



E-commerce

business. technology. society.

Fifth Edition

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Chapter 12

B2B E-commerce: Supply Chain Management and Collaborative Commerce

Volkswagen Builds Its B2B Net Marketplace

Class Discussion

- Why didn't Volkswagen want to use a more open or public electronic exchange for its parts supply? Why didn't it join an industry consortium such as Covisint?
- What kinds of services are provided by VWGroupSupply?
- What is eCAP and who benefits from its use?
- Do you think suppliers are disadvantaged by this B2B marketplace?

Trends in B2B E-commerce, 2008-2009

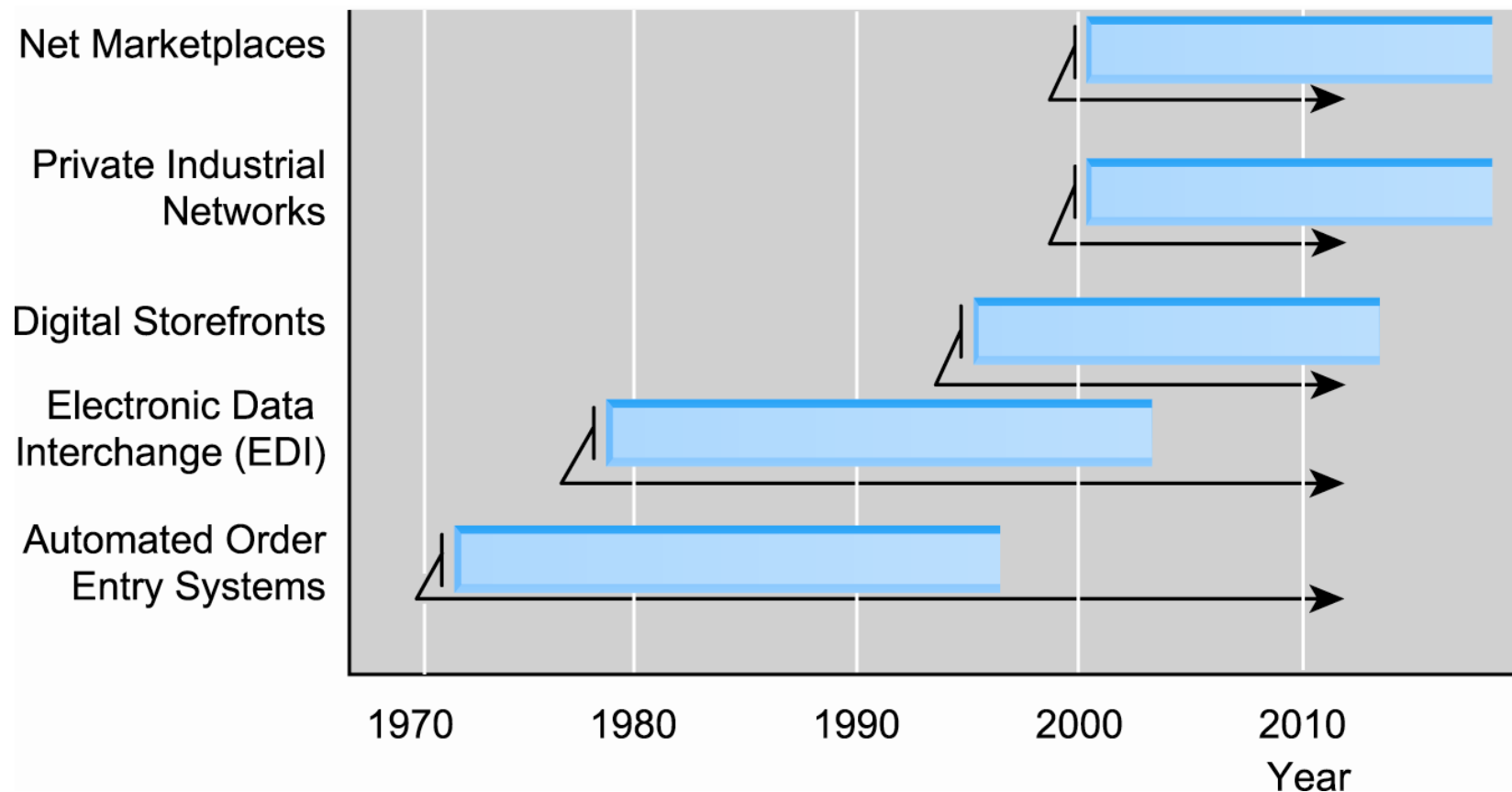
- Double-digit growth as firms gain experience
- Firms increase comfort level with security, payments, helping expand use of B2B channels
- Growing realization that most important benefits are not low costs of materials, but gains in supply chain efficiency, better spend management, improved business process
- Decline of independent Net marketplaces
- Rapid growth in e-procurement, private industrial networks, collaborative commerce B2B applications
- Continued consolidation in Net marketplace and software vendor markets

Defining B2B Commerce

- Before Internet, B2B transactions called trade or procurement process
- Total inter-firm trade: Total flow of value among firms
- B2B commerce: All types of computer-enabled inter-firm trade
- B2B e-commerce (Internet-based B2B commerce): That portion of B2B commerce that is enabled by the Internet

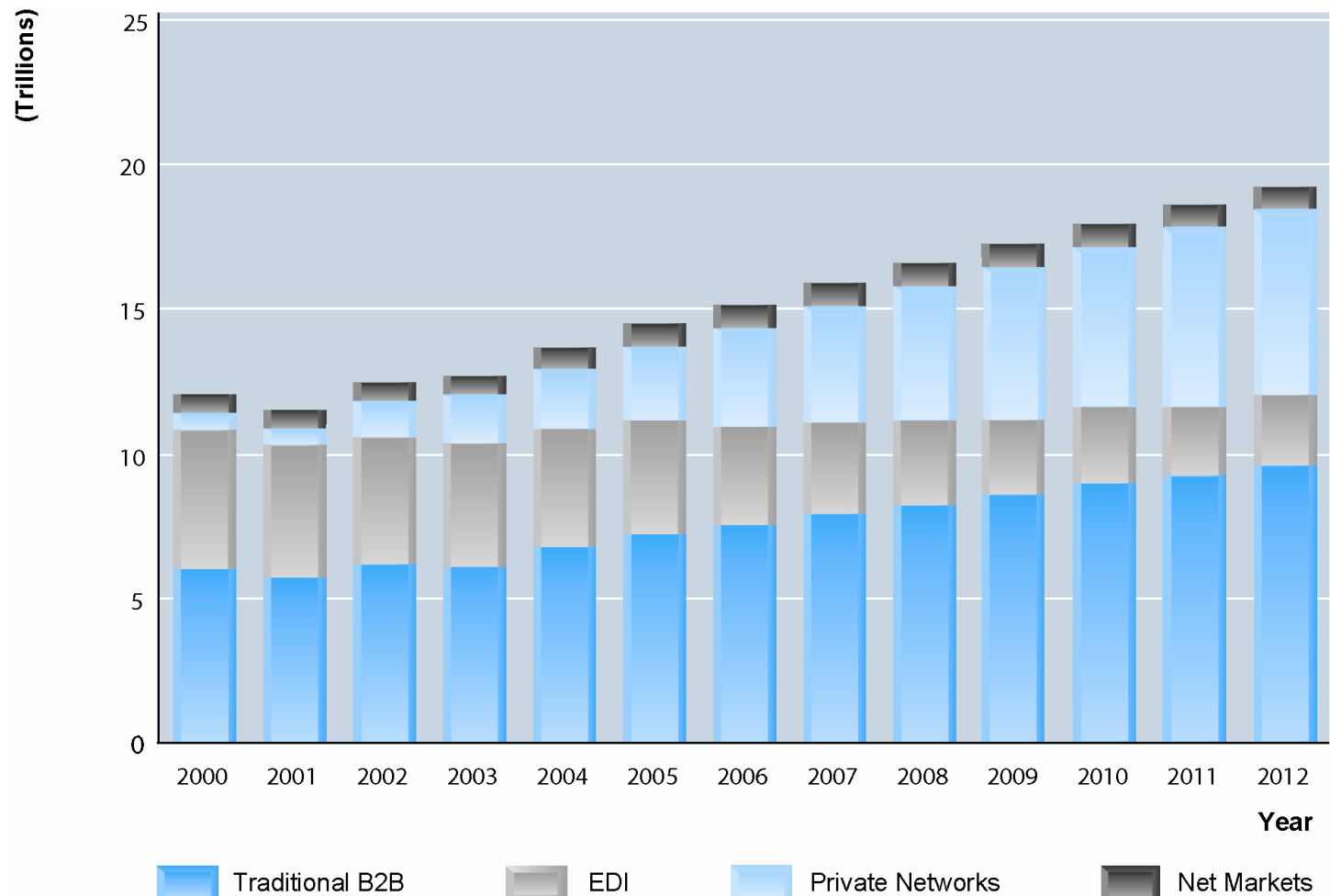
The Evolution of the Use of Technology Platforms in B2B Commerce

Figure 12.1, Page 771



Growth of B2B Commerce 2000-2012

Figure 12.2, Page 774



SOURCES: U.S. Census Bureau, 2008a; authors' estimates

The Growth of B2B E-commerce

- B2B e-commerce
 - 2008: \$3.8 trillion
 - 2012: \$6.3 trillion
- Electronic marketplaces will not be dominant form of B2B e-commerce
- Private industrial networks continue to play dominant role in B2B
- Non-EDI B2B e-commerce most rapidly growing type of e-commerce
- Over 80% U.S. firms buy some indirect goods over Internet; 70% buy some direct goods over Internet

