

**ENGINEERING MANAGEMENT**

**Supply Chain Management**

# INTRODUCTION

A **supply chain** is the sequence of organizations - their facilities, functions, and activities that are involved in producing and delivering a product or service.

- ❑ The sequence begins with **basic suppliers of raw materials** and **extends all the way to their final customers**.
- ❑ Facilities include **warehouses**, **factories**, **processing centres**, **distribution centres**, **retail outlets**, and **offices**.
- ❑ Functions and activities include forecasting, purchasing, inventory management, information management, quality assurance, scheduling, production, distribution, delivery, and customer service.

# INTRODUCTION

**Supply Chain Management** is the strategic coordination of business functions within a business organization and throughout its supply chain for the purpose of integrating supply and demand management.

- ❑ Supply chain managers are people at various levels of the organization who are responsible for managing supply and demand both within and across business organizations.
- ❑ They are involved with planning and coordinating activities that include sourcing and procurement of materials and services, transformation activities, and logistics.
- ❑ The main actions are **plan**, **source**, **make**, and **deliver**.

# INTRODUCTION

**Logistics** is the part of a supply chain involved with the forward and reverse flow of goods, services, cash, and information.

❑ Logistics management includes management of inbound and outbound transportation, material handling, warehousing, inventory, order fulfilment and distribution, third-party logistics, and reverse logistics (the return of goods from customers).

❑ Supply chains are sometimes referred to as **value chains**, a term that reflects the concept that value is added as goods and services progress through the chain.

