Lecture Notes

## **Chapter 1: Operations Management, Processes, and Supply Chain Management**

# **Overview**

**LO 1-1: Define and discuss operations management.**

**Operations management** can be defined as the effective planning, organizing, and controlling of the many value-creating activities of the firm. Although operations management may differ somewhat from company to company, there are still many similar operational responsibilities.

**LO 1-2: Define processes and supply chains.**

**Processes** are methods for getting the work done. They consist of a series of steps that turn inputs into outputs. **Supply chains** are the network of companies involved in making goods and services, including functions such as purchasing, production, delivery, etc.

**LO 1-3: Explain the value of viewing operations management from a process and a supply chain perspective.**

Managing and coordinating business processes within a network of supply chain trading partners enable all participants to deliver the best products (goods or services) to the end user. This perspective moves an organization from an internal focus to more of an external focus; thus, enhancing planning and performance through more effective coordination.

**LO 1-4: Describe the eight key processes linking organizations along the supply chain.**

**Customer relationship management** involves creating and maintaining customer relationships. **Customer service management** is the actual interaction with customers to maintain customer satisfaction. **Demand management** involves balancing customer requirements with supply chain capabilities. **Order fulfillment’s** purpose is to satisfy customer orders. **Manufacturing flow management** enables a company to make goods to satisfy target markets. **Supplier relationship management** involves creating and maintaining supplier relationships. **Product development and commercialization** enables a company to develop new products frequently and get them to market effectively. **Return management** involves managing product returns and disposal effectively.

**LO 1-5: Discuss the importance of operations management in services.**

Operations management in services has different characteristics than in manufacturing; therefore, affects how one addresses specific operational needs. In services, you have intangible products, sold in a decentralized location that is based on customer traffic. Unlike goods, services cannot be inventoried; thus, an unused service is lost. Finally, services often vary widely between competitors.

**LO 1-6: Summarize a number of the important developments in operations management.**

There are a number of important developments in operations management. **Lean thinking** is an operating philosophy encompassing the objectives of high quality, fast response, and low waste. **Just-in-time** (JIT), often viewed as synonymous with lean thinking, involves supplies and assemblies being pulled through the system when and where they are needed. **Quality management** concepts have continued to evolve from **total quality management** to **six sigma**. Other key developments are **material requirements planning** designed to balance plant capabilities with production requirements, **manufacturing resource planning** designed to enable firms to perform “*what if*” analysis, and **enterprise resource planning** designed to enhance the management of a firm’s functional activities, suppliers, and customers.

**Outline**

# **Slide 1**

Title Slide

# **Slide 2: Learning Objectives**

## **You should be able to:**

## Define and discuss operations management, processes, and supply chains.

## Understand the value of viewing operations management from a process and supply chain perspective.

## Describe the eight processes linking organizations along the supply chain.

## Discuss the importance of operations management in services.

## Describe a number of the important developments in operations management.

NOTES: None

# **Slide 3: Chapter Outline**

## Introduction

## Operations Management Defined

## Processes and Supply Chains

## A Supply Chain View of the Organization

## The Eight Key Supply Chain Processes

## Operations Management in Services

## Important Developments in Operations Management

## NOTES: None

# **Introduction**

# **Slide 4: Introduction**

## Organizations must continually assess, adjust, and redefine themselves

## Foreign organizations are adding competition

## Domestic firms constantly explore new product areas and new markets

## Processes represent unique ways of providing goods and services

## Successful organizations collaborate with their trading partners

## Successful operations management requires knowledge of the firm’s supply chains and key processes

NOTES: In today’s highly competitive global marketplace, organizations must continually assess, adjust and redefine themselves to win new customers, please existing ones and remain competitive. Many smaller markets in developing countries are continually opening and growing as social and political climates change.

Organizations must manage their processes successfully. The most successful organizations collaborate with their trading partners.

Successful operations management requires knowledge of the firm’s supply chains and the key processes linking the firm to its supply chains.

## **Operations Management Defined**

# **Slide 5: Operations Management Defined**

## **Operations** – set of activities associated with purchasing, making, delivering, and returning (or recycling) goods and services.

