “best operating level” to maximize output and minimize waste





# BEST PRACTICE: RESULT BASED MANAGEMENT AND NOT MANAGEMENT OF PROCESSES

## ✘ Extraordinary results in:

1. Price cuts,
2. Market support
3. Reducing costs

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# Why improve operations?

## Improving market support

**Figure 12.1 Examples of how to review performance and typical improvements to meet alternative order-winners and qualifiers**

Order-winner or qualifier	Reviewing current performance	Typical improvements
Price	<ul style="list-style-type: none"><li>• Review actual material, direct labour and overhead costs</li><li>• Map current processes and identify areas of material and labour waste</li><li>• Review the mix of operations volumes</li><li>• Review annual operations volumes within a service/product range</li><li>• Review production run lengths</li><li>• Review the contribution per machine hour</li><li>• Review product pricing</li></ul>	<ul style="list-style-type: none"><li>• Reduce large areas of costs -70-90 per cent of the total cost is usually accounted for by materials and overheads</li><li>• Reduce material and labour waste</li><li>• Reduce changeover and set-up times for the manufacturing process</li><li>• Reallocate products across operations</li><li>• Focus each operation on a particular market or resource</li></ul>

# Why improve operations?

## Improving market support

Quality conformance	<ul style="list-style-type: none"><li>• Review quality conformance levels for the following areas: services, products, orders, customers and market segments</li></ul>	<ul style="list-style-type: none"><li>• Reduce quality conformance errors</li><li>• Build quality control into the system rather than checking conformance after the event</li></ul>
Delivery reliability	<ul style="list-style-type: none"><li>• Review the delivery performance for services/products, orders, customers and market segments</li><li>• Analyse and compare the delivery lead-times that customers have requested against the actual delivery lead-times that operations supplies</li><li>• Compare the actual processing with the overall operations lead-time</li></ul>	<ul style="list-style-type: none"><li>• Improve the scheduling of activities</li><li>• Improve process reliability</li><li>• Hold inventory at varying stages in the process</li></ul>



# Why improve operations?

## Improving market support

Delivery speed	<ul style="list-style-type: none"><li>• Analyse and compare the delivery lead-times that customers have requested against the actual delivery lead-times that operations supplies</li><li>• Compare the actual processing with the overall operations lead-time</li><li>• Map the actual operations process and identify any areas of material and labour waste</li></ul>	<ul style="list-style-type: none"><li>• Eliminate any waiting time between the steps in the process</li><li>• Reduce the lead-time of steps in the process</li><li>• Eliminate wasteful activities</li></ul>
Service or product range	<ul style="list-style-type: none"><li>• Review the capability of the process to meet the service or product range required now and in the future</li></ul>	<ul style="list-style-type: none"><li>• Develop the capability of the system to cope with the service or product range</li><li>• Develop employee skill levels</li><li>• Reduce changeover and set-up times</li></ul>

# Why improve operations?

## Improving market support

Demand fluctuations	<ul style="list-style-type: none"><li>• Assess the ability of the available capacity to respond to known or anticipated changes in demand</li></ul>	<ul style="list-style-type: none"><li>• Invest in capacity or inventory</li></ul>
Speed of new service or product development	<ul style="list-style-type: none"><li>• Map the new service/product development process and identify waste</li><li>• Determine the length of activities and their dependency on other activities or key resources</li><li>• Identify activities for which operations has responsibility</li></ul>	<ul style="list-style-type: none"><li>• Eliminate wasteful activities</li><li>• Increase the capacity of any constraining resources</li><li>• Reschedule activities so they are completed in parallel (rather than in sequence) with other parts of the process</li></ul>

# Why improve operations?

## Reducing costs

1. Review where **COSTS** can be reduced:
  - Material, direct and overhead
2. Map activities to identify and eliminate areas of **WASTE**
  - Review and reduce mix of **VOLUMES**
  - Review and increase **PRICE** of services or products
  - Where appropriate
  - Review and **STOP** selling services or products
  - Where appropriate