Chapter 1

Operations as a Competitive Weapon

Chapter 1

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<th>Year</th>
<th>Expected Demand</th>
<th>Cash Flow</th>
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<td>(50,000)</td>
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</tr>
<tr>
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<td>25,000</td>
</tr>
<tr>
<td>5</td>
<td>60,000</td>
<td>30,000</td>
</tr>
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</table>

FedEx

- Why are they successful?
  - Fast
  - On-time deliveries
  - Relatively low cost
  - Technology in shipment tracking

Operations Management is...

“The systematic design, direction and control of processes that transform inputs into services and products for internal, as well as external, customers.”

Operations Management as a Function

- Accounting
- Distribution
- Engineering
- Operations
- Finance
- Human Resources
- Marketing

Processes

- Processes should add value.
- Processes can be broken down into sub-processes, which in turn can be broken down further.
- Any process that is part of a larger process is considered a “nested process.”
- Each process and each nested process has inputs and outputs.

How Operations As a Competitive Weapon fits the Operations Management Philosophy

Operations as a Competitive Weapon
Chapter 1

Nested Processes

**Advertisement Design and Planning Process**
- Creative design process
  - Receive work request
  - Assemble team
  - Prepare several designs
  - Receive inputs from Account Executive
  - Prepare final concept
  - Revise concept per client’s inputs
- Media planning process
  - Receive work request
  - Prepare several media plans
  - Receive inputs from Account Executive
  - Prepare final plan
  - Revise plan per client’s inputs

**Process View of an Ad Agency**

External vs. Internal Customers
- External Customers are those who purchase the goods and services.
- Internal Customers are those who receive the output of others within the firm. They are part of the transformation process.

Service Processes and Manufacturing Processes
- Manufacturing processes change materials in one or more of the following dimensions:
  - Physical properties
  - Shape
  - Fixed dimensions
  - Surface finish
  - Joining parts and materials
- If a process isn’t doing at least one of these, then it is a service (non-manufacturing) process.

Manufacturing and Service
- **Goods Production**
  - Tangible
  - Can be inventoried
  - Low customer contact
  - Capital Intensive
  - Quality easily measured
- **Service Production**
  - Intangible
  - Can’t be inventoried
  - High customer contact
  - Labor Intensive
  - Quality hard to measure

Most firms provide both goods and services.

Value Chains
- **Value chains** are an interrelated series of processes that produce a service or product to the satisfaction of customers.
- Value chains may have core processes or support processes.
- **Core processes** deliver value to external customers.
- **Support processes** provide vital inputs for the core processes.
Core Processes

1. Customer relationship processes
   - Identify, attract, and build relationships with external customers and facilitate the placement of orders.
2. New service/product development processes
   - Design and develop new services or products from inputs received from external customer specifications.
3. Order fulfillment processes
   - The activities required to produce and deliver the service or product to the external customers.
4. Supplier relationship processes
   - Select suppliers of services, materials and information and facilitate the timely and efficient flow of these items into the firm.

Support Processes

Internal Value-Chain Linkages

- Firms have many processes that support the core processes.
- External suppliers
- External customers
- Support processes
- New service/product development process
- Order fulfillment process
- Customer relationship process
- Supplier relationship process

Progressive Insurance

- Grew from $1.3 billion to $11 in 13 years.
- How did they do it?
  - Operational Innovation (Designing new processes)
  - Immediate Response Claims Handling (24 hours a day).
  - Streamlined claims processing, from 7-10 days to 9 hours.
  - Web site for agents only.
  - Web site for customer information, inquiries and routine processing.
  - Agents quickly go to scene of accident.

Operations as a Set of Decisions

Strategic Decisions
- Development of new capabilities
- Maintenance of existing capabilities
- Design of new processes
- Development and organization of value chains
- Key performance measures

Tactical Decisions
- Process improvement and performance measures
- Management and planning of projects
- Generation of production and staffing plans
- Inventory management
- Resource scheduling

Productivity

- Productivity is the value of outputs (services and products) produced, divided by the value of input resources (wages, costs of equipment, etc.)

\[
\text{Productivity} = \frac{\text{Output}}{\text{Input}}
\]
Chapter 1

Productivity Calculation
Example 1.1

1. Single factor
   Three employees process 600 insurance policies in a week. They work 8 hours per day, 5 days per week. Calculate the productivity in policies per hour.

