# Chapter 12

## B2B E-commerce: Supply Chain Management and Collaborative Commerce

# The Procurement Process and the Supply Chain

- **Procurement process:**
  - The way firms purchase materials they need to make products
- **Steps in procurement process**
  - Deciding who to buy from and what to pay
  - Completing transaction
  - Each step is composed of many business processes and subactivities requiring data to be recorded in seller, buyer, and shipper information systems

# The Procurement Process

| Search | Qualify | Negotiate | Purchase Order | Invoicing | Shipping | Remittance Payment |
|---|---|---|---|---|---|---|
| Catalogs<br>Internet<br>Salespersons<br>Brochures<br>Telephone<br>Fax | Research<br>Credit History<br>Check with Competitors<br>Telephone Research | Price<br>Credit Terms<br>Escrow<br>Quality<br>Timing | Order Product<br>Initiate Purchase Order (PO)<br>Enter into System<br>Mail PO | Receive PO<br>Enter into Financial System<br>Enter into Production System<br>Send Invoice<br>Match with PO<br>Internal Review<br>Enter into Warehouse System | Enter into Shipper's Tracking System<br>Ship Goods<br>Deliver Goods<br>Enter into Tracking System | Receive Goods<br>Enter Shipping Documents into Warehouse System<br>Verify and Correct Invoice<br>Resend Invoice<br>Cut Check<br>Add Corrected Invoice to Back Office Systems |

Figure 12.3, Page 758

# Types of Procurement

- **Firms purchase two types of goods**
  - Direct goods: Integrally involved in production process
  - Indirect goods: All goods not directly involved in production process (maintenance repair and ops (MRO) goods)
- **Firms use two methods to purchase**
  - Contract purchasing:
    - Involves long-term written agreements to purchase specified products, with agreed-upon terms and quality
  - Spot purchasing:
    - Involves purchase of goods based on immediate needs in larger marketplaces that involve many suppliers

# Types of Procurement (cont.)

- **Procurement is highly information intensive and labor intensive**
  - Requires managing information among many corporate systems
  - Involves 1.2 million U.S. workers excluding those in transportation, finance, insurance, etc
- **Multi-tier supply chain**
  - Complex series of transactions between firm and thousands of suppliers, supplying thousands of goods

# The Multi-tier Supply Chain

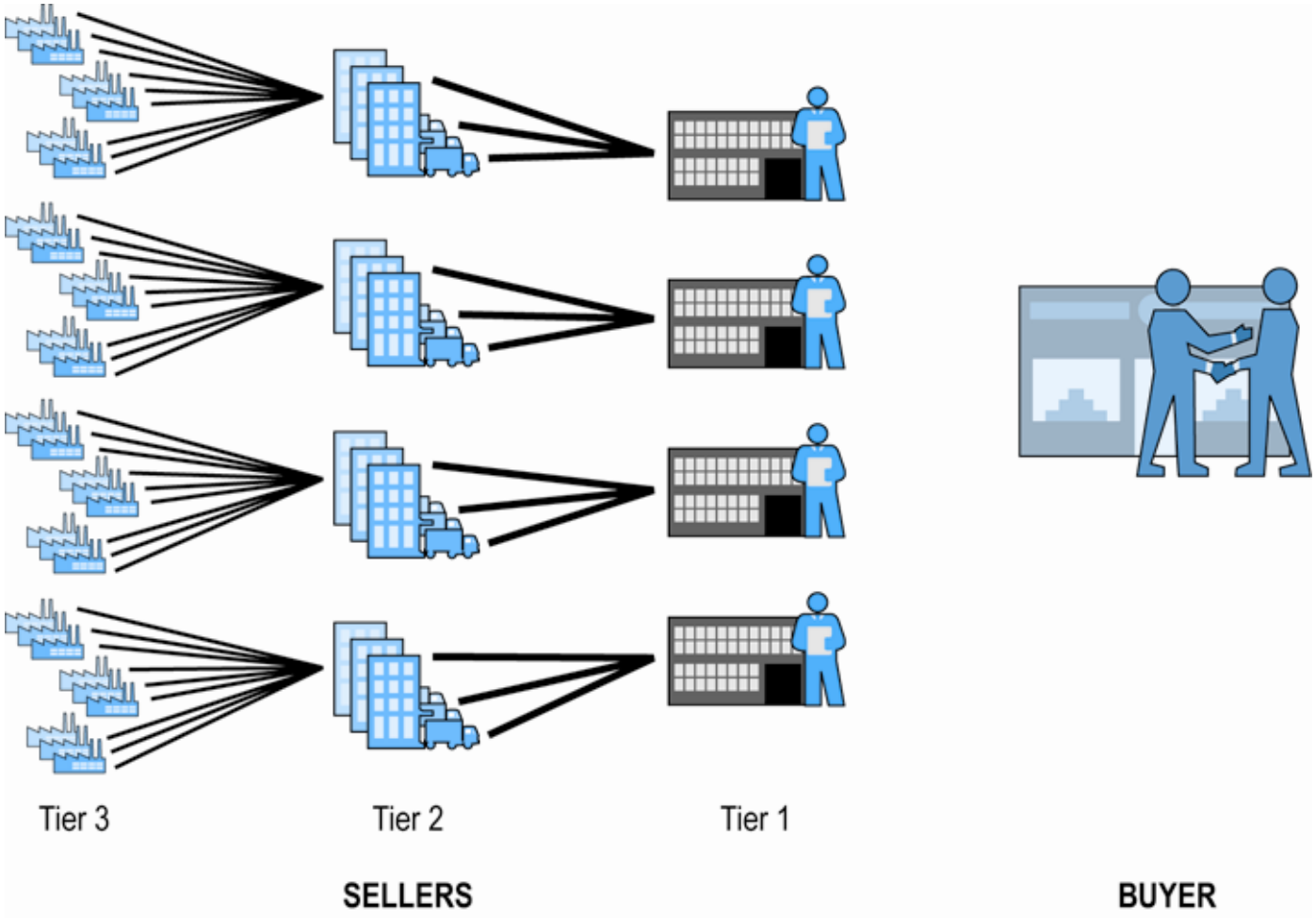


Figure 12.4, Page 759

# The Role of Existing Legacy Computer Systems

- **Legacy computer systems**
  - Generally, older mainframe and minicomputer systems used to manage key business processes within firm
- **Enterprise systems**
  - Corporate-wide
  - Support/control all aspects of production, including
    - Procurement
    - Finance
    - Human resources

# Trends in Supply Chain Management

- **Supply chain management (SCM)**
  - Activities used to coordinate key players in the procurement process
- **Major developments in SCM**
  - Just-in-time and lean production that reduces waste in value chain
  - Supply chain simplification
  - Adaptive supply chains are single enterprise-wide SCM systems to achieve economies of scale, simplicity, and reduce cost
  - Accountable supply chains are those where low wage labor conditions in developing countries are visible and morally acceptable to consumers in developed countries
  - Sustainable supply chains are Lean, Mean and Green
  - Electronic data interchange is a communication protocol for exchanging docs among company computers

# Trends in Supply Chain Management

- **Major developments in SCM**
  - Supply chain management systems
  - Collaborative commerce is the use of digital technologies to permit orgs to collaborate on design, develop, build, and manage prods

# Just-in-Time and Lean Production

- **Just-in-Time production**
  - Method of inventory cost management where prods are delivered just in time for production
  - Seeks to eliminate excess inventory to bare minimum
- **Lean production**
  - Set of production methods and tools
  - Focuses on elimination of waste throughout customer value chain, not just inventory