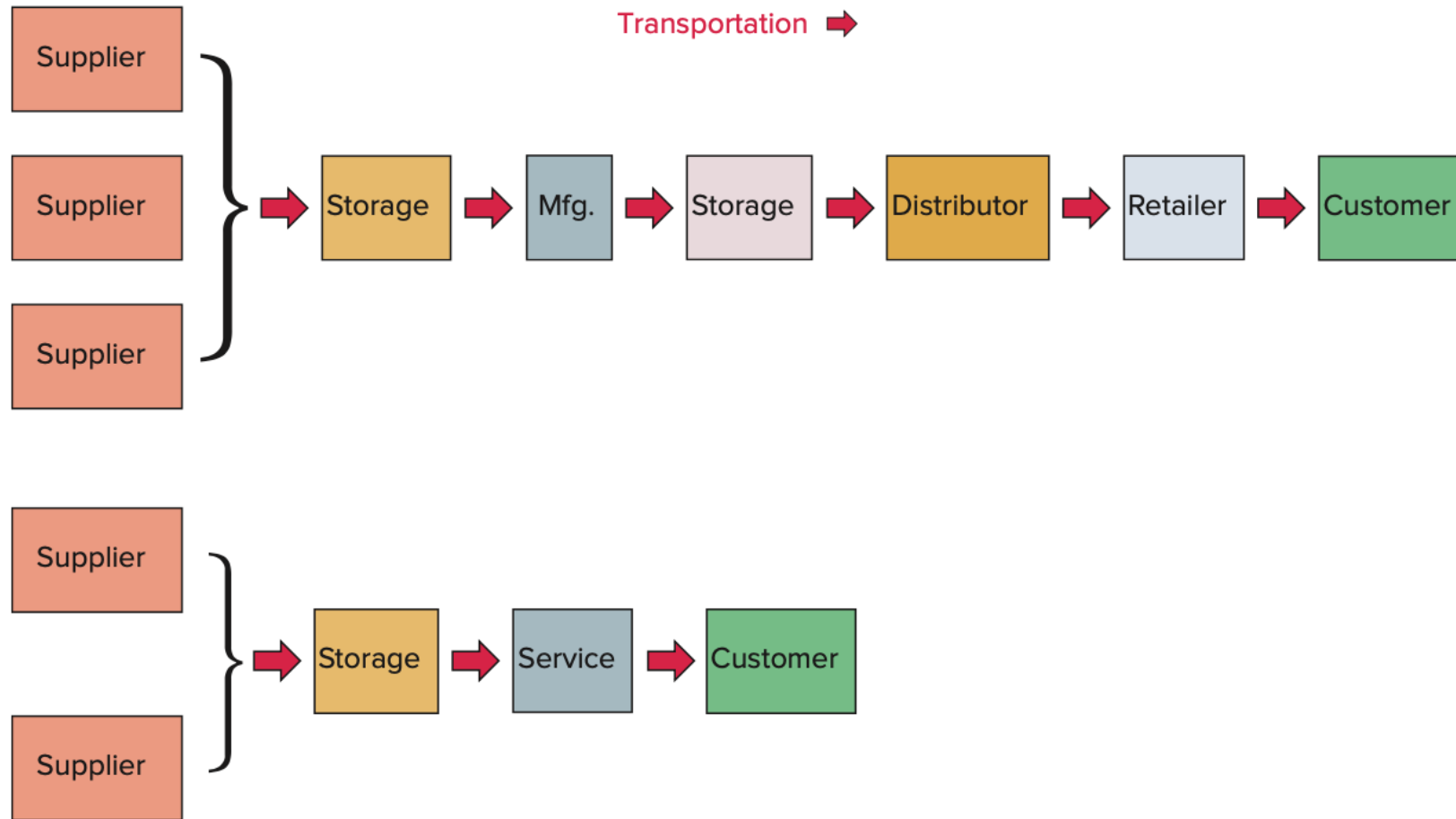
# INTRODUCTION

- ❑ Supply chains are the lifeblood of any business organization.
- ❑ They connect suppliers, producers, and final customers in a network that is essential to the creation and delivery of goods and services.
- ❑ Managing the supply chain is the process of planning, implementing, and controlling supply chain operations.
- ❑ The basic components are strategy, procurement, supply management, demand management, and logistics.
- ❑ The goal of supply chain management is to match supply to demand as effectively and efficiently as possible.

# INTRODUCTION

- ❑ An important aspect of supply chain management is **flow management**.
- ❑ The three types of flow that need to be managed are **product and service flow**, **information flow**, and **financial flow**.
- ☛ **Product and service flow** involves the movement of goods or services from suppliers to customers, as well as handling customer service needs and product returns.
- ☛ **Information flow** involves sharing forecast and sales data, transmitting orders, tracking shipments, and updating order status.
- ☛ **Financial flow** involves credit terms, payments, and consignment and title ownership arrangements.