   Labor productivity = \( \frac{\text{Policies Processed}}{\text{Employee Hours}} \)

   \[
   \begin{align*}
   \text{Policies Processed} &= 600 \\
   \text{Employee Hours} &= (3 \text{ Employees}) \times (40 \text{ hours/employee})
   \end{align*}
   \]

   \[= 5 \text{ policies/hr}\]

Example 1.1 continued

2. Multifactor
   A team of workers makes 400 units of a product, valued by its standard cost of $10 each (before markups for other expenses and profit). The accounting department reports that the actual costs are $400 for labor, $1,000 for materials, and $300 for overhead. Calculate the productivity.

   Multifactor productivity = \( \frac{\text{Quality at standard cost}}{\text{Labor cost} + \text{Materials Cost} + \text{Overhead cost}} \)

   \[
   \begin{align*}
   \text{Policies Processed} &= 400 \\
   \text{Quality at standard cost} &= (400 \text{ units}) \times (10 \text{$/unit}) = $4,000 \\
   \text{Labor cost} &= $400 \\
   \text{Materials Cost} &= $1,000 \\
   \text{Overhead cost} &= $300 \\
   \text{Total manufacturing cost} &= $400 + $1,000 + $300 = $1,700
   \end{align*}
   \]

   \[= 2.35 \text{$/4,000} = \frac{1}{\frac{1}{2.35}} \]

   These figures must be compared with performance levels in prior periods and with future goals.

Application

Calculate the year-to-date labor productivity:

\[
\begin{array}{c|c|c}
\text{Year} & \text{This Yr} & \text{Last Yr} \\
\hline
\text{Labor cost} & 2,590,286 & 2,493,786 \\
\text{Employee Hours} & 315,000 & 315,000 \\
\hline
\text{Labor productivity} & \frac{2,590,286}{315,000} = 8.22 & \frac{2,493,786}{315,000} = 7.95
\end{array}
\]

Calculate the multifactor productivity:

\[
\begin{array}{c|c|c}
\text{Year} & \text{This Yr} & \text{Last Yr} \\
\hline
\text{Sales of new products} & 492,924 & 492,924 \\
\text{Total cost} & 133,600 & 133,600 \\
\hline
\text{Multifactor productivity} & \frac{492,924}{133,600} = 3.71 & \frac{492,924}{133,600} = 3.71
\end{array}
\]

Global Competition

Businesses accept the fact that, to prosper, they must view customers, suppliers, facility locations, and competitors in global terms.

Most products today are composites of materials and services from all over the world.

Forces that created increased global competition:
- Improved Transportation and Information Technologies
- Looseened regulations on Financial Institutions
- Increased Demand for Imported Services and Goods
- Reduced Import Quotas and other Trade Barriers
- Comparative Cost Advantages

Global Competition Disadvantages

- May have to relinquish proprietary technology.
- Political risks.
- Alienate U.S. customers by sending jobs overseas.
- Lower skill levels in some areas.
- Difficulty with cross-functional coordination.
- Harder to produce products and services that can compete.

Other Challenges in Operations Management

- Rapid technological change
- Ethical issues across cultures
- Increasing diversity of the workforce
- Environmental impact issues
Chapter 1

Addressing the Challenges in Operations Management

Using Operations to Compete:
  - Operations as a Competitive Weapon
  - Operations Strategy
  - Project Management

Managing Processes:
  - Process Strategy
  - Process Analysis
  - Process Performance & Quality
  - Process Design
  - Lean Systems

Managing Value Chains:
  - Supply Chain Strategy
  - Logistics
  - Inventory Management
  - Forecasting
  - Sales & Operations Planning
  - Resource Planning
  - Scheduling