Industry Forecasts

- Not all industries will be similarly affected by B2B e-commerce
- Not all industries would benefit equally
- Factors influencing migration to e-commerce
 - Significant utilization of EDI
 - Large investments in IT and Internet infrastructure
 - e.g. Aerospace and defense, computer, and industrial equipment industries
 - Market concentrated on purchasing and/or selling
 - e.g. Energy, chemical industries

Potential Benefits of B2B E-commerce

- Lower administrative costs
- Lower search costs for buyers
- Reduced inventory costs by:
 - Increasing competition among suppliers (increasing price transparency)
 - Reducing inventory carried
- Lower transaction costs by:
 - Eliminating paperwork
 - Automating parts of procurement process

Potential Benefits (cont'd)

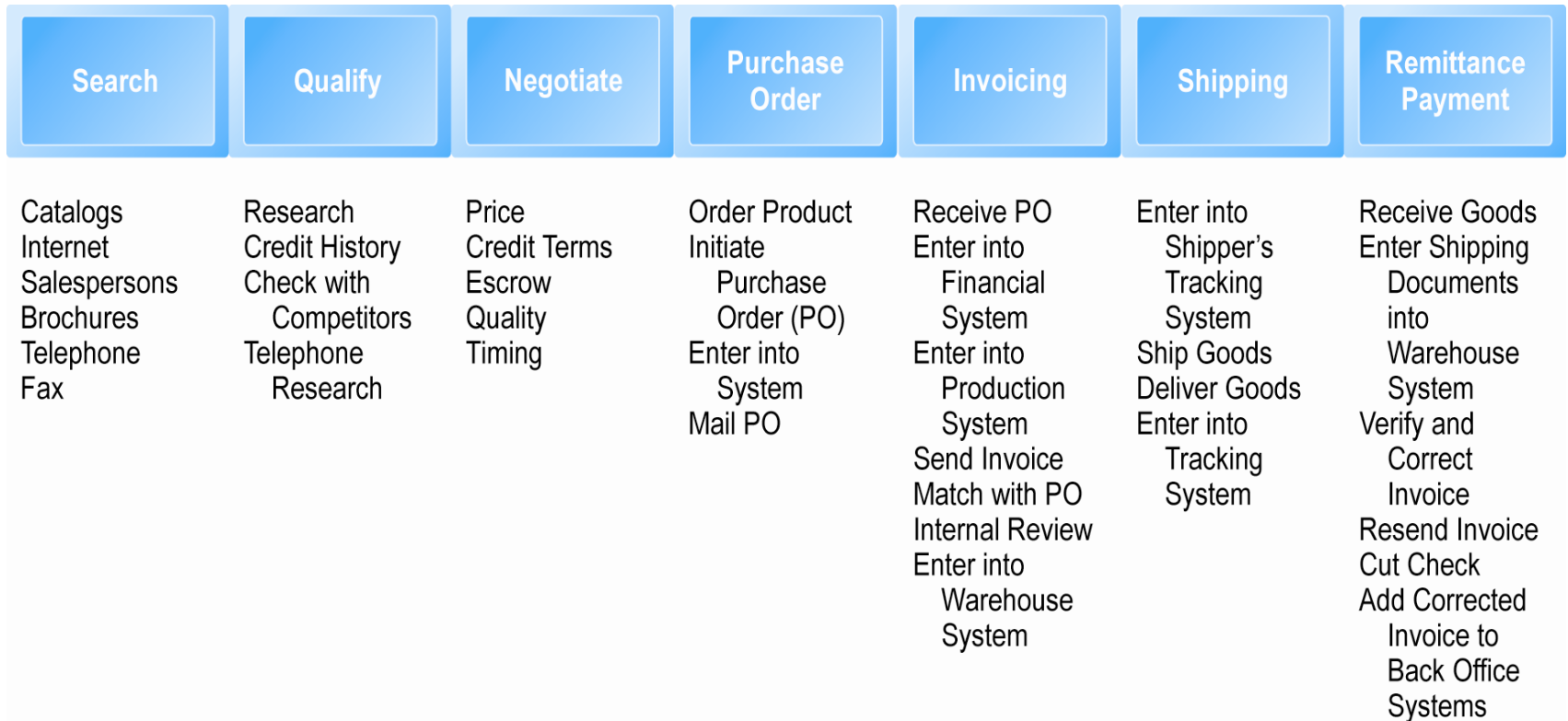
- Increased production flexibility by ensuring just-in-time parts delivery
- Improved quality of products by increasing cooperation among buyers and sellers
- Decreased product cycle time by sharing of designs and production schedules
- Increased opportunities for collaborating with suppliers and distributors
- Greater price transparency

The Procurement Process and the Supply Chain

- Procurement process:
 - The way firms purchase the goods they need to produce the goods they sell
- Supply chain:
 - Firms that purchase goods, their suppliers, and their suppliers' suppliers, and relationships and processes involved
- Steps in procurement process
 - Deciding who to buy from and what to pay
 - Completing transaction

The Procurement Process

Figure 12.3, Page 776



Types of Procurement

■ Types of goods

- Direct goods: Goods integrally involved in production process
- Indirect goods: All other goods not directly involved in production process (MRO goods)

■ Methods of purchasing

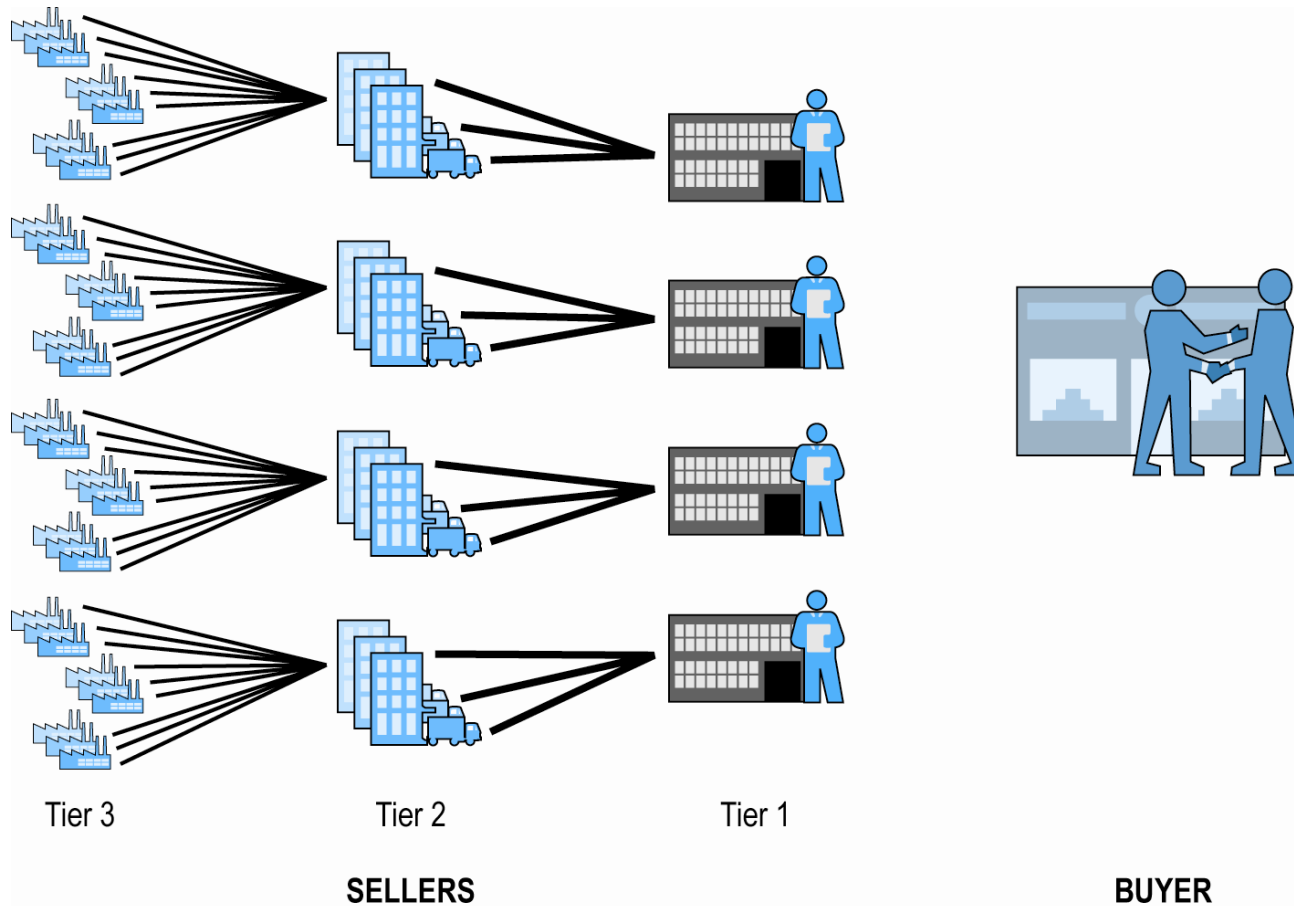
- Contract purchasing: Involves long-term written agreements to purchase specified products, with agreed-upon terms and quality
- Spot purchasing: Involves purchase of goods based on immediate needs in larger marketplaces that involve many suppliers

Types of Procurement (cont'd)

- Procurement is highly information intensive and labor intensive – 3.5 million U.S. workers
- Use of Internet can simplify process and reduce search, research, negotiating costs
- Multi-tier supply chain
 - Complex series of transactions between firm and thousands of suppliers:
 - Primary suppliers
 - Secondary suppliers who do business with primary suppliers
 - Tertiary suppliers who do business with secondary suppliers