# INTRODUCTION

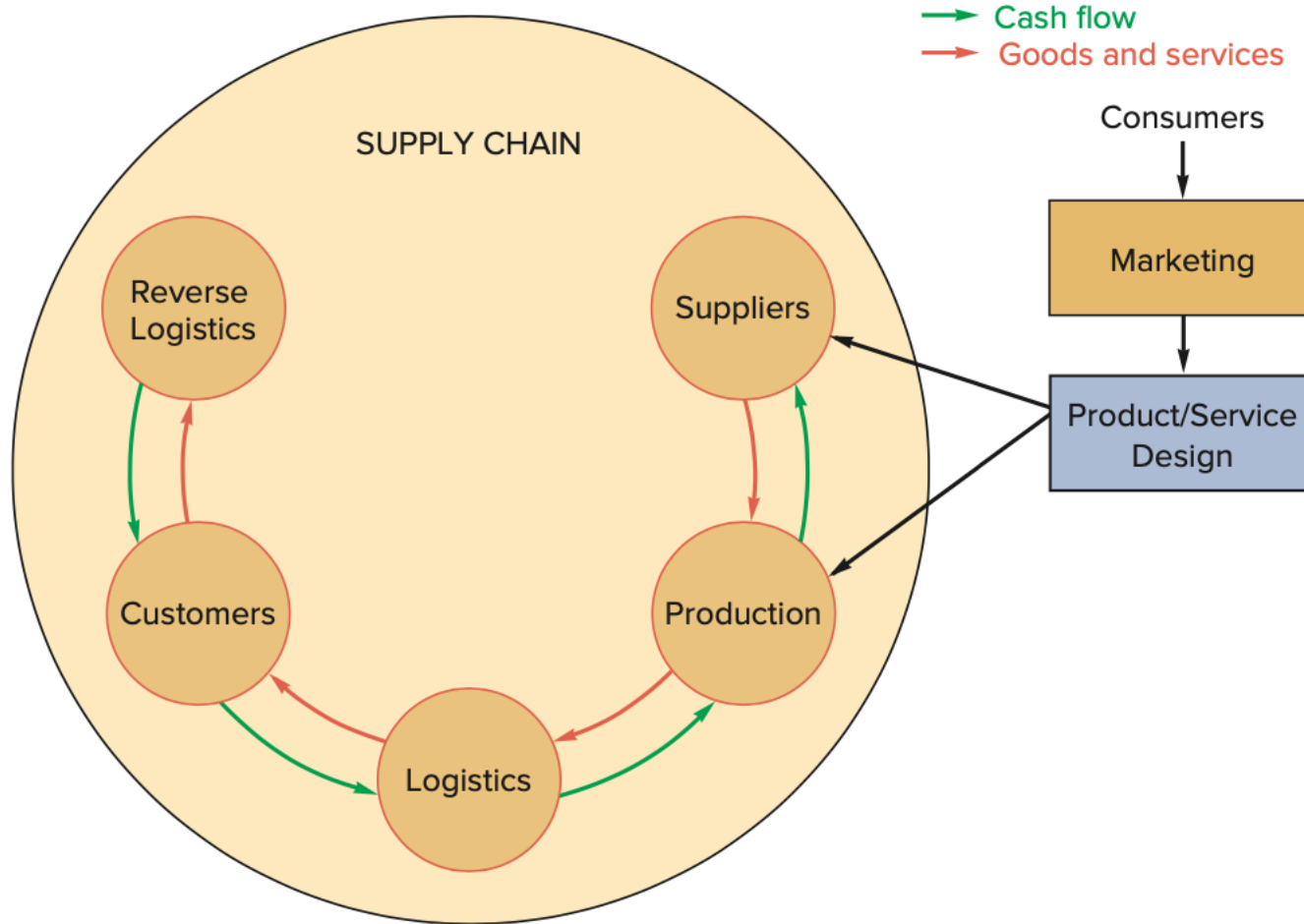


**FIGURE 15.1**  
Typical supply chains

a. A typical manufacturing supply chain.

b. A typical service supply chain.

# INTRODUCTION



c. Goods and services flow clockwise in this diagram, and cash flows counterclockwise. Information flows in both directions.

d. A supply chain (network) is analogous to a tree with branches that have side branches.



# Need for Supply Chain Management

- The need to **improve operational efficiency**
- Increasing levels of **outsourcing**
- Optimizing **transportation costs**
- Improved **Competitiveness**
- Increasing **globalization**
- Increasing importance of **e-commerce**
- The need to manage **inventories**

# Benefits of Supply Chain Management

- ❄️ Lower inventories
- ❄️ Higher productivity
- ❄️ Greater agility
- ❄️ Shorter lead times
- ❄️ Higher profits
- ❄️ Greater customer loyalty
- ❄️ Integrates separate organizations into a consistent operating system

# LOGISTICS MANAGEMENT

**Logistics** refers to the movement of materials, services, cash, and information in a supply chain.

- ⚙️ Materials include all of the physical items used in a production process.
- ⚙️ In addition to raw materials and work in process, there are support items such as fuels, equipment, parts, tools, lubricants, office supplies, and more.
- ⚙️ Logistics includes movement within a facility, overseeing incoming and outgoing shipments of goods and materials, and information flow throughout the supply chain.