## **Good** – any tangible product like an automobile.

## **Service** – any intangible product like repair of automobiles once they are sold.

NOTES: Operations refers to the set of activities associated with purchasing, making, delivering, and returning (or recycling) goods and services. A good refers to any tangible product like an automobile, while a service refers to an intangible product such as the delivery of automobiles to the dealership, or the repair of automobiles once they are sold.

# **Slide 6: Operations Management Defined**

## **Operations management** (OM) – the effective planning, organizing, and controlling the many value-creating activities of the firm.

## Effective management of operations creates value for organizations’ products.

## **Basic operations activities** – purchasing, storage, transformation, distribution, and product returns.

## Today, operations managers have one of the highest-paying occupations in the United States

NOTES: Operations management vary somewhat from firm to firm, there are still many similar operations responsibilities. To make these activities come together successfully, a number of other associated activities also fall under the responsibility of operations managers.

Management of operations involves creating value for organizations’ products and the **basic operations activities** such as purchasing, storage, transformation, distribution, and product returns.

OM professionals earned a median income of $95,000 in 2012, with the highest-paid 10 percent earning more than $187,000 per year.

**Processes and Supply Chains**

# **Slide 7: Processes and Supply Chains**

## What is a Process?

## A process is a method for getting work done

## Consists of a series of steps that turn inputs into outputs

## Most operations activities are sets of business processes that are managed by operations managers

NOTES: Processes consist of a series of steps that turn inputs (such as experience, equipment, materials, time, and money) into outputs (goods, services, effective meetings, and educated kids).

Process decisions must continually be made in organizations regarding, for example, what activities to perform in-house and what to obtain elsewhere

# **Slide 8: Figure 1.2: Generic Business Process Elements**

# See Figure 1.2 on page 7.

# NOTES: As shown in Figure 1.2, a business process consists of a set of linked activities or elements designed to create valued goods, services, and decisions for internal and external customers.

# **Slide 9: What is a Supply Chain?**

## Definition:

## Network of companies making goods and services available to consumers, including enabling the purchasing, production, delivery, and recycling of materials, components, and end products

NOTES: All goods and services reach customers via some type of supply chain—some much larger, longer and more complex than others.

Companies with multiple products have multiple supply chains.

# **Slide 10: Figure 1.3: Generic Supply Chain**

# See Figure 1.3 on page 8.

## A number of companies are involved in the supply chain in Figure 1.3

NOTES: Many companies are involved in this supply chain, from oil companies, lumber mills, raw material manufacturers, to end product manufacturers, transportation companies, warehousing companies, and labeling, packaging and retailing companies, and finally, the recycling companies (not shown here).

Behind the scenes, there are also support services like maintenance, janitorial, and office supply companies.

**A Supply Chain View of the Organization**

# **Slide 11: A Supply Chain View of the Organization**

## Organizations sharing and coordinating key processes with trading partners

## Quest for cheaper operating costs has led to more geographically dispersed supply chains

## **Business process integration** – the sharing and coordination of key processes between companies in a supply chain

### Begins with firm’s primary goods and service suppliers (**first-tier suppliers**) and extends to firm’s most-valued direct customers (**first-tier customers**)

NOTES: Due to rapid technological changes and competitive pressures, organizations have moved from an internal focus to more of an external focus.

These joint efforts allow each participant within the supply chain to learn the actual purchase plans of their customers, to share new product design and development plans with suppliers, to jointly develop better ways to purchase, build, and deliver products, to reduce stockout costs, inventory carrying costs, and delivery costs, and finally, to improve customer service and satisfaction.

# **Slide 12: A Supply Chain View of the Organization**

## When more attention is given to internal competencies, less important activities might cease to be performed in-house

## **Outsourcing** – buying goods and services from suppliers instead of making them in-house

## Result – greater reliance on outside suppliers to keep product costs low, while providing high levels of service and product quality

NOTES: When firms decide to focus more of their attention on their internal competencies (what they do best), then other, less important activities might cease to be performed in-house.

Outsourcing results in a greater reliance on outside suppliers to keep product costs low, while providing high levels of service and product quality.

To achieve this benefit firms must foster long term, mutually beneficial buyer-supplier relationships.