The Multi-Tier Supply Chain

Figure 12.4, Page 778



The Role of Existing Legacy Computer Systems

- Legacy computer systems
 - Generally older mainframe and minicomputer systems used to manage key business processes within firm
 - MRP systems (Materials requirements planning)
 - Enable firms to predict, track, and manage parts of complex manufactured goods
 - ERP systems (Enterprise resource planning)
 - More sophisticated MRP systems that include human resources and financial components

Trends in Supply Chain Management and Collaborative Commerce

- Supply chain management crucial to understanding B2B e-commerce
- Supply chain management (SCM):
 - Wide variety of activities that firms and industries use to coordinate key players in their procurement process
- Major developments in supply chain management
 - Supply chain simplification
 - Electronic data interchange
 - Supply chain management systems
 - Collaborative commerce

Supply Chain Simplification

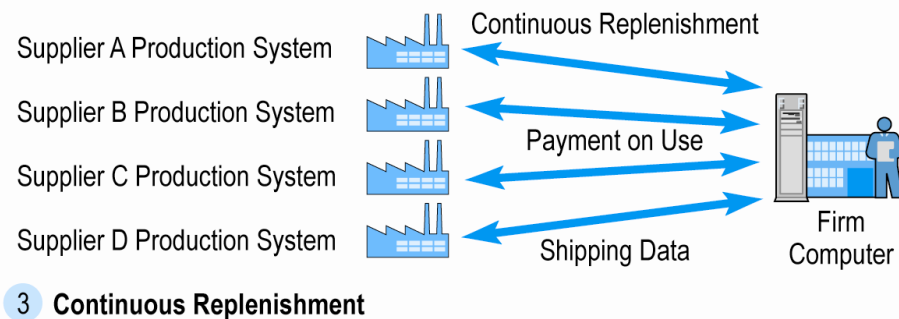
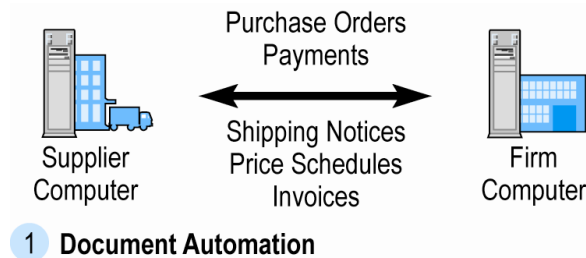
- Essential for just-in-time production models
- Typically achieved by:
 - Working with strategic group of suppliers to reduce product and administrative costs, while improving quality
 - Purchasing under long-term contracts that contain specified quality, cost, and timing goals
- May involve
 - Joint product development and design
 - Integration of computer systems
 - Tight coupling (method of ensuring that suppliers precisely deliver ordered parts at specific time and to particular location, to ensure production process is not interrupted)

Electronic Data Interchange (EDI)

- Broadly defined communications protocol for exchanging documents among computers
- Stage 1: 1970s-1980s
 - Originally focused on document automation
- Stage 2: Early 1990s
 - Began to focus on document elimination
- Stage 3: Mid-1990s
 - Movement toward continuous replenishment/access model
- Today:
 - EDI viewed as general enabling technology that 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 781

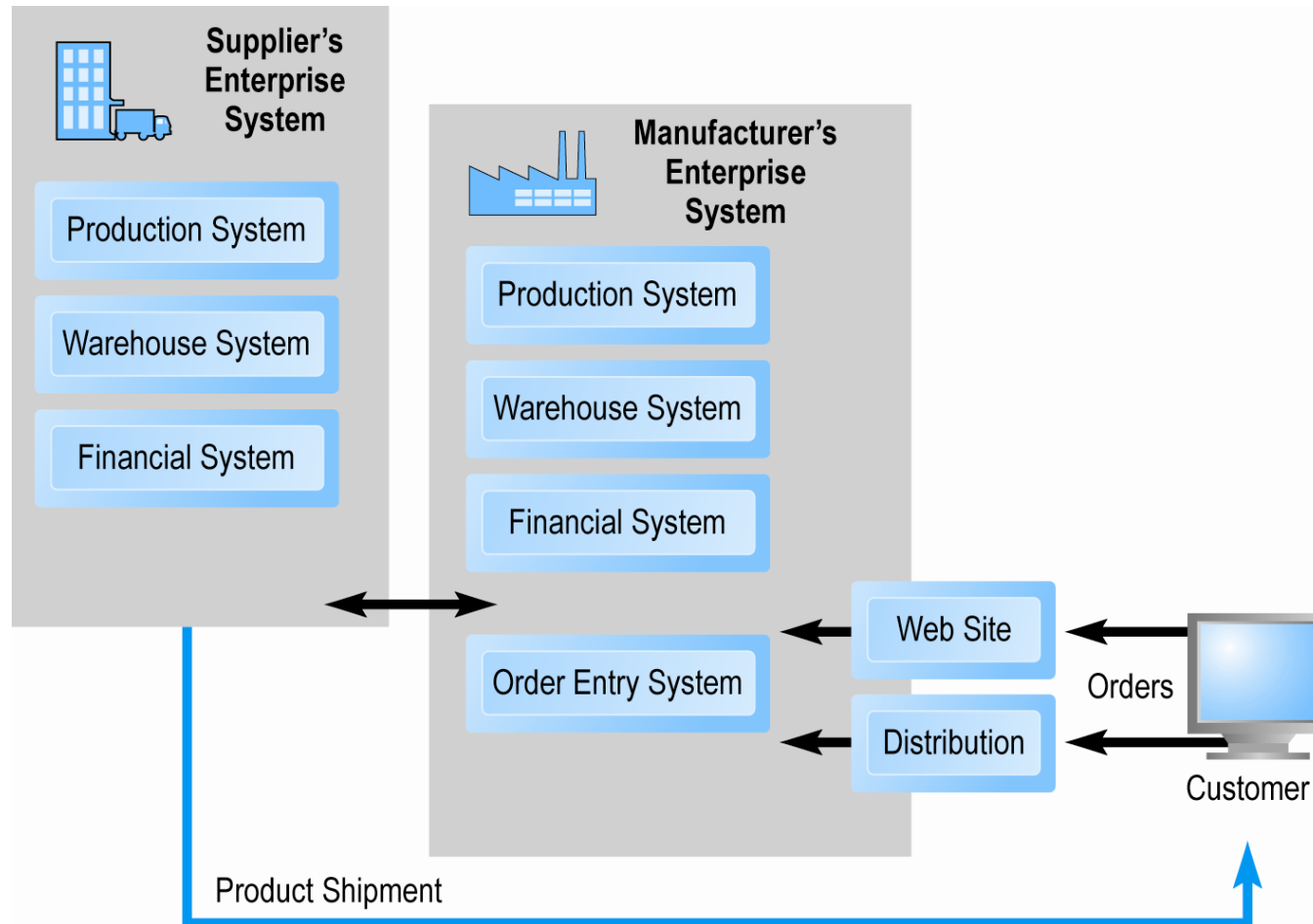


Supply Chain Management Systems

- Continuously link activities of buying, making, and moving products from suppliers to purchasing firms
- 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 783





Insight on Technology
RFID Autoidentification:
Making Your Supply Chain Visible
Class Discussion

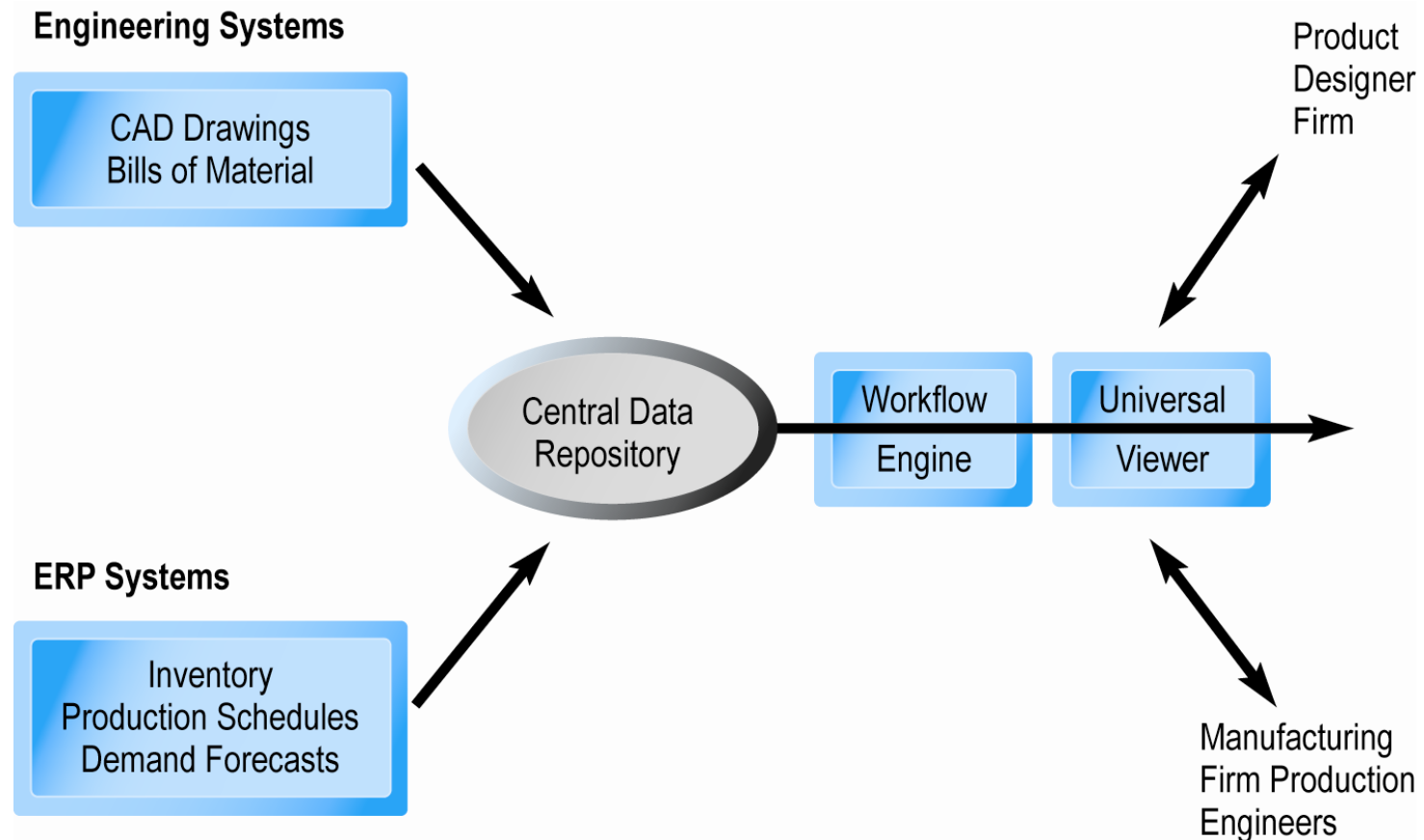
- Why is RFID an improvement over bar codes?
- How does RFID work?
- Why is Wal-Mart supporting RFID?
- What impact will widespread adoption of RFID have on Internet B2B commerce?