# Supply Chain Simplification

- **Reducing size of supply chain**
  - Working with strategic group of suppliers to reduce product and administrative costs and improving quality
- **May involve:**
  - Joint product development and design
  - Integration of computer systems
  - Tight coupling
    - Ensuring precise delivery of ordered parts at specific times

# Adaptive Supply Chains

- **Reducing centralization**
  - They are agile, flexible, and responsive
  - Reduce risks caused by relying on single suppliers who are subject to local instability
    - For example: European financial crisis, Japanese earthquake
- **Creating regional- or product-based supply chains**
  - Allowing production to be moved to temporary safe harbors in case of local manufacturing disruptions
  - Focus on "optimal-cost", distributed manufacturing, and flexible supply chains that can shift to low-risk areas

# Accountable Supply Chains

- **Labor conditions in low-wage, under-developed producer countries are acceptable to consumers**
  - Slave/forced and child labor
  - Routine exposure to toxic substances
  - More than 48 hrs/week
  - Harassment, abuse, and sexual exploitation
  - Adequate compensation
- **Efforts to make global supply chains more accountable and transparent to reporters and citizens**
  - Fair Labor Organization
  - National Consumers League, Human Rights First, and more

# Sustainable Supply Chains

- **Taking social and ecological interests into account**
  - For example: water usage, air pollution
- **Using most efficient environment for production, distribution, logistics**
  - Good business, over long-term
    - Good risk management
  - Create value for consumers, investors, communities

# Electronic Data Interchange (EDI)

- **Broadly defined communications protocol for exchanging documents among computers**
  - **Stage 1:** 1970s–1980s—Document automation
  - **Stage 2:** Early 1990s—Document elimination
  - **Stage 3:** Mid-1990s—Continuous replenishment/access model
- **Today:**
  - EDI provides for exchange of critical business information between computer applications supporting wide variety of business processes

# The Evolution of EDI as a B2B Medium

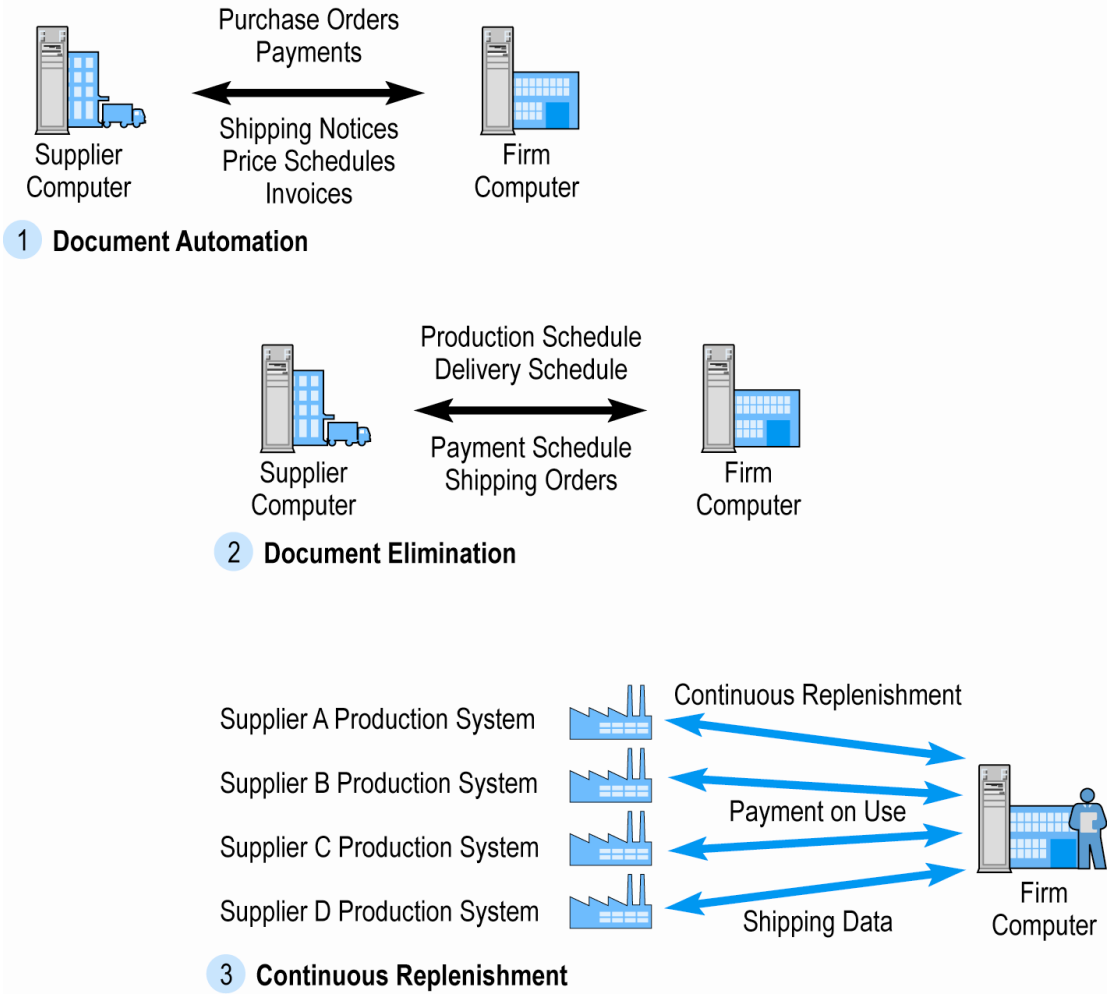


Figure 12.5, Page 766

# Supply Chain Management Systems

- **Continuously link activities of buying, making, and moving products from suppliers to buyers**
  - SAP and Oracle Mobile apps for smartphones, tablets
- **Integrates demand side of business equation by including order entry system in the process**
- **With SCM system and continuous replenishment, inventory is eliminated and production begins only when order is received**
- **Hewlett Packard's SCM system: Elapsed time from order entry to shipping PC is 48 hours**