# LOGISTICS MANAGEMENT

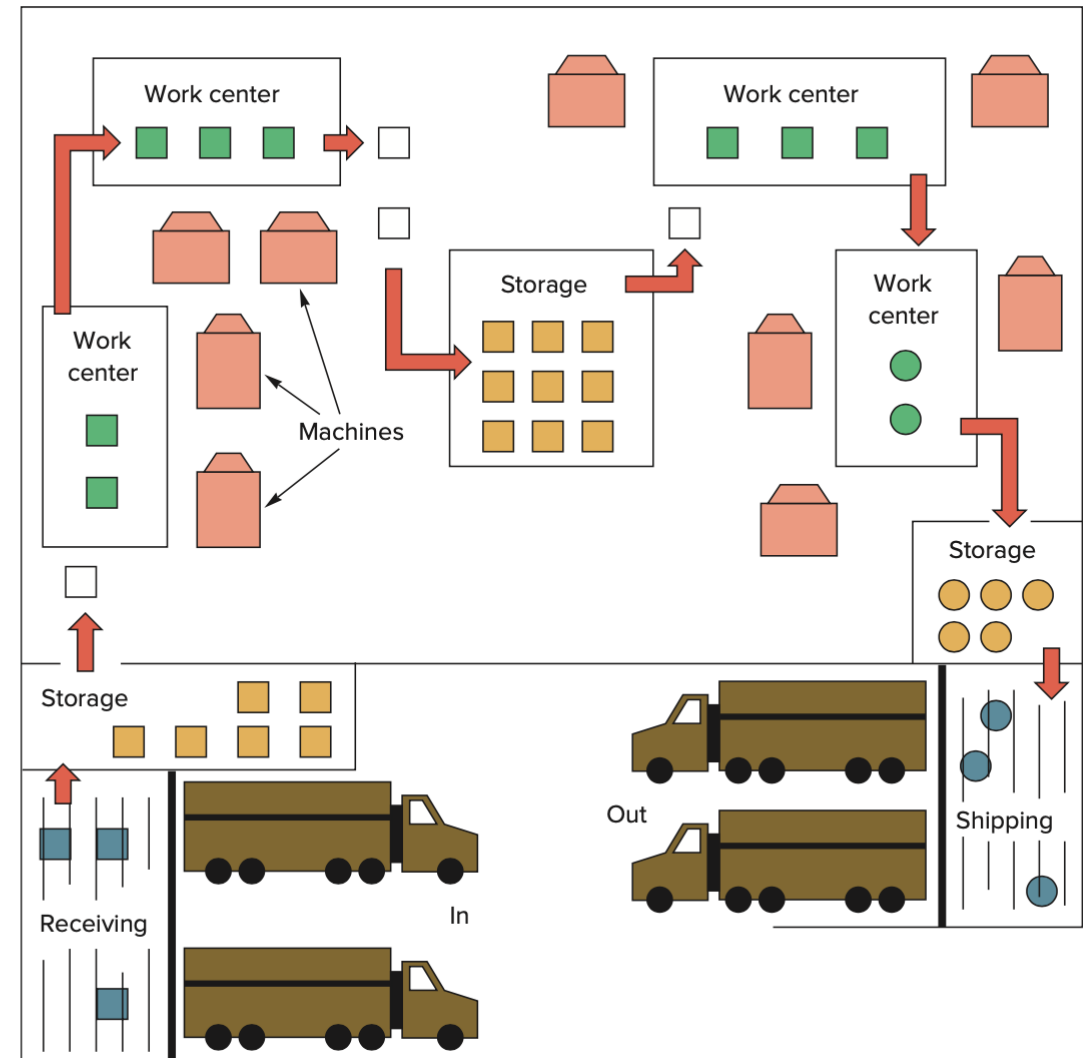
## Movement within a Facility

Movement of goods within a manufacturing facility is part of production control.