# **Slide 13: A Supply Chain View of the Organization**

## **Supply chain management** – integration of key business processes concerning the flow of materials from raw material suppliers to the final customer

## The foundation of supply chain management is business process integration

## Some large firms have both a supply chain manager and an operations manager

## NOTES: Business process integration is the foundation of supply chain management. Today, operations managers are working harder than ever to integrate processes with their firms’ direct suppliers and customers. Some large firms have both a supply chain manager and an operations manager. In these cases, operations managers deal most often with internal operations activities while supply chain managers work with external integration activities involving direct and second-tier suppliers and customers.

**The Eight Key Supply Chain Processes**

# **Slide 14: The Eight Key Supply Chain Processes**

* Customer Relationship Management
* Customer Service Management
* Demand Management
* Order Fulfillment
* Manufacturing Flow Management
* Supplier Relationship Management
* Product Development and Commercialization
* Returns Management

NOTES: To achieve successful supply chain process integration and all of the associated benefits, supply chain partners must reach a shared understanding of the key supply chain processes. Here are the eight supply chain processes identified by The Global Supply Chain Forum.

# **Slide 15: The Customer Relationship Management Process**

## **Customer relationship management** (CRM) – managing the firm’s customer base so they remain satisfied and continue to purchase goods and services

## Treating customers right

## Identifying customers’ needs

## Designing strategies for creating customer satisfaction and loyalty

NOTES: Since customers are not all the same, firms segment their customers and provide different sets of goods and value-enhancing services to each segment to maximize long-term profitability.

A successful CRM program involves treating customers right and finding ways to identify the firm's customers and their needs, and designing strategies such that customer contact activities are geared towards creating customer satisfaction and loyalty.

# **Slide 16: The Customer Service Management Process**

## **Customer service management** – a process that attends to customer needs before, during, and after the sale

## Websites can relay information to customers

## Training employees to provide information/services

## Carrying safety stock

## Creating excess service capacity

NOTES: Software, and websites are designed to relay information to customers, and customer service employees are trained to provide information and services that customers want. Customer service management might also include carrying safety stock to avoid stockout situations and using excess service capacity to avoid long customer wait times (**capacity** can be defined here as the maximum amount of goods and/or services that a system can produce over a set period of time).

# **Slide 17: The Demand Management Process**

## **Demand Management** – to balance customer demand with the firm’s capacity

## Firms forecast demand and translate it into desired levels of purchasing, production, and distribution activities

## Customers share future purchase quantities, actual sales data, or promotion and new product plans with suppliers

## Developing contingency plans when demand and capacity imbalances exist

NOTES: Customers can share their planned future purchase quantities, actual sales data, or promotion and new product plans with their suppliers.

Demand management is used to develop contingency plans for the occasions when demand and capacity imbalances exist.

Organizations can try to reduce excess demand during busy periods for instance, by raising prices to curtail or move some demand to less busy periods, or by segmenting demand to facilitate better service

# **Slide 18: The Order Fulfillment Process**

## **Order fulfillment** – providing for the on-time delivery of goods and services to customers

## Customers get what they want, on-time, at a competitive price

## Impacts the ability to deliver goods and services to customers

* + Facility sizes
  + Locations
  + Customer locations
  + Modes of transportation used

NOTES: The **order fulfillment** process provides for the on-time delivery of goods and services to customers and this requires the internal integration of marketing, manufacturing, and distribution.

Successful firms know their customer requirements and have a good distribution network, so that products are delivered where and when they are needed, at a low cost.

# **Slide 19: The Flow Management Process**

## **Flow management process** makes the good or service and manages production inventories

## Flow management decisions include:

### How and where to store/move incoming and work-in-process materials

### How to design and manage customer queues

### How to schedule goods and service attendants

### Type of processing equipment to use

### Level of technology to employ

### How and where to store finished goods

NOTES: This involves designing the manufacturing or service processes to achieve the desired flexibility to meet changing customer requirements.

Aiding in all of these decisions are the use of information systems, thus information flow is also included in the very broad topic of flow management.

# **Slide 20: The Supplier Relationship Management Process**

## **Supplier relationship management** (SRM)develops strategic relationships with suppliers

## Successful SRM requires firms to establish performance criteria to rank suppliers

## Companies can further develop their suppliers through training and knowledge sharing

NOTES: It is critical that firms develop strategic relationships with their suppliers, and then manage these relationships to create value for all participants in the supply chain.

In the supplier relationship management (SRM)process, firms develop strategic relationships with their suppliers, and manage these relationships to create value for all participants in the supply chain.