# Supply Chain Management Systems

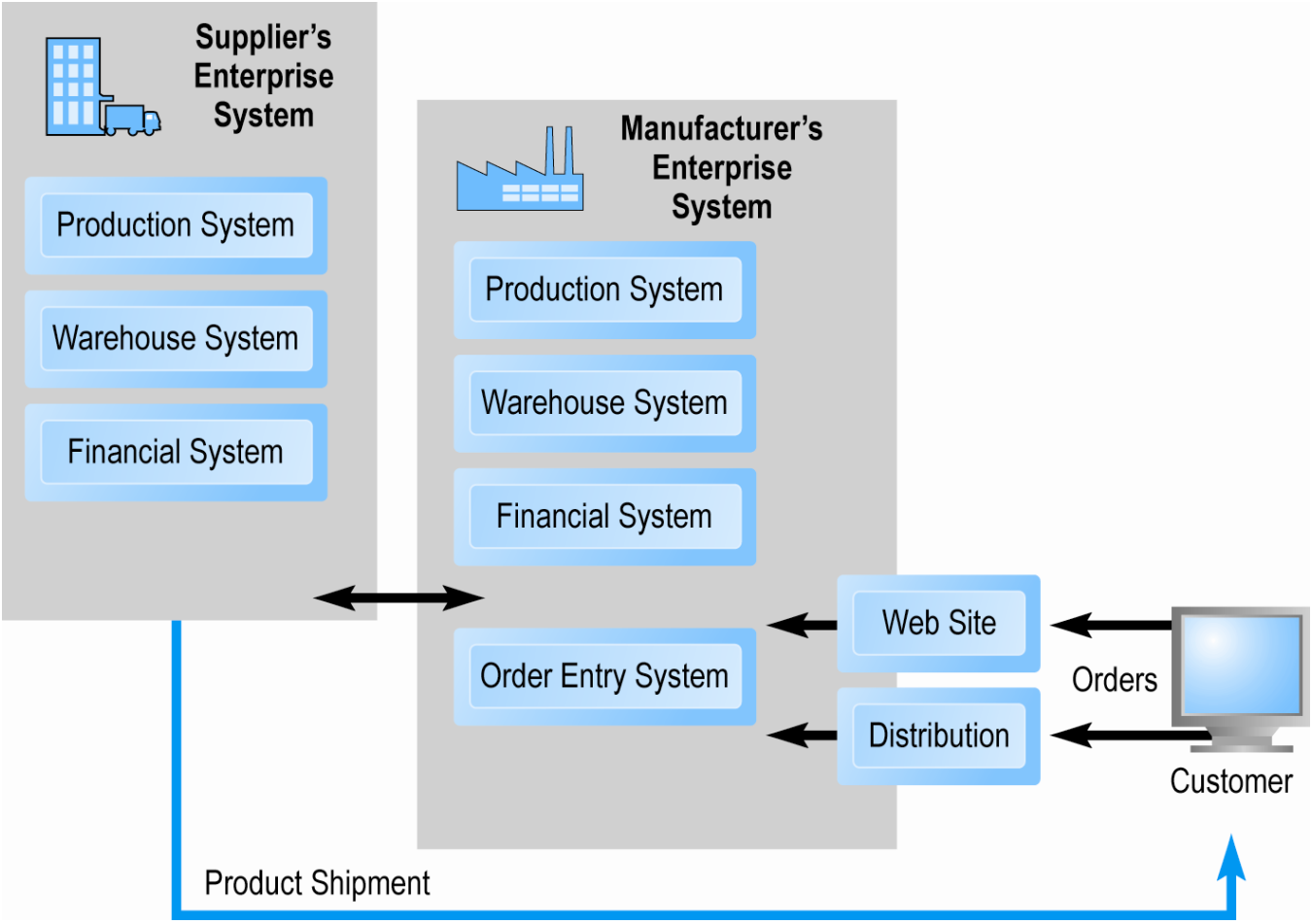


Figure 12.6, Page 768

# RFID Autoidentification: Giving a Voice to Your Inventory

- **Why is RFID an improvement over bar codes?**
- **How does RFID work?**
- **How is Walmart utilizing RFID?**
- **What impact will widespread adoption of RFID have on B2B e-commerce?**

# Collaborative Commerce

- **Use of digital technologies for organizations to collaboratively design, produce, and manage products through life cycles**
- **Moves focus from transactions to relationships among supply chain participants**
- **Unlike EDI, more like an interactive teleconference among members of supply chain**
- **Use of Internet technologies for rich communications environment**
  - Sharing designs, documents, messages, network meetings, videoconferencing

# Elements of a Collaborative Commerce System

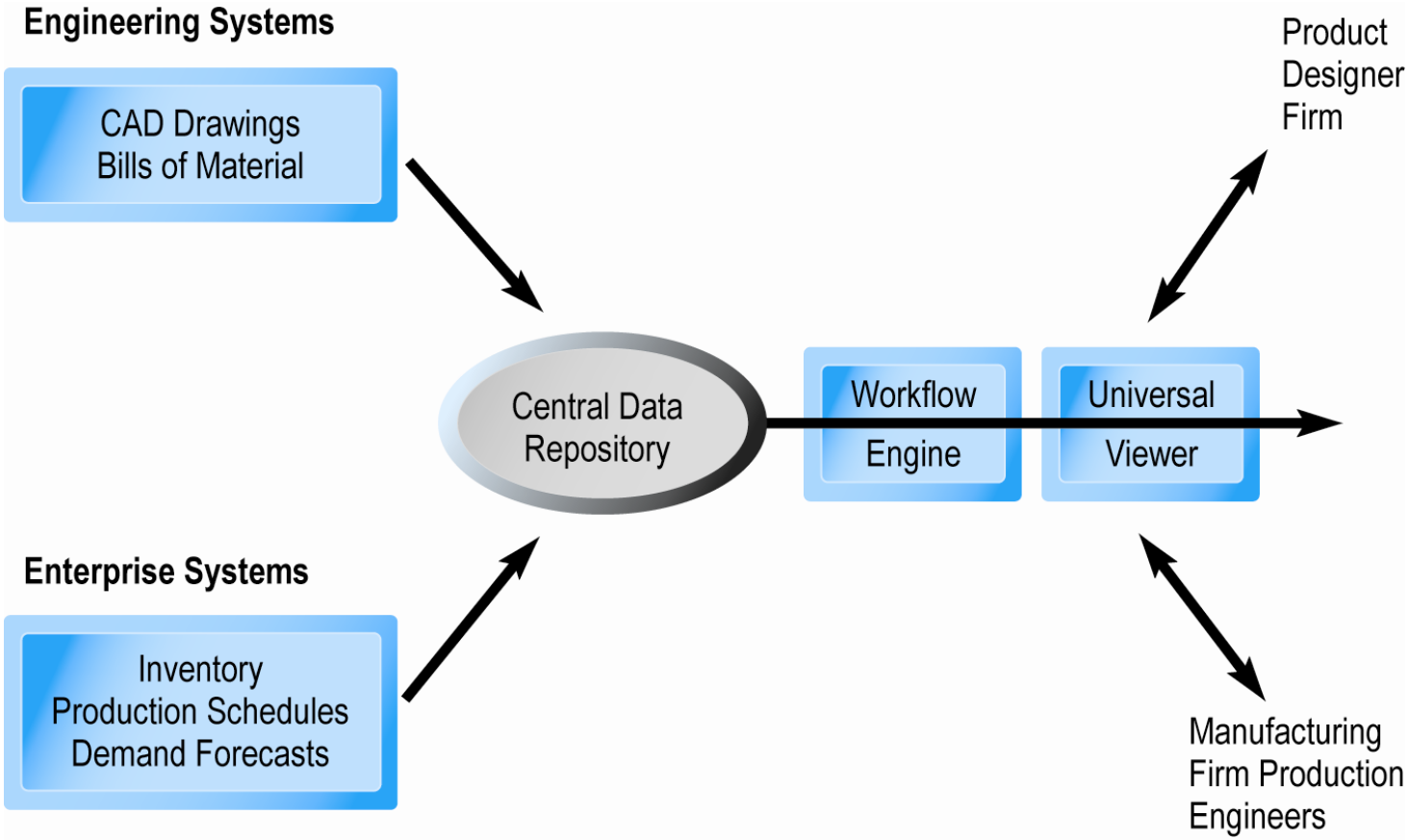


Figure 12.7, Page 772

# Social Networks and B2B

- Social networks can provide personal connections that can help decision making in supply chain
- Conversations and sharing of ideas by SCM workers are more unstructured and personal and involve the use of social media
  - Example: TradeSpace, UK based, allows business people to share ideas and experiences
  - Example: Dell's YouTube channel
  - Example: Cisco's Facebook pages for product campaigns for business clients