Collaborative Commerce

- Direct extension of SCM systems and supply chain simplification
- Use of digital technologies enabling organizations to collaboratively design, develop, build, and manage products through life cycles
- Involves move from transaction focus to relationship focus among supply chain participants
- Unlike EDI, more like an interactive teleconference among members of supply chain
- Example: Group Dekko

Elements of a Collaborative Commerce System

Figure 12.7, Page 786

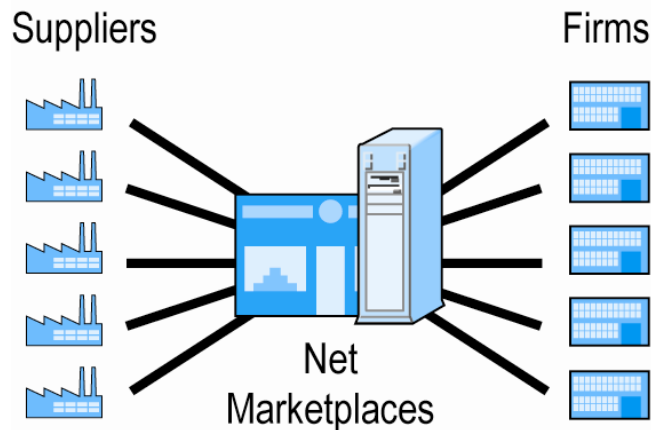


Main Types of Internet-Based B2B Commerce

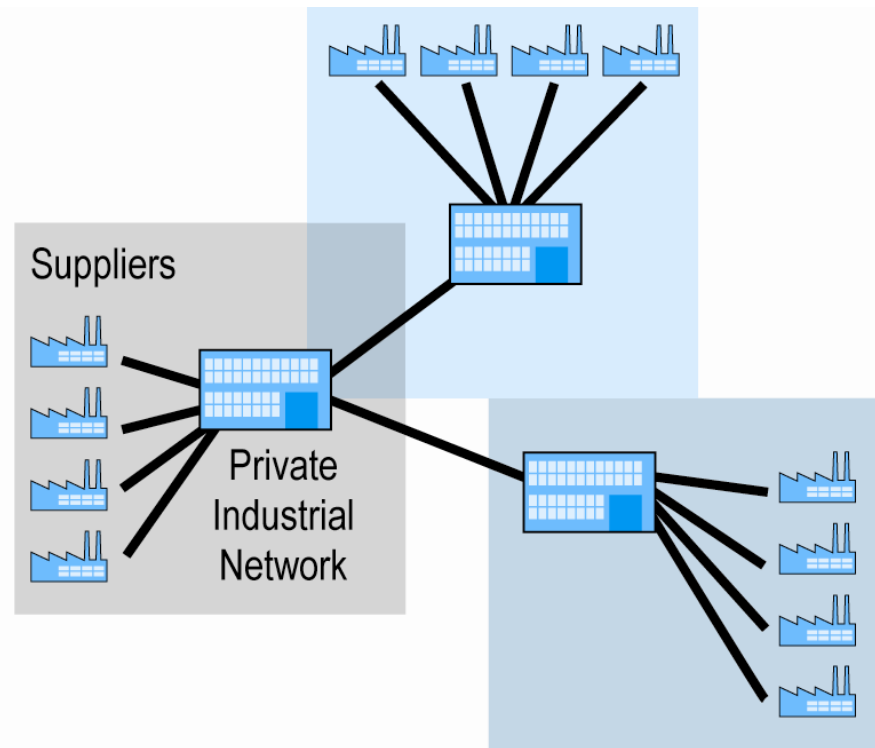
- Net marketplaces: Bring together potentially thousands of sellers and buyers in single digital marketplace operated over Internet
 - Transaction-based
 - Supports many-to-many as well as one-to-many relationships
- Private industrial networks: Bring together small number of strategic business partner 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

Two Main Types of Internet-Based B2B Commerce

Figure 12.8, Page 787



Net Marketplaces



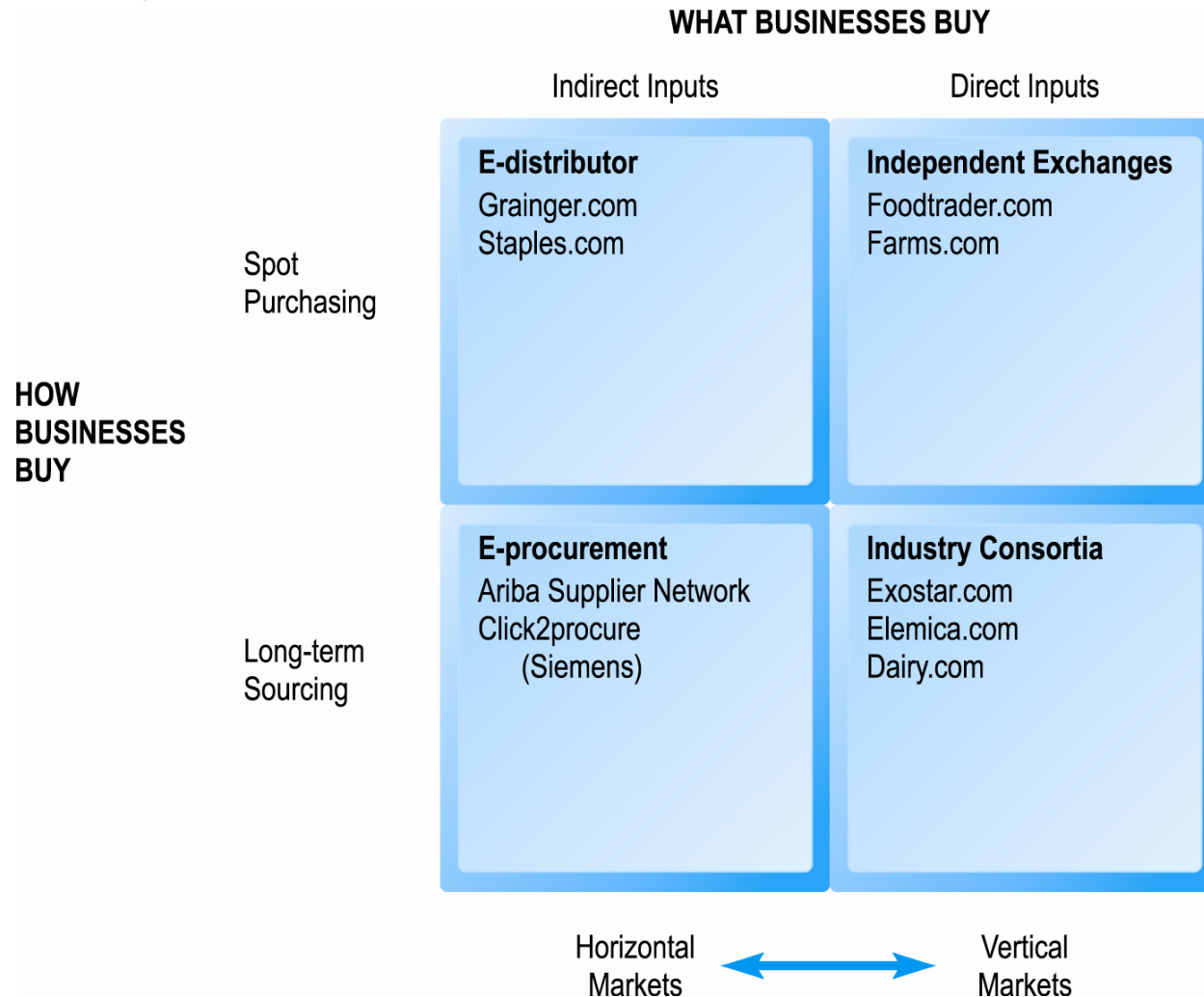
Private Industrial Networks

Net Marketplaces

- Various ways to classify Net marketplaces:
 - Pricing mechanism
 - Nature of market served
 - Ownership
- Can also classify by business functionality
 - What businesses buy (direct vs. indirect goods)
 - How business buy (spot purchasing vs. long-term sourcing)
 - Four main types
 - E-distributors
 - E-procurement networks
 - Exchanges
 - Industry consortia

