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Operations Management
by Roberta Russell & Bernard Taylor
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Operation Management
by Jay Heizer and Barry Render
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<tr>
<th>Era</th>
<th>Events/Concepts</th>
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<th>Originator</th>
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<tr>
<td>Industrial Revolution</td>
<td>Steam engine, Design of tractor engines, Assembly lines</td>
<td>1903</td>
<td>James Watt, Adam Smith</td>
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<td></td>
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<td>1913</td>
<td>Henry Ford</td>
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<td>Scientific Management</td>
<td>Principles of scientific management, Theory and method studies, Moving assembly lines</td>
<td>1911</td>
<td>Frederick Winslow Taylor</td>
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<td></td>
<td></td>
<td>1947</td>
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<tr>
<td>Human Relations</td>
<td>Hawthorne studies, Motivation theories, Strike effects</td>
<td>1929</td>
<td>Elton Mayo, Chester Mayo</td>
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<td></td>
<td></td>
<td>1965</td>
<td>Douglas McGregor</td>
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<td>Management Sciences</td>
<td>Linear programming, Digital computer, Systems engineering, Project management, MRP</td>
<td>1947</td>
<td>George Ballot</td>
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<td>1990</td>
<td>Joseph Orlicky, IBM</td>
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<td>Quality Revolution</td>
<td>Total Quality Management, Six Sigma, Kaizen, Lean manufacturing, Continuous improvement</td>
<td>1970s</td>
<td>Taiichi Ohno, W. Edwards Deming</td>
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<td>Information Age</td>
<td>E-Business, Internet, Virtual enterprises, ERP, CRM, Supply chain management, e-Commerce</td>
<td>1990</td>
<td>Numerous individuals and organizations, Thoma Bernes-Lee</td>
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<td>Globalisation</td>
<td>Global markets and operations, Supply Chain Management, Electronic connections, Mass customization</td>
<td>1990s</td>
<td>Numerous companies and nations, Thoma Bernes-Lee</td>
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The Operations Function

Operations as One of the Three Basic Functions of a Company

OPERATIONS
MARKETING
FINANCE

Operations as the Technical Core
Issues and Trends in Operations

- Intense competition.
- Global markets, global sourcing, and global financing.
- Importance of strategy.
- Product variety and mass customization. More services.
- Emphasis on quality.
- Flexibility.
- Advances in technology.
- Worker involvement.
- Environment and ethical concerns.

PRIMARY TOPICS IN OPERATIONS MANAGEMENT

Assuring Quality

- Quality drives operational decisions. The level of quality a company seeks to achieve is a strategic decision that eventually determines how a product is made or a service is delivered. Designing products and services, designing and planning the production process, locating and developing the production facility, designing jobs and work activities, and planning and scheduling the flow of products throughout the system are all areas of operations management that are increasingly dominated by quality.
Designing Products and Services

The traditional starting point in the production process is designing the product or service. Decisions related to design include converting customer requirements to product or service characteristics, determining the desired level of quality, selecting materials, and evaluating the resulting production costs.

Planning the Production Process

Once the product or service has been designed, the physical process that will produce the product or deliver the service must be constructed. Plans are developed for acquiring materials, determining the types of job skills, equipment, and technology required, and managing the process.

Laying Out the Facility

The production process that has been designed must be physically housed in a facility and laid out in an effective manner so that the product can be produced or service delivered as efficiently as possible. Decision making focuses on how to arrange different parts of the production or delivery process in the facility in order to ensure a smooth flow and minimal cycle time.
Designing Jobs and Work

A primary component of the production process is the work performed by people, alone, together, or with machines and equipment. Human resources management is the area of OM concerned with making sure that jobs meet the requirements of the production process in the most efficient and effective manner possible.

Managing the Supply Chain

- Once the production process and facility have been designed, decisions must be made regarding where to locate the facility in relation to customers and suppliers and how to manage the supply chain. A supply chain encompasses all the facilities, functions, and activities involved in producing and delivering a product or service, from the suppliers (and their suppliers) to the customer (and their customers).

Forecasting Demand for Products and Services

- Once the physical facility and production process are in place to produce a product or deliver a service, a host of planning decisions are required to determine how much to produce and when to produce it. These decisions are based on customer demand. Forecasting involves using a number of different methods and quantitative techniques to provide accurate estimates of demand, which are subsequently used to make production decisions.
Production Planning and Scheduling

Once management has determined how much product or service is needed to meet the demand, production schedules that involve a myriad of decisions are developed. These decisions include how much material or how many parts to order, when material or parts should be ordered, how many workers to hire, and how these workers should be scheduled on jobs and machines.

Production Planning and Scheduling

Decisions must also be made to ensure the amount of inventory available at each stage of the production process is sufficient to avoid unnecessary delays, and the amount of final inventory is sufficient to meet customer demand. For service operations, the number of servers required to serve customers in a timely manner must be established.

Production Planning and Scheduling

Production planning represents a major area of decision making in operations management and includes the topics of capacity and aggregate production planning, inventory management, material requirements planning, scheduling, just-in-time systems, service improvement, and project planning.