# 2 Main Types of Internet-Based B2B Commerce

## 1. Net marketplaces:

- Bring together potentially thousands of sellers and buyers in single digital marketplace operated over Internet
- Transaction-based
- Support many-to-many as well as one-to-many relationships

## 2. Private industrial networks:

- Bring together small number of strategic business partner firms that collaborate to develop highly efficient supply chains
- Relationship-based
- Support many-to-one and many-to-few relationships
- Largest form of B2B e-commerce, account for > 10 times revenue of net marketplaces

# Two Main Types of Internet-Based B2B Commerce

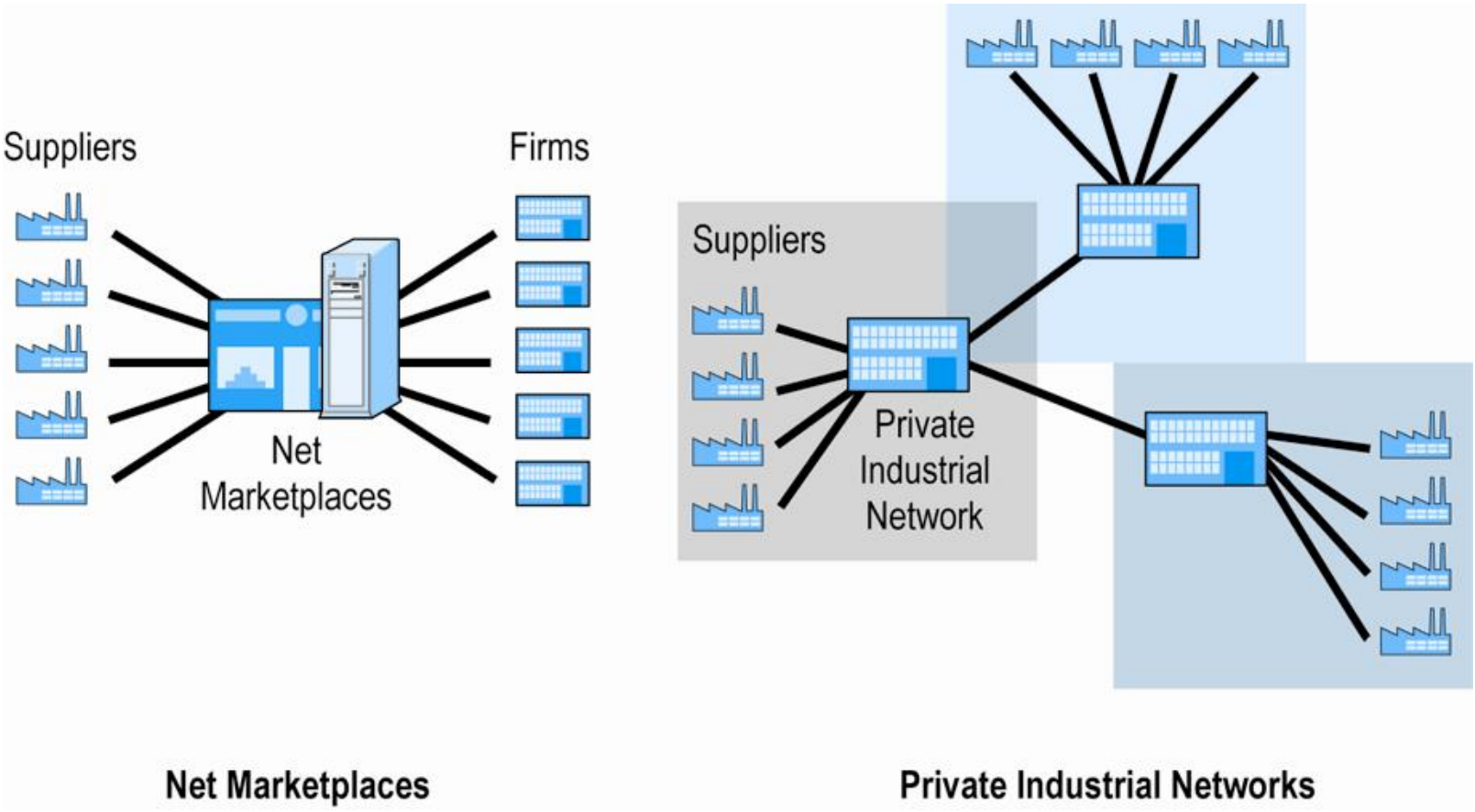


Figure 12.8, Page 774

# Net Marketplaces

- **Ways to classify Net marketplaces:**
  - Pricing mechanism bid/ask, auction, negotiated price, fixed prices
  - nature of market served, horizontal vs vertical
  - Ownership, industry owned, independent 3rd-party
- **By business functionality**
  - What businesses buy (direct vs. indirect goods)
  - How businesses buy (spot purchasing vs. long-term sourcing)

# Net Marketplaces

- **By business functionality**
  - Four main types
    - E-distributor market place provides e-catalog that represents the products of thousands of direct manufacturers
    - E-procurement market place is an independently owned and connects hundreds of online suppliers offering millions of MRO's to business that pay a fee to join the market
    - Exchanges market place is an independently owned online marketplace that connects hundreds/thousands of suppliers and buyers in a dynamic real-time environment; they are generally created for vertical markets that focus on spot purchasing of large firms in a single industry; they make money by charging a commission on each transaction
    - Industry consortia is industry-owned vertical market that enables buyers to purchase goods/services from a set of invited participants

## TABLE 12.2 OTHER CHARACTERISTICS OF NET MARKETPLACES: A B2B VOCABULARY

| CHARACTERISTIC | MEANING |
|---|---|
| Bias | Sell-side vs. buy-side vs. neutral. Whose interests are advantaged: buyers, sellers, or no bias? |
| Ownership | Industry vs. third party. Who owns the marketplace? |
| Pricing mechanism | Fixed-price catalogs, auctions, bid/ask, and RFPs/RFQs. |
| Scope/Focus | Horizontal vs. vertical markets. |
| Value creation | What benefits do they offer customers or suppliers? |
| Access to market | In public markets, any firm can enter, but in private markets, entry is by invitation only. |