Pure Types of Net Marketplaces

Figure 12.9, Page 789



Characteristics of Net Marketplaces

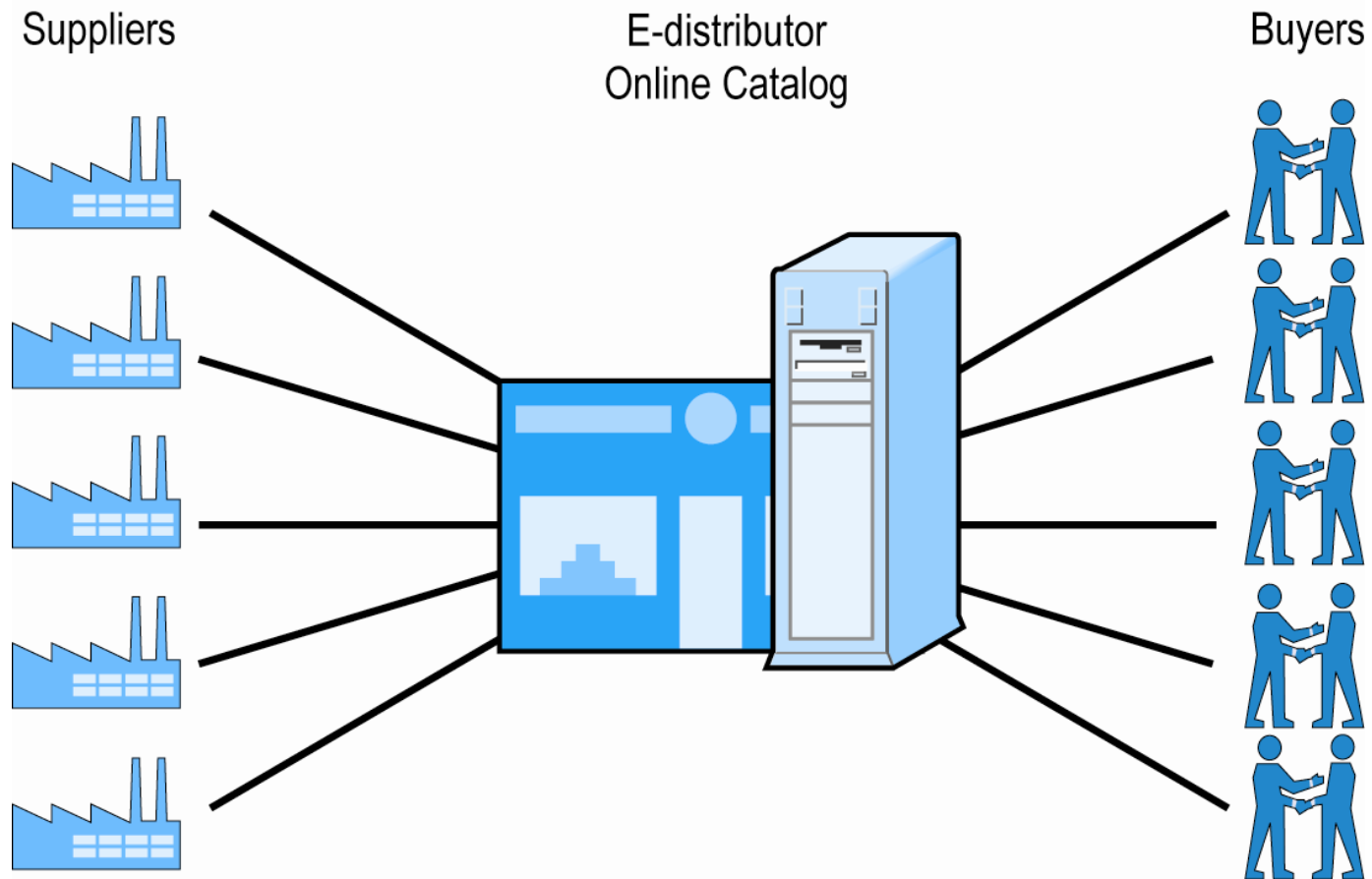
- Bias
 - Seller vs. buyer vs. neutral
- Ownership:
 - Industry vs. third party
- Pricing mechanisms
 - Fixed price catalogs, auctions, bid/ask, RFPs/RFQs
- Scope/Focus
 - Horizontal vs. vertical markets
- Value Creation
 - What benefits offered customer?
- Access to Market
 - Public markets vs. private markets

E-distributors

- Most common type of Net marketplace
- Provide electronic catalogs that represent products of thousands of direct manufacturers
- Typically independently owned intermediaries that offer industrial customers single source from which to order indirect goods on spot basis
- Typically operate in horizontal markets because they serve many different industries with products from many different suppliers
- Usually fixed price with discounts for large customers
- Example: W.W. Grainger

E-distributors

Figure 12.10, Page 790

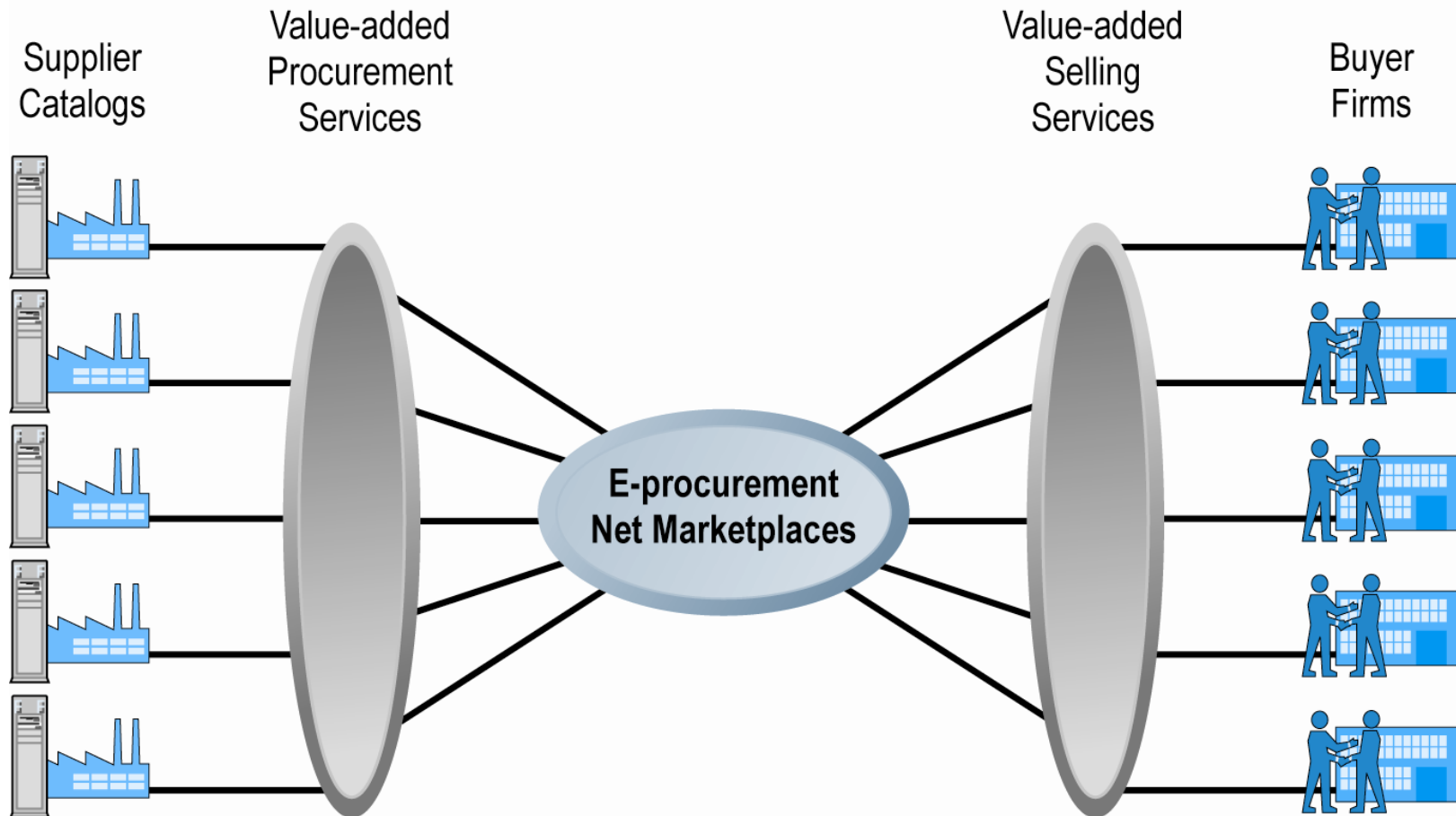


E-procurement Net Marketplaces

- Independently owned intermediaries connecting hundreds of online suppliers offering millions of indirect goods to business firms who pay fees to join the market
- Typically used for long-term contractual purchasing of indirect goods
- Revenues from transaction fees, licensing consultation services and software, network fees
- Include online catalogs of hundreds of suppliers
- Offer value chain management (VCM) services
 - Automation of entire procurement process on buyer side, automation of selling business processes on seller side
- Many-to-many market
- Example: Ariba