Suppliers are also typically re-evaluated on a periodic basis to achieve continuous improvements in cost, quality, and service.

# **Slide 21: The Product Development and Commercialization Process**

## **Product development and commercialization** responsible for new product and product improvement ideas

### **Three-dimensional concurrent engineering** (3-DCE) is the simultaneous design of product, process, and supply chain configuration

NOTES: Designing and producing new products that customers want, and doing it frequently and efficiently, is today a requirement for continued success in competitive industries.

The idea behind 3-DCE is that it further reduces the time from new product design to purchase and use by customers, while also reducing cost and potentially improving product quality.

# **Slide 22: The Returns Management Process**

## Managing product returns effectively is an important part of the **Returns Management Process**

## Key objectives include:

### Improving future product offerings and customer satisfaction

### Reducing or eliminating product returns

NOTES: Managing product returns effectively can reduce disposal costs and also be a source of additional customer satisfaction.

Retailers can share product return and complaint data with manufacturers, with the aim of improving future product offerings and customer satisfaction. Another objective of returns management should be to ultimately reduce or eliminate product returns.

**Operations Management in Services**

# **Slide 23: Operations Management in Services**

## Service firms make intangible products

## **Customer contact** – amount or percentage of time customers are in contact with the service system while service is being provided

### High contact service

### Low contact service

NOTES: Services make intangible products, which may also include some tangible elements. For example, Southwest Airlines provides a transportation service which also includes drinks, the use of a seat (and the airplane), and of course, peanuts.

Services can be classified based on customer contact.

In high contact services, the service processes are more difficult to manage—customers require more and customized services, such as with a beauty parlor. Customers are heavily involved in the service and may impact service quality. Servers require more training, and may be more difficult to find in the first place. With low contact services, such as an online self-service stock broker, most of the actual work is done behind the scenes, and is highly automated.

# **Slide 24: Table 1.2: Characteristics of Manufacturers and Services**

See Table 1.2 on page 15.

NOTES: Service provides a mostly *intangible product*, while a manufacturer provides one which is mostly *tangible*. This can present somewhat of a problem for services—customers for example, typically cannot try out a service prior to its purchase. Services also must provide their products in a decentralized fashion, since most services require some degree of customer interaction. This also means that services must be in an easy-to-find location.

Server attitudes and customer whims can play a large role in service quality.

Goods, on the other hand, can be made to very strict design specifications.

# **Slide 25: The Differences between Manufacturers and Services**

## The **goods-service package** is defined by the:

## Explicit service

## Implicit service

## Facilitating goods

## Supporting facility

NOTES: Service products can vary widely from one similar service company to the next, depending on the goods-service package offered. Explicit service (travel from point A to point B, the haircut, the stock purchase); *Implicit service* (server attitudes, safety and security, convenience, atmosphere); *Facilitating goods* (the goods accompanying the service such as food or TV in a restaurant); and the *Supporting facility* (the airplane, the bank building and the layouts).

# **Slide 26: The Global Service Issues**

## Issues for successfully managing services as they expand into foreign markets:

## Labor, facilities, and infrastructure support

## Legal and political issues

## Domestic competitors and the economic climate

## Identifying global customers

NOTES: *Labor, facilities, and infrastructure support.* Cultural differences, education, and expertise levels can prove to be problematic for firms unfamiliar with local human resources. Firms must also become adept at locating the most appropriate support facilities, suppliers, transportation providers, communication systems, and housing.

*Legal and political issues.* Local laws may restrict foreign competitors, limit use of certain resources, attach tariffs to prices, or otherwise impose barriers to global service expansion.

*Domestic competitors and the economic climate.* Managers must be aware of the local competitors, the services they offer, their pricing structures, and the current state of the local economy.

*Identifying global customers.* Firms must find out where their potential global customers are, through use of the Internet, foreign government agencies, trading partners, or foreign trade intermediaries. Once potential customers are identified, services can modify their products to meet the needs of these customers.

**Important Developments in Operations Management**

# **Slide 27: Lean Thinking and Six Sigma Quality**

## **Lean thinking** emphasizes

### Reduction of waste

### Continuous improvement

### Synchronization of material flows within the organization and between supply chain trading partners

## **Just-in-Time** (JIT) systems

### Supplies and assemblies are “pulled” through the system when and where they are needed

NOTES: The concept of **lean thinking** refers to a collection of processes and philosophies emphasizing the reduction of waste, along with continuous improvement, and the synchronization of material flows within the organization and between supply chain trading partners.