Table 12.2, p. 775

# Pure Types of Net Marketplaces

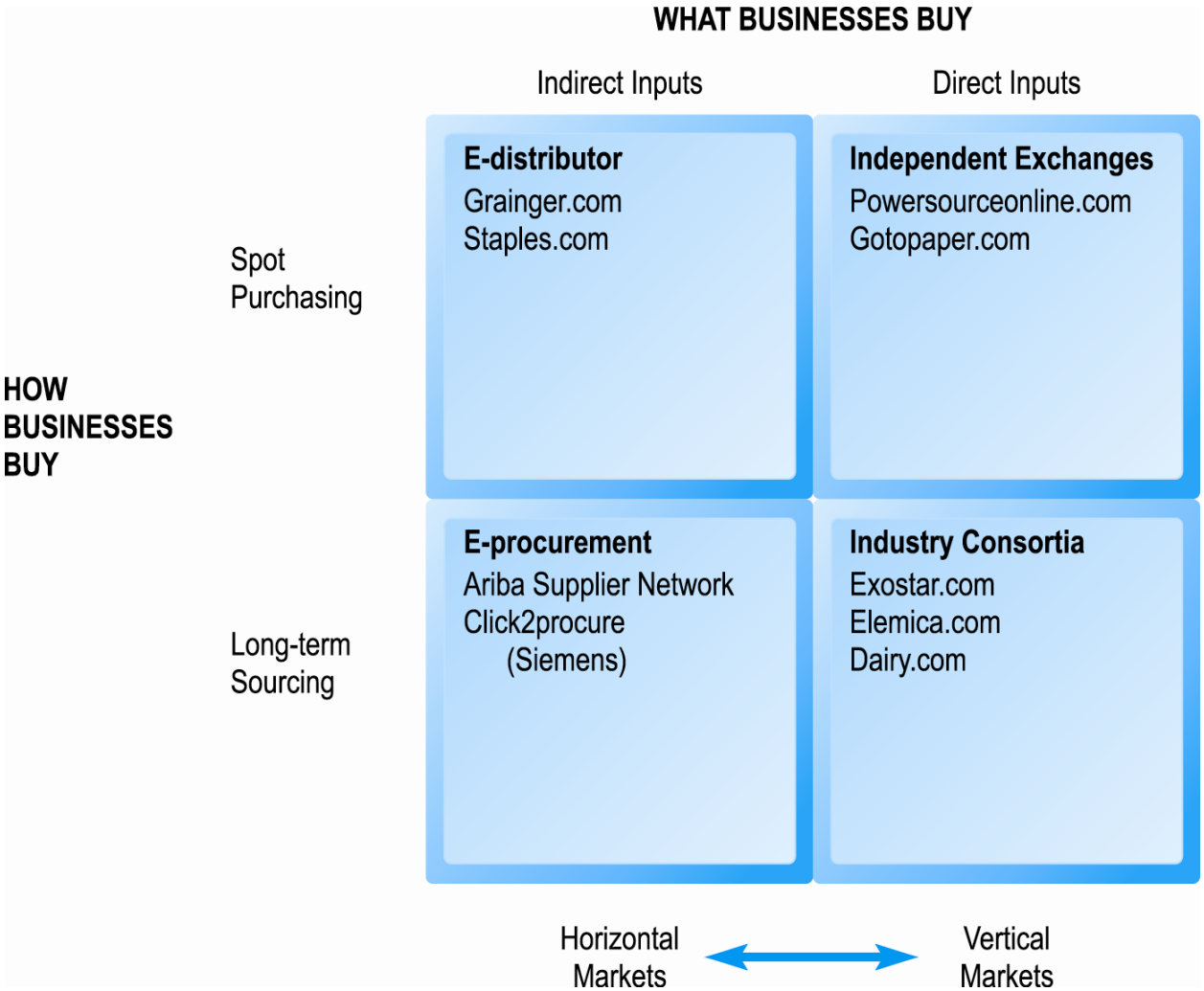


Figure 12.9, Page 776

# E-distributors

- Most common type of Net marketplace
- Electronic catalogs representing products of thousands of direct manufacturers
- Typically, independently owned intermediaries
- Offer industrial customers single source to purchase indirect goods on spot basis
- Typically, horizontal
- Usually, fixed price—discounts for large customers
- Example: W.W. Grainger

# E-distributors

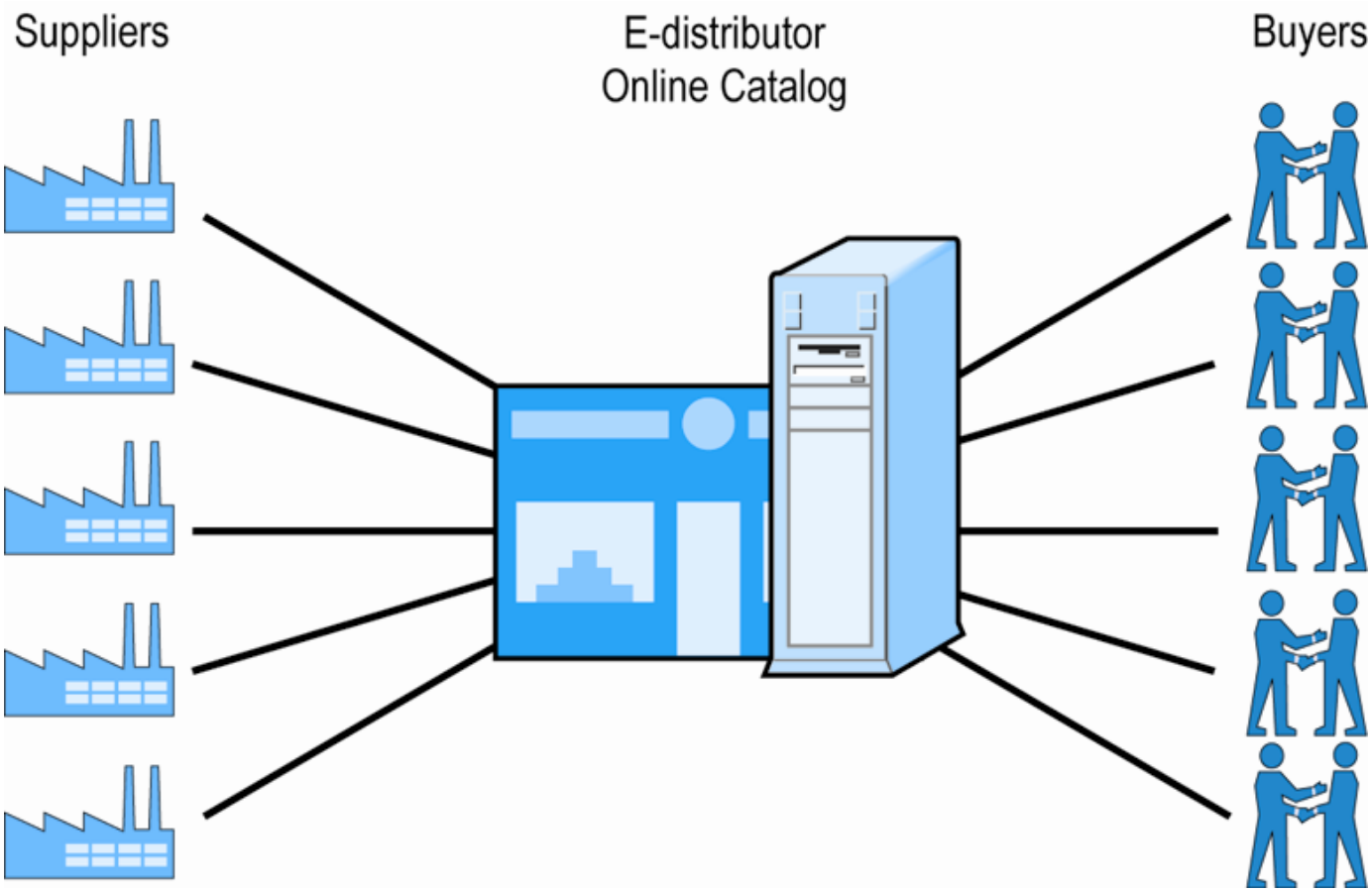


Figure 12.10, Page 777

# E-procurement Net Marketplaces

- Independently owned intermediaries
- Connect hundreds of suppliers of indirect goods
- Firms pay fees to join market
- Long-term contractual purchasing of indirect goods
- Revenues from transaction fees, licensing consultation services and software, network fees
- Offer value chain management (VCM) services
- Many-to-many market
- Example: Ariba