E-procurement Net Marketplaces

Figure 12.11, Page 792



E-commerce in Action: Ariba

- Ariba Supplier Network: Internet-based network that connects suppliers to customers and their partners
- Also offers Spend Management solutions to manage all of a company's non-payroll expenses
- Ariba's original vision was to revolutionize procurement and supply process in large corporations

E-commerce in Action: Ariba (cont'd)

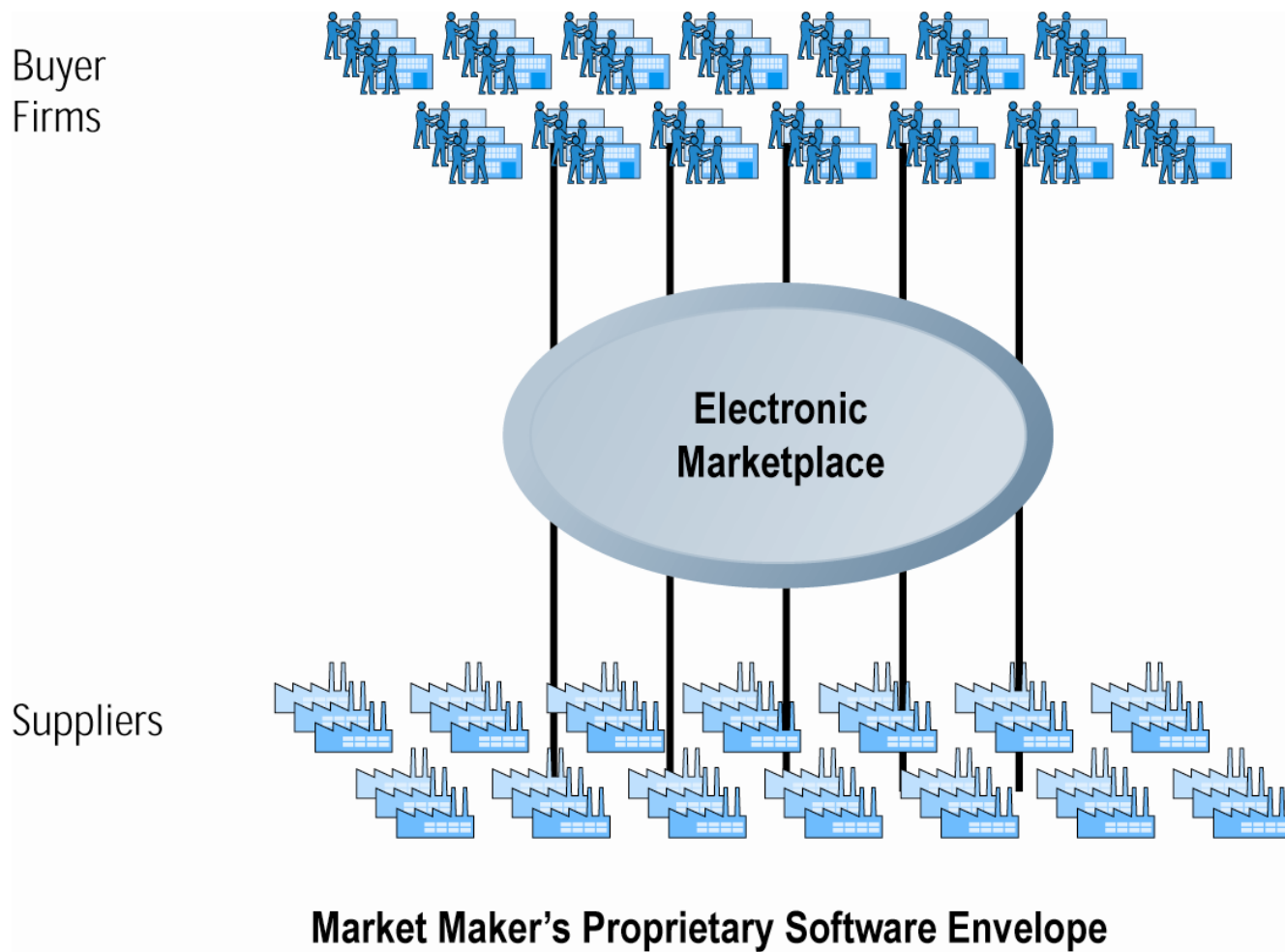
- Has faced many difficulties in bringing this vision to fruition
 - Implementation of its software by large companies is complex, time consuming and expensive
 - Failed to understand power of existing and Web-based EDI systems
 - Competitive response from other major technology players
 - Difficulties getting suppliers to join Ariba Supplier Network
- Currently operating at significant net loss; future prospects not great

Exchanges

- Independently owned online marketplaces that connect hundreds to potentially thousands of suppliers and buyers in dynamic, real-time environment
- Typically vertical markets focusing on spot purchasing requirements of large firms in single industry
- Make money by charging commission on transaction
- Variety of pricing models used
 - Online negotiation, auction, RFQ, fixed
- Tend to be buyer-biased
- Suppliers disadvantaged by competition
- Many have failed due to low liquidity (typically measured by number of buyers and sellers in market, volume of transactions and size of transactions)

Exchanges

Figure 12.12, Page 800

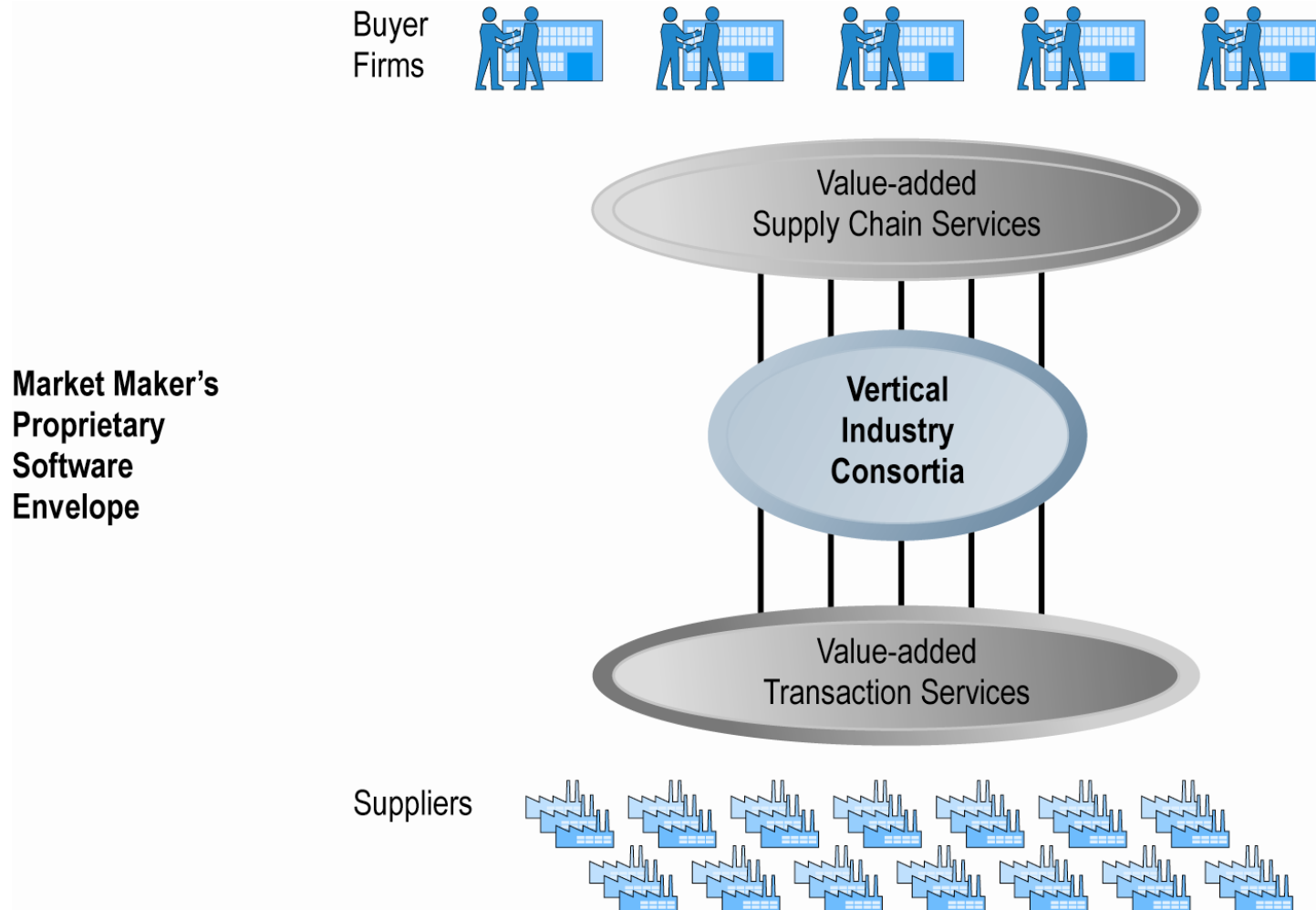


Industry Consortia

- Industry-owned vertical markets that enable buyers to purchase direct inputs from limited set of invited participants
- Emphasize long-term contractual purchasing and development of stable relationships
- Ultimate objective: Unification of supply chains within entire industries through common network and computing platform
- Make money from transaction and subscription fees
- Offer many different pricing mechanisms
 - Auctions, fixed prices, RFQs, negotiated
- Can force suppliers to use consortia's networks