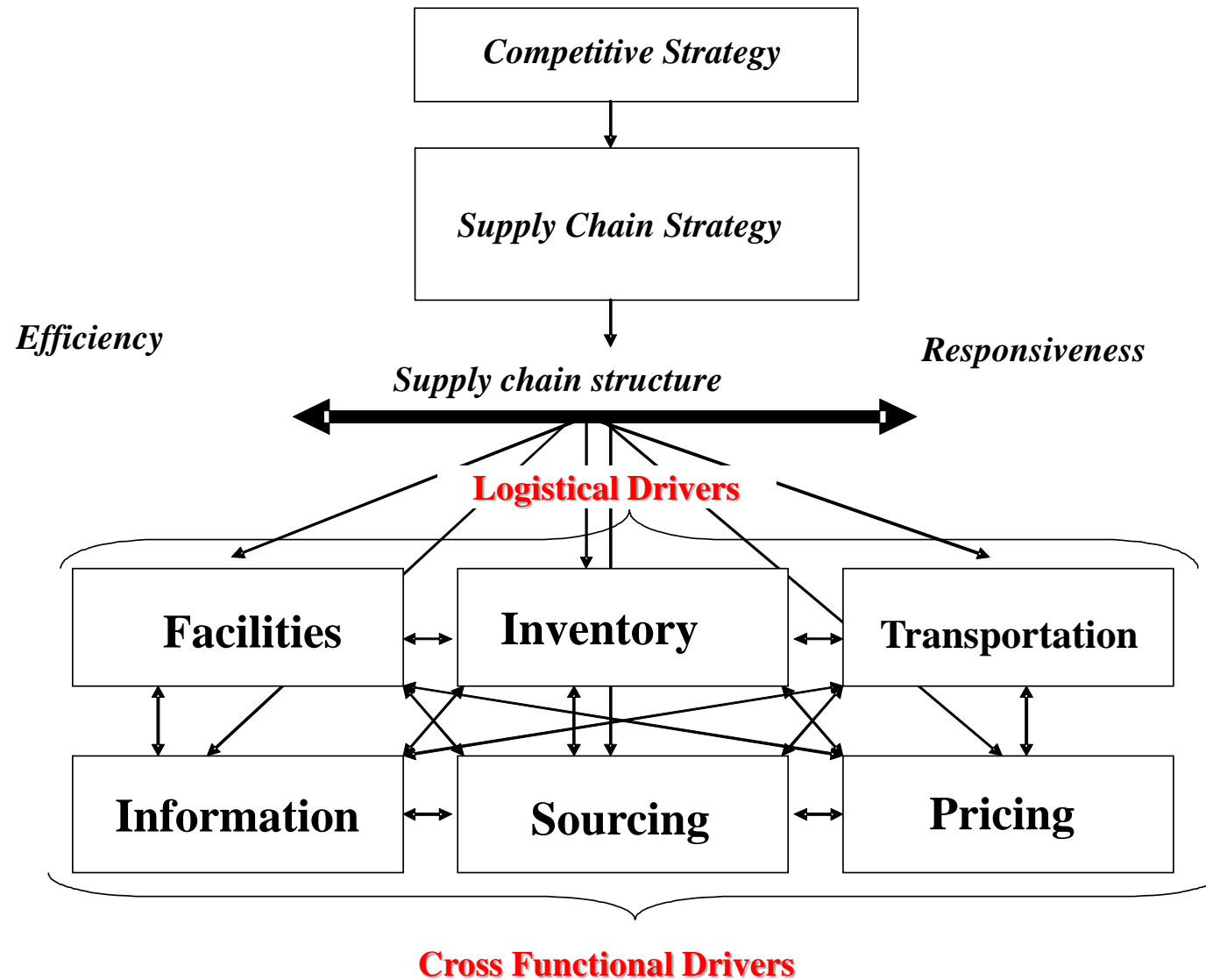
**FIGURE 15.15**  
Movement within a facility

The models shows the many steps where materials move within a manufacturing facility:

1. From incoming vehicles to receiving
2. From receiving to storage
3. From storage to the point of use (e.g., a work center)
4. From one work center to the next or to temporary storage
5. From the last operation to final storage
6. From storage to packaging/shipping
7. From shipping to outgoing vehicles



# A FRAMEWORK FOR STRUCTURING DRIVERS



# DRIVERS OF SUPPLY CHAIN PERFORMANCE

## ✧ Facilities

- ✎ places where inventory is stored, assembled, or fabricated
- ✎ production sites and storage sites

## ✧ Inventory

- ✎ raw materials, WIP (work in progress), finished goods within a supply chain
- ✎ inventory policies

## ✧ Transportation

- ✎ moving inventory from point to point in a supply chain
- ✎ combinations of transportation modes and routes

# DRIVERS OF SUPPLY CHAIN PERFORMANCE

## ✧ Information

- ✎ data and analysis regarding inventory, transportation, facilities throughout the supply chain
- ✎ potentially the biggest driver of supply chain performance

## ✧ Sourcing

- ✎ functions a firm performs and functions that are outsourced

## ✧ Pricing

- ✎ Price associated with goods and services provided by a firm to the supply chain

**END OF THE CHAPTER...**