# E-procurement Net Marketplaces

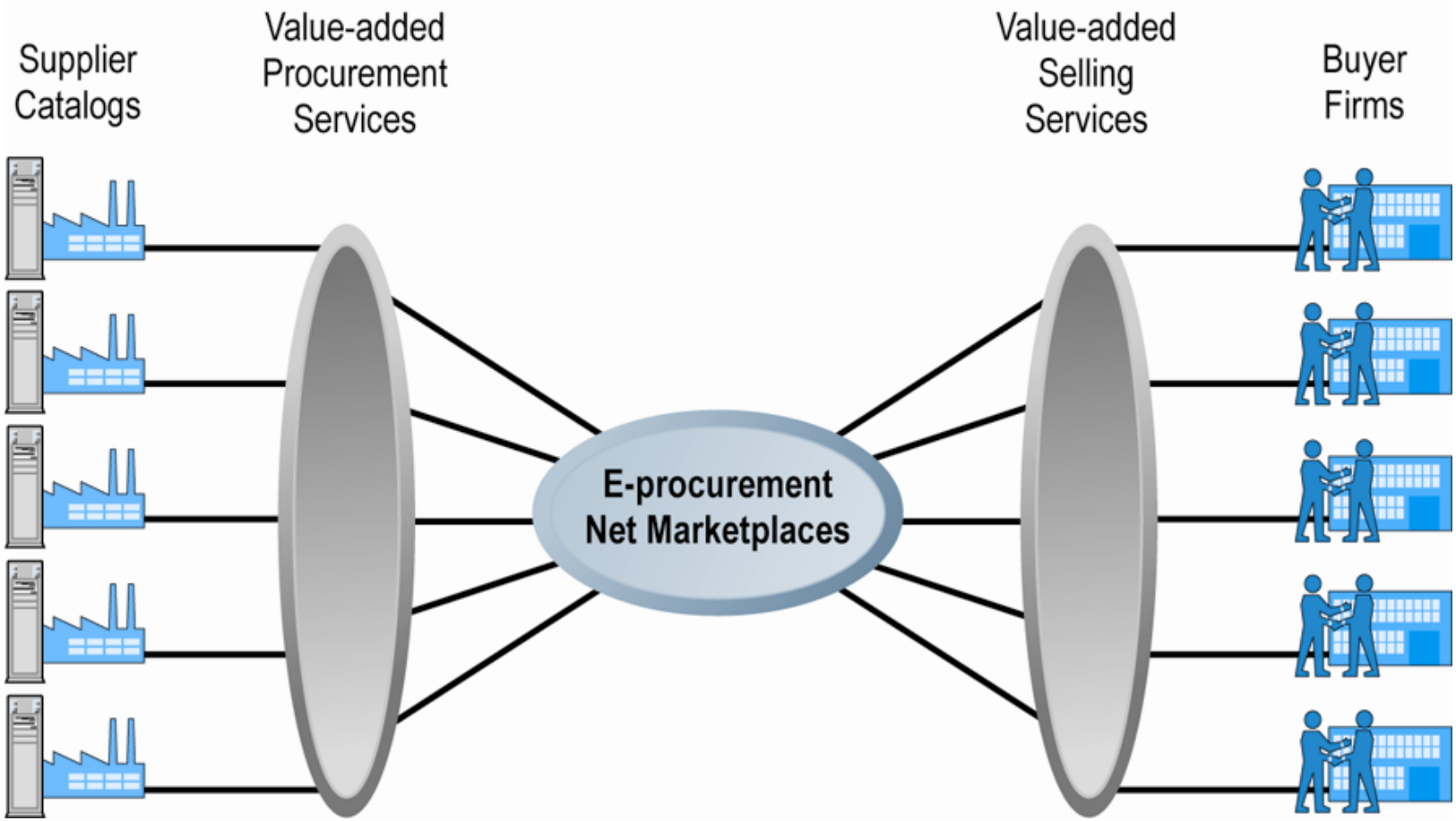


Figure 12.11, Page 779

# Exchanges

- Independently owned online marketplaces
- Connect hundreds to thousands of suppliers and buyers in dynamic, real-time environment
- Vertical markets, spot purchasing in single industry
- Charge commission fees on transaction
- Variety of pricing models
- Tend to be buyer-biased
- Suppliers disadvantaged by competition
- Many have failed due to low liquidity

# Exchanges

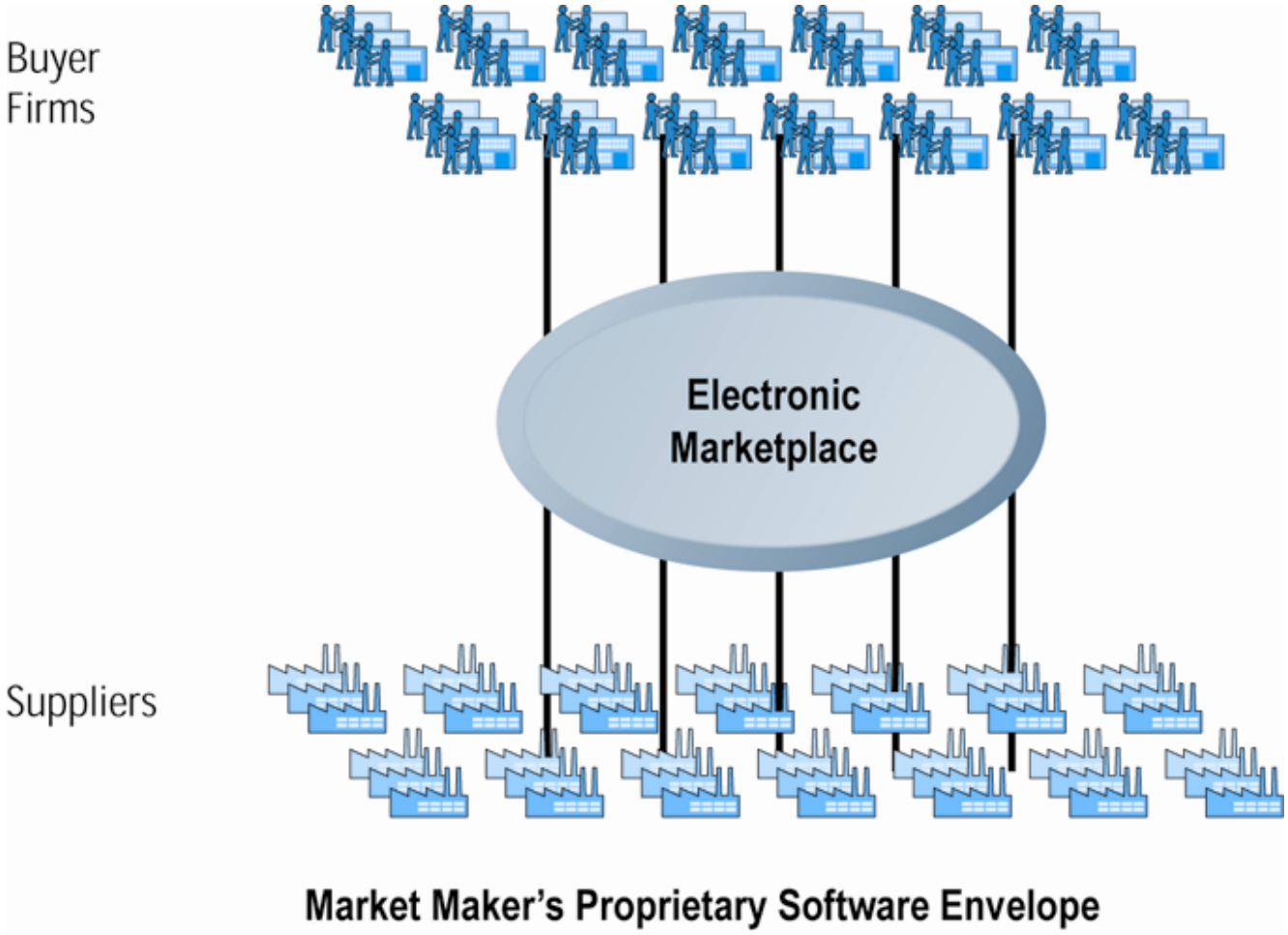


Figure 12.12, Page 780

# Industry Consortia

- **Industry-owned vertical markets**
- **Purchase of direct inputs from set of invited participants**
- **Emphasize long-term contractual purchasing, stable relationships, creation of data standards**
- **Ultimate objective:**
  - Unification of supply chains within entire industries through common network and computing platform
- **Revenue from transaction and subscription fees**
  - Many different pricing mechanisms
- **Can force suppliers to use consortia's networks**