Industry Consortia

Figure 12.13, Page 803

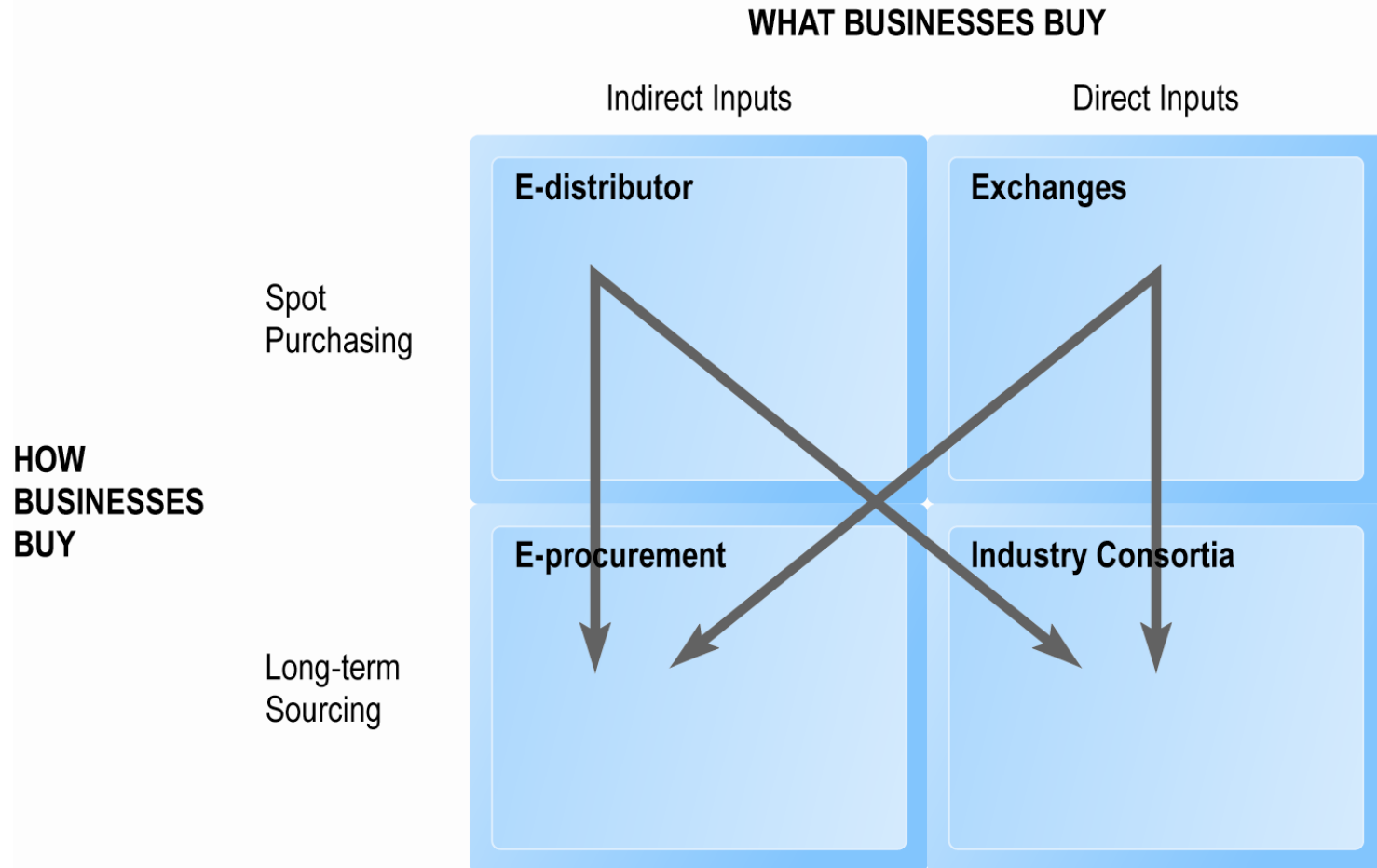


The Long-Term Dynamics of Net Marketplaces

- Pure Net marketplaces moving away from simple “electronic marketplace” vision and 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 involving spot purchasing to longer-term contractual relationships involving both direct and indirect goods
- Buyers and suppliers acclimatizing to digital environment

Net Marketplace Trends

Figure 12.14, Page 806





Insight on Society

**Are Net Marketplaces
Anti-Competitive Cartels?**

Class Discussion

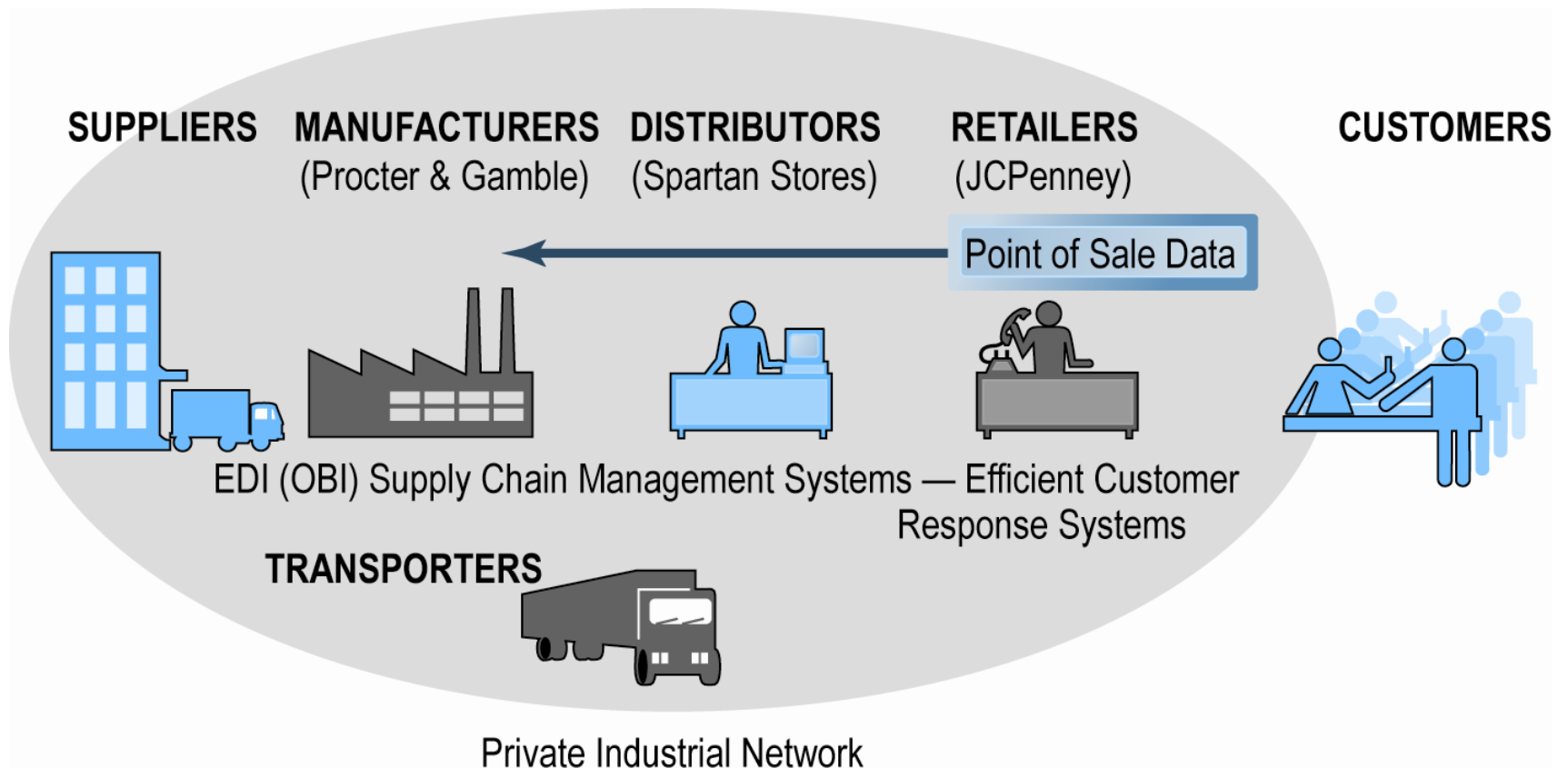
- How can Net marketplaces and private industrial networks reduce competition in the marketplace, drive up prices, and reduce variety in markets?
- What is a monopsony, and how do Net marketplaces encourage the development of monopsonies?
- How can Net marketplaces be used to exclude competitors from low priced markets?
- Why do Net marketplaces inevitably lead to a single marketplace owner or provider?

What Are Private Industrial Networks?

- Private trading exchanges (PTXs)
- Web-enabled networks for coordination of trans-organizational business processes (collaborative commerce)
 - Direct descendant of EDI; closely tied to ERP systems
 - Typically involve manufacturing and support industries
 - Typically center around single, very large manufacturing firm that sponsors network
- Range in scope from single firm to entire industry
- Example: Procter & Gamble

Procter & Gamble's Private Industrial Network

Figure 12.15, Page 809



Characteristics of Private Industrial Networks

- Objectives include:
 - Efficient purchasing and selling business processes industry-wide
 - Industry-wide resource planning to supplement enterprise-wide resource planning
 - Increasing supply chain visibility
 - Closer buyer-supplier relationships
 - Operating on global scale
 - 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



Insight on Business

**Wal-Mart Develops a Private
Industrial Network
Class Discussion**

- What is Wal-Mart's Retail Link system and how has it changed since the early 1990s?
- What is a “collaborative forecasting, planning and replenishment” system?
- Why is Wal-Mart still using EDI-based systems?
- Why won't Wal-Mart join in an industry-backed system?

