OVERVIEW – MODULE 2

- Business (corporate strategy)
- Operations strategy
- Competitiveness
  - Productivity
Mission Statement

- Defines the firm’s reason for existence
- Example: Dell

How does Dell accomplish this mission?
How the company’s mission is accomplished

- Provides vision & consistency of decisions
- Keeps company moving in right direction
- Defines an organization’s:
  - Primary task
  - Competitive priorities
**BUSINESS STRATEGY**

- Provides The “How”

- 1. Primary Task of Organization

- 2. Competitive Priorities

- Operations Strategy ➔ How to Best Utilize Resources to Support Business Strategy
COMPETITIVE PRIORITIES – AS RELATED TO OPERATIONS

- Cost
- Quality
- Delivery
- Flexibility

FOR DELL?
- low cost
- direct relationships
- high flexibility
- customizable PCs
COMPETING ON COST?

- Typically High Volume Products
- Often Limit Product Range & Offer Little Customization
- May Invest in Automation to Reduce Unit Costs
- Can Use Lower Skill Labor
- Probably Use Product Focused Layouts
COMPETING ON QUALITY?

- High Performance Design:
  + Superior features, high durability, & excellent customer service

- Product & Service Consistency:
  + Meets design specifications
  + Close tolerances
  + Error free delivery
COMPETING ON TIME?

- Fast Delivery
  + Focused on shorter time between order placement and delivery

- On-time Delivery
  + Deliver product exactly when needed every time

- Rapid Development Speed
  + Using concurrent processes to shorten product development time
COMPETING ON FLEXIBILITY?

- **Product flexibility**
  - Easily switch production from one item to another
  - Easily customize product/service to meet specific requirements of a customer

- **Volume flexibility**
  - Ability to ramp production up and down to match market demands
Product-process matrix: matches product characteristics with the appropriate choice of production process

There is a tradeoff between high-volume standardized products that get produced for a low per-unit cost and low-volume customized products that have a high per-unit cost.
UNDERLYING PROCESS RELATIONSHIP BETWEEN VOLUME AND STANDARDIZATION

1. Project Process
   - Custom job shop
   - Customer tailoring
   - Construction

2. Batch Process
   - Education classes
   - Bakery
   - Printing shop

3. Line Processes
   - Assembly lines
   - Cafeteria

4. Continuous Processes
   - Oil Refinery
   - Water treatment plant

Product Standardization

Low ➔ High

Product Volume

Low ➔ High

INTERMITTENT OPERATIONS

REPETITIVE OPERATIONS
### Differences Between Intermittent and Repetitive Operations

<table>
<thead>
<tr>
<th>Decisions</th>
<th>Intermittent Operation</th>
<th>Repetitive Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product variety</td>
<td>Great</td>
<td>Small</td>
</tr>
<tr>
<td>Degree of standardization</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Organization of resources</td>
<td>Grouped by function</td>
<td>Line flow</td>
</tr>
<tr>
<td>Path of products</td>
<td>Varied – product dependent</td>
<td>Line Flow</td>
</tr>
<tr>
<td>Factor driving production</td>
<td>Customer orders</td>
<td>Demand Forecast</td>
</tr>
<tr>
<td>Critical resource</td>
<td>Labor</td>
<td>Capital</td>
</tr>
<tr>
<td>Type of equipment</td>
<td>General purpose</td>
<td>Specialized</td>
</tr>
<tr>
<td>Degree of automation</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Throughput time</td>
<td>Longer</td>
<td>Shorter</td>
</tr>
<tr>
<td>WIP inventory</td>
<td>More</td>
<td>Less</td>
</tr>
</tbody>
</table>
• **Project process**: a type of process that has a **high degree of customization**, a large scope, a high degree of customer involvement, and the use of primarily generalized tools and equipment.

• A critical characteristic of projects is the requirement for close coordination among the various people and organizations involved with the project.

  - The 2008 Summer Olympics held in Beijing involved over 10,000 athletes, 37 competition venues, and over 70,000 volunteers.
**Batch processes**: a higher-volume job shop, in which the same or similar products are produced repetitively

- Examples: commercial printers that produce brochures or advertisements, production of clothing by size/style, micro breweries
LINE PROCESSES

- **Line processes**: processes that have high volumes, standardized products, and dedicated resources
  - Examples: computer assembly, food production (such as Kellogg’s Corn Flakes), smart phone assembly

- Every step in the process is performed repetitively, over and over, with little variation.