# Industry Consortia

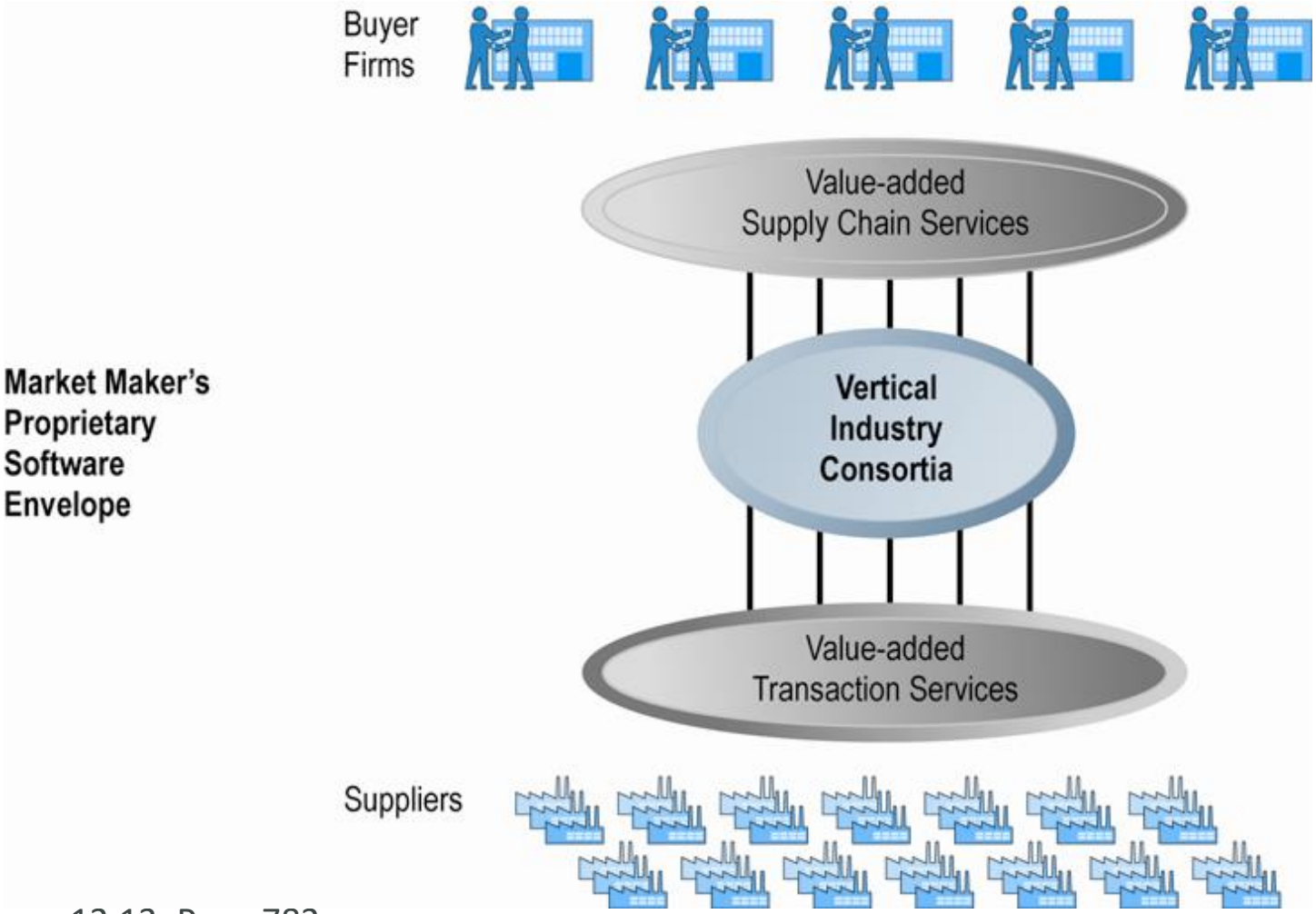


Figure 12.13, Page 782

# The Long-Term Dynamics of Net Marketplaces

- Pure Net marketplaces moving from "electronic marketplace" vision toward more central role in changing procurement process
- Consortia and exchanges beginning to work together in selected markets
- E-distributors joining large e-procurement systems and industry consortia as suppliers
- Movement from simple transactions for spot purchasing to longer-term contractual relationships involving both direct and indirect goods