**Just-In-Time** (JIT) concept is synonymous with lean thinking. With JIT systems, supplies and assemblies are “pulled” through the system when and where they are needed.

# **Slide 28: Lean Thinking and Six Sigma Quality**

## **Total Quality Management** (TQM) and **Six Sigma** represent a philosophy encompassing a collection of processes that seek to:

## Improve quality continuously

## Reduce costs

## Create competitive advantage for the firm

## Motorola is the originator of the registered (capitalized) term “Six Sigma”

NOTES: **Total Quality Management** (TQM) (and more recently **Six Sigma**,although there are several differences between the two concepts) is a philosophy encompassing a collection of processes that seek to improve quality continuously to please customers, reduce costs, and ultimately, create competitive advantage for the firm.

Motorola, the originator of the registered (capitalized) term, Six Sigma, has seen many benefits over the years with its use.

# **Slide 29: Material Requirements Planning and Enterprise Resource Planning**

## **Material requirements planning**

## Software that balances part purchases and plant capacities with production requirements

## **Manufacturing resource planning**

## Software that enables firms to perform forward-looking *what-if analyses* of plant capacities

## **Enterprise resource planning**

## Software for managing a firm’s functional activities, suppliers, and customers

NOTES: Material requirements planning is software applications that were developed to try and balance part purchases and plant capacities with production requirements.

Manufacturing resource planning is software systems that were designed to allow firms to perform forward-looking *what-if analyses* of plant capacities.

Enterprise resource planning is a multi-module software application for managing a firm’s functional activities, suppliers, and customers.

# **Slide 30: Project Management**

## Involves the planning, scheduling, and controlling of resources to meet the specific goals of a project

## Technological advances have allowed for better project planning options and reduced costs for many companies

NOTES: **Project management** is concerned with the planning, scheduling, and controlling of resources (such as capital, people, materials, and equipment) to meet the specific goals (such as completion date, budgeted cost, and required performance) of a project.

Technological advances such as cloud-based computing and open source software have allowed for better project planning options and reduced costs for many companies.

# **Slide 31: Radio Frequency Identification**

## **Radio frequency identification** (RFID) technology for reading data stored on chips at a distance

## Benefits include

### Greater product visibility across the supply chain

### Better inventory management

### Easier product tracing and recalls

### Reduced product tampering

NOTES: **Radio frequency identification** (RFID) technology enables  a device to read data stored on chips at a distance, without requiring line-of-sight scanning.  Potential benefits include greater product visibility across the supply chain, better inventory management, easier product tracing and recalls, and reduced product tampering.

# **Slide 32: Business Ethics and Sustainability**

## **Business ethics**

## The application of ethical principles to business situations

## Today business ethics is referred to as **corporate social responsibility** (CSR)

## Ethical purchasing practices promote diversity by

### Intentionally buying from small firms, ethnic minority businesses, women-owned enterprises

NOTES: Business ethics is the application of ethical principles to business situations. Today, the practice of business ethics is referred to as corporate social responsibility (CSR).

Ethical actions recognize the rights of others and the duties those rights impose on the ones performing the actions.

Ethical purchasing practices for instance, include promoting diversity by intentionally buying from small firms, ethnic minority businesses, and women-owned enterprises.

# **Slide 33: Business Ethics and Sustainability**

## **Sustainability**

## Meeting the needs of current supply chain members without hindering the ability to meet the needs of future generations

## **Green purchasing**

## Buying goods and services in an environmentally responsible way

## **Triple bottom line**

## People, planet, profit

NOTES: Sustainability can be defined as the ability to meet the needs of current supply chain members without hindering the ability to meet the needs of future generations in terms of economic, environmental, and social challenges.

Green purchasing is purchasing goods and services in an environmentally responsible way.

Sustainability can be linked to what is termed the triple bottom line, or people, planet and profits.

# **Slide 34: Review Questions**

## Describe all of the processes you employ to come to class each day.

## Describe a number of customer relationship management and customer service management activities for your college or university.

## Describe the goods-service package for an exercise facility; a college bookstore; a radio station.

NOTES: None