- Advantage: both equipment and workers can be very specialized
Continuous processes: processes that have high volume and low flexibility, and that work with nondiscrete items that are not divided into their final packages until the very end of production

- Examples: soda production, chemical production, brewing beer, and sugar and paint production

- Extremely capital intensive, very standardized, and very inflexible
- May be costly to stop to process
**Customer involvement:**

the degree to which customers are involved in shaping the end service/products that they receive

**Labor intensity:**

the amount of labor needed to provide a service relative to the total amount of physical resources needed
Service factories: services with both low customer contact/customization and a low degree of labor intensity

Service shops: services with low labor intensity but high customer contact or customization

Hospitals, auto and other repair services are excellent examples of service shops because while labor is a critical component, the capital investment in equipment and capacity is higher than the cost of labor.
Mass services: services with low customer contact or customization in combination with high labor intensity.

Retail companies, wholesalers, and schools are examples of mass services.
PROFESSIONAL SERVICES

- Services with both high customer contact or customization and a high degree of labor intensity

- Services provided by doctors, lawyers, accountants, and architects all have very high labor costs because of the large amount of education associated with these professions.

Source: © Image Source/Corbis
MISSION STATEMENT

BUSINESS STRATEGY

OPERATIONS STRATEGY

MARKETPLACE

MISSION STATEMENT

BUSINESS STRATEGY

PRINCIPAL TASKS AND COMPETITIVE PRIORITIES

FINANCE STRATEGY

OPERATIONS STRATEGY

MARKETING STRATEGY

INPUTS:
LAND
LABOR
CAPITAL...

OUTPUTS:
GOODS
SERVICES

PEOPLE

PLANTS

PARTS

PROCESSES

PLANNING & CONTROL SYSTEMS

PRODUCTION SYSTEM
COMPETITIVENESS - OPERATIONS

- How well are we doing?
  - Productivity measurements
    - scorecards of effective use of resources

Productivity = __________
To increase productivity…

- increase outputs
- decrease inputs
  (required to produce output)

Productivity = \frac{\text{OUTPUTS}}{\text{INPUTS}}
ABSOLUTE PRODUCTIVITY VS. GROWTH

- Absolute = a snapshot in time

- Growth = change over time

- Growth = \((P_2 - P_1) / P_1\)
  
  Each productivity measure \((P)\) should be the same type
SOURCES OF PRODUCTIVITY GROWTH

- External factors
  - environment, interest rates

- Improved labor inputs
  - education, demographics

- Capital-labor substitution

- Economies of scale

- Technological change
  - equipment and management
Sources of Productivity Growth 1948-1995
As operations manager, you are concerned about being able to meet sales requirements in the coming months. You have been given the following production report. Find the average total productivity per month (units per hour).

<table>
<thead>
<tr>
<th>Units produced</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
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<tbody>
<tr>
<td></td>
<td>2300</td>
<td>1800</td>
<td>2800</td>
<td>3000</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Hours worked</th>
<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Per machine</td>
<td>325</td>
<td>200</td>
<td>400</td>
<td>320</td>
</tr>
<tr>
<td># of machines</td>
<td>3</td>
<td>5</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Jan</td>
<td>Feb</td>
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<td>April</td>
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For the previous data set, based on growth in productivity between March and April, how many units can we expect to produce in May, if operating resources for May are the same as they were in April and we experience the same gain in productivity?
Productivity Growth Rate (from Mar to April)

\[ PGR = \frac{P_2 - P_1}{P_1} \]

\[ 2.34 - 1.75 / 1.75 = 33.93\% \]

Therefore, for May

\[ 2.34 \times 1.3393 = 3.13 \]

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<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Productivity</td>
<td>2.36</td>
<td>1.80</td>
<td>1.75</td>
<td>2.34</td>
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</tbody>
</table>
PRODUCTIVITY: QUICK REVIEW

How well are we doing?

Productivity =
Three kinds of productivity measures
- Total measures (over all inputs)
- Multi-factor measures (over some inputs)
- Partial measures (over one input)
What is business strategy in relation to OPS?

Name and describe 4 means to achieve competitive advantage as pertains to OPS?

Name and describe 3 processes to manufacture a product

Name and describe 2 vehicles to deliver services