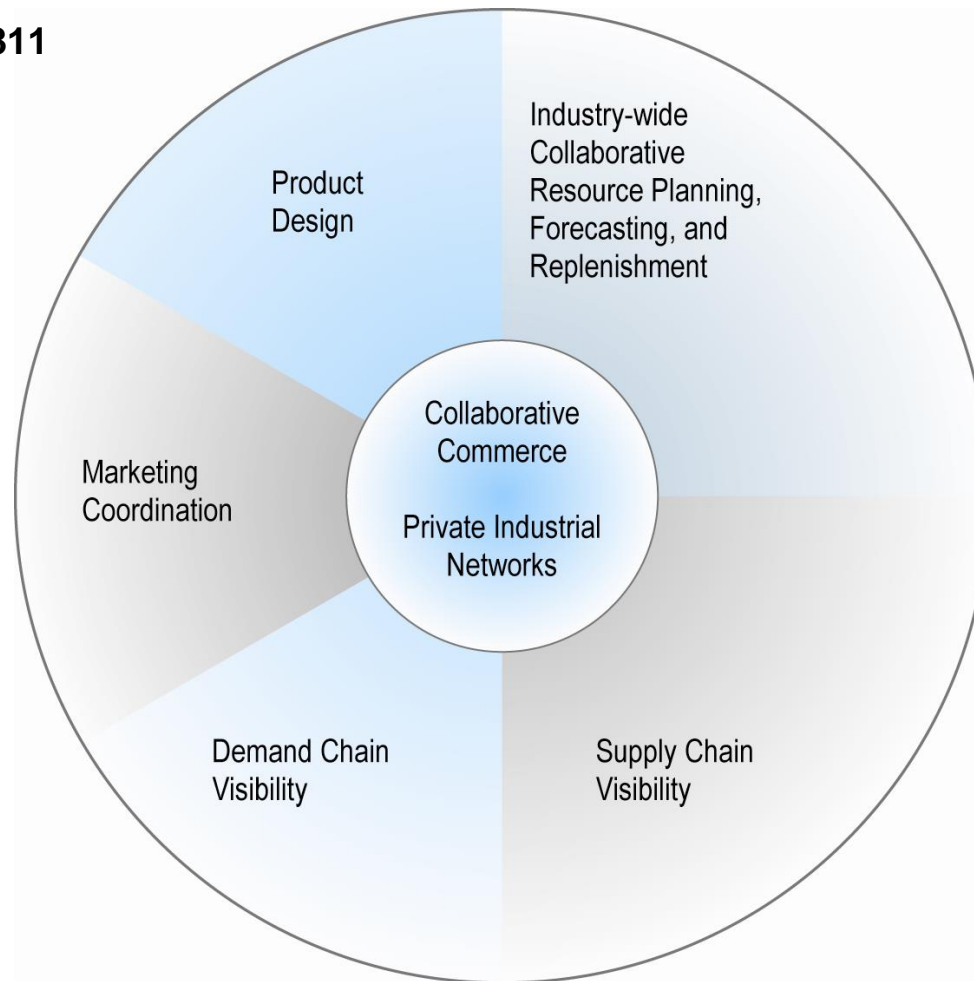
Private Industrial Networks and Collaborative Commerce

■ 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 right amount of goods
- Demand chain visibility
- Marketing coordination and product design
 - Can ensure products fulfill claims of marketing
 - Feedback enables closed loop marketing

Pieces of the Collaborative Commerce Puzzle

Figure 12.16, Page 811



Implementation Barriers

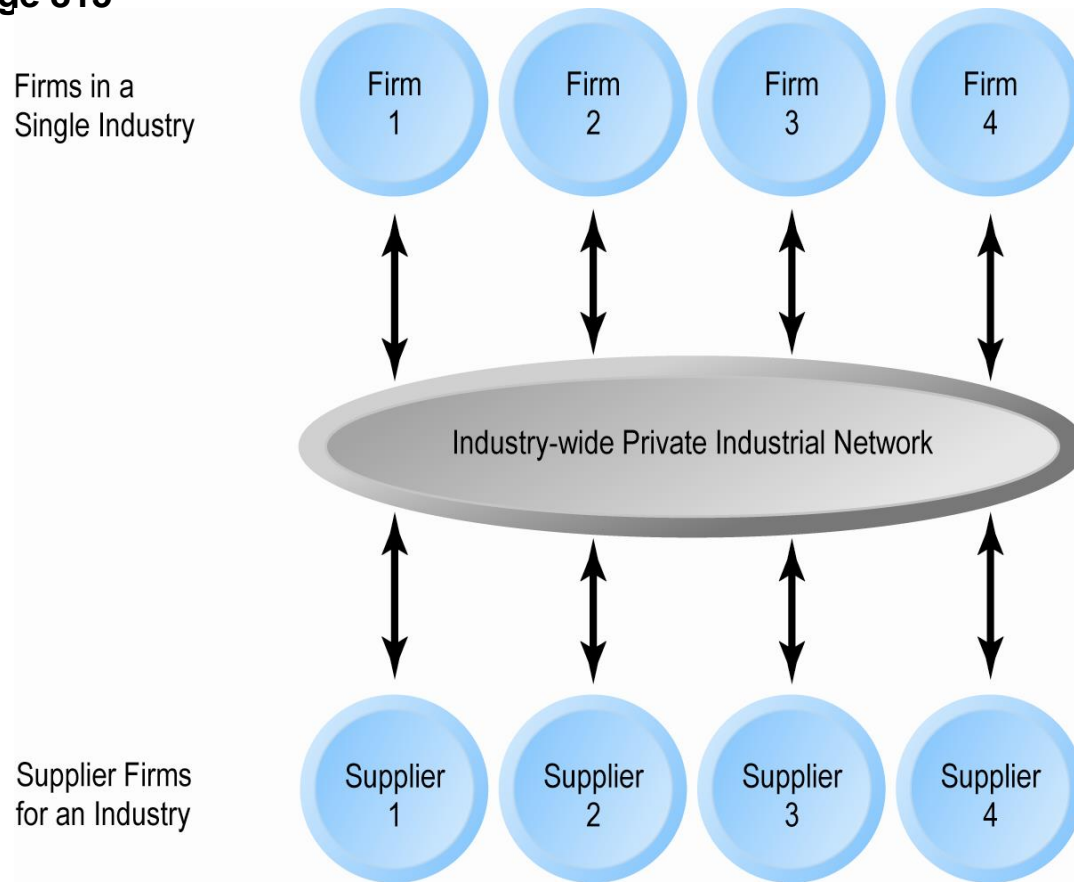
- Concerns about sharing of proprietary, sensitive data
- Integration private industrial networks into existing ERP systems and EDI networks difficult, expensive
- Requires change in mindset and behavior of employees and suppliers

Industry-Wide Private Industrial Networks

- Successful single firm networks adopted by entire industry
- P&G system sold to IBM, re-sold to entire consumer products industry in U.S.
- ISYNC – manufacturers in alcohol and beverage, automotive, entertainment, grocery, healthcare, office supplies industries
- Agentrics – founded by world's largest retailers; focuses on auctions, services for retail industry

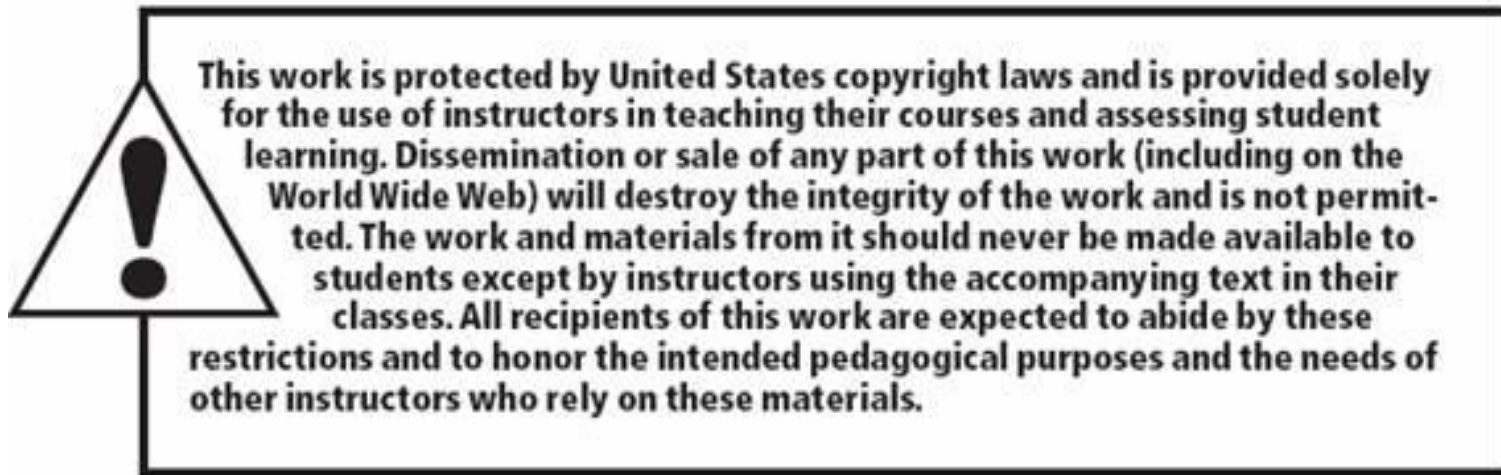
An Industry-Wide Private Industrial Network

Figure 12.17, Page 815



Long-Term Dynamics of Private Industrial Networks

- As large firms become more accustomed to working closely with both supply chain partners and distributors, they will seek to push the boundaries of their networks to extend across the industry as a whole, to other industries, and to elaborate new roles for themselves and others
- Some failed efforts to develop Net marketplaces led to the development of collaborative networks
 - e.g. construction industry



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