# Net Marketplace Trends

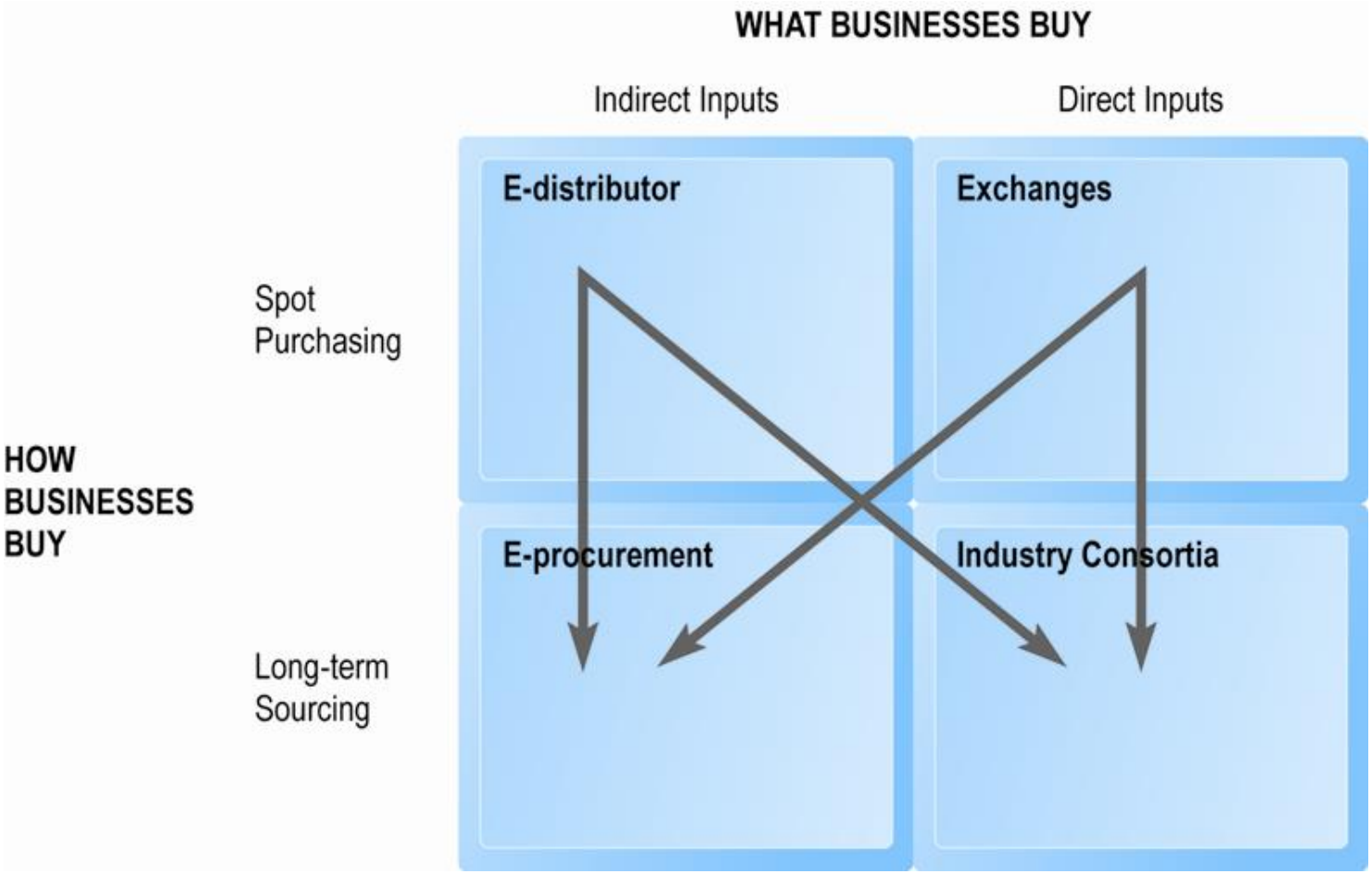


Figure 12.14, Page 785

# Private Industrial Networks

- **Originate in and involve manufacturing and related support industries**
- **Web-enabled networks for coordination of trans-organizational business processes (collaborative commerce)**
  - Direct descendant of EDI; closely tied to ERP systems
  - Manufacturing and support industries
  - Single, large manufacturing firm sponsors network
- **Range in scope from single firm to entire industry**
- **Example: Procter & Gamble**

# P&G's Private Industrial Network

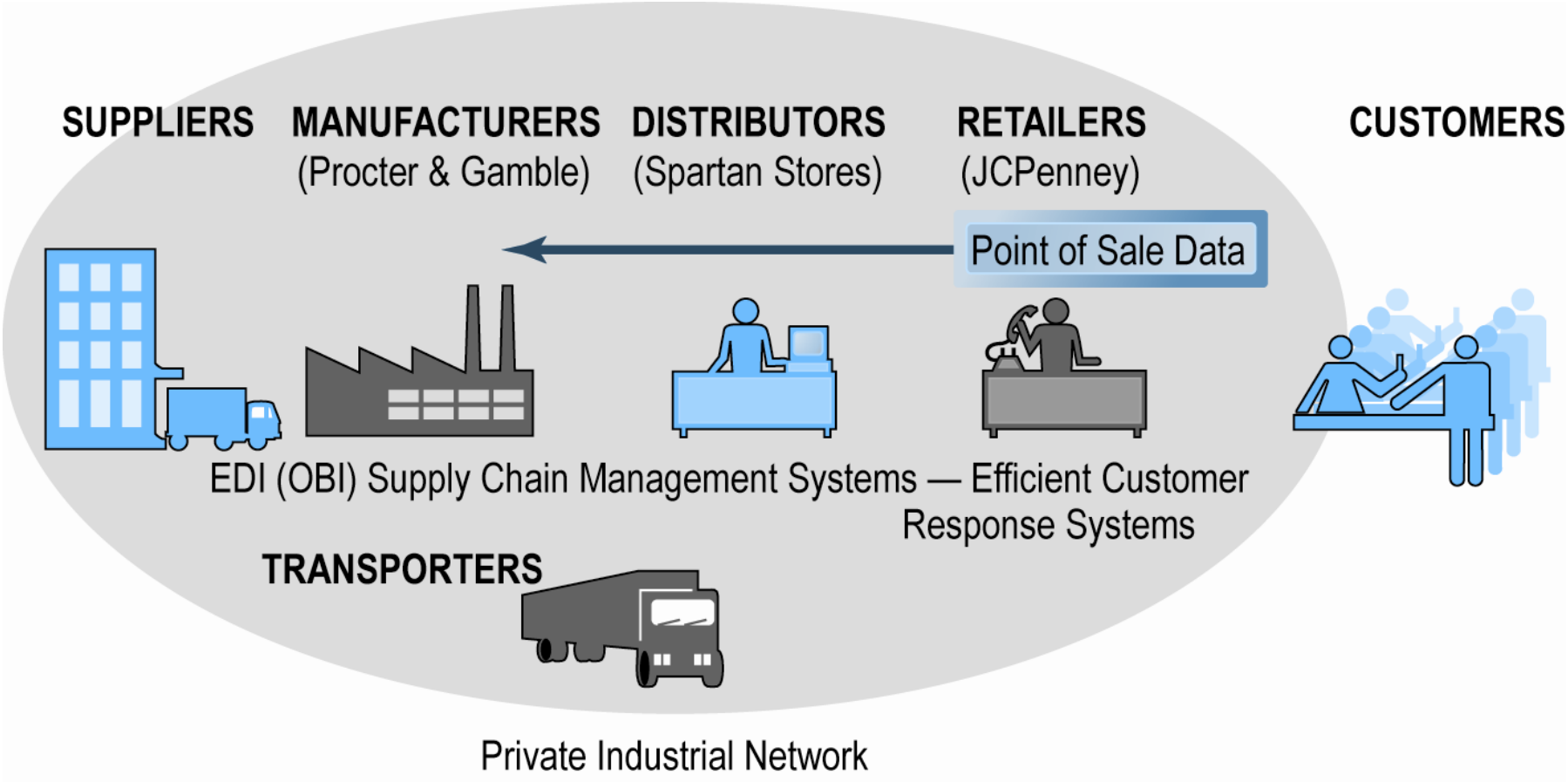


Figure 12.15, Page 787

# Characteristics of Private Industrial Networks

- **Objectives include:**
  - Efficient purchasing and selling industry-wide
  - Industry-wide resource planning to supplement enterprise-wide resource planning
  - Increasing supply chain visibility
  - Enabling closer buyer–supplier relationships
  - Global scale operations
  - Reducing industry risk by preventing imbalances of supply and demand
- **Focus on continuous business process coordination**
- **Typically, focus on single sponsoring company that "owns" the network**

# Private Industrial Networks and Collaborative Commerce

- **Forms of collaboration:**
  - Collaborative resource planning, forecasting, and replenishment (CPFR):
    - Working with network members to forecast demand, develop production plans, and coordinate shipping, warehousing, and stocking activities to ensure that retail and wholesale shelf space is replenished with just the right amount of goods
  - Demand chain visibility enables manufacturers to know what is happening on the demand side of retailers
  - Marketing coordination and product design enable suppliers and retailers to collaborate on design and marketing to ensure products fulfill marketing claims

# Pieces of the Collaborative Commerce Puzzle


Figure 12.16, Page 791

# Implementation Barriers

- **Concerns about sharing of proprietary, sensitive data**
- **Integration of private industrial networks into existing ERP systems and EDI networks difficult, expensive**
- **Requires change in mindset and behavior of employees and suppliers**
  - All participants lose some independence