CHAPTER FIVE

Business-to-Business Activities

Introduction

- After a year of working in Ghana teaching English, Leila Janah started Samasource in 2008
  - Links workers in developing countries with companies who need work done
  - Has lifted more than 6,500 African, Asian and Haitian workers above the poverty line
  - Cost-effective for businesses
  - Builds worker knowledge and skills in less developed countries and gives low-income workers in developed countries similar opportunities
  - **Use of the Internet** to do good around the world

Outsourcing and Offshoring

- **Outsourcing** is using other organizations to perform specific activities
  - Traditionally used for manufacturing
  - Internet enabled many nonmanufacturing activities being outsourced
- **Offshoring** is outsourcing done by organizations in other countries
  - Business process offshoring includes purchasing, research and development, record keeping, information management
  - Impact sourcing (smart sourcing) is offshoring done by or through not-for-profit organizations

Purchasing Activities

- Including identifying and evaluating vendors, selecting specific products, placing orders, resolving any issues after receipt of goods or services
- Supply chain is the part of industry value chain preceding a particular strategic business unit
  - Includes all activities undertaken by every predecessor in the value chain to design, produce, promote, market, deliver, support each individual component of a product or service
- Traditionally purchasing department buys components at lowest price possible via bidding

Purchasing Activities (cont'd.)

- Procurement includes all purchasing activities, monitoring all purchase transaction elements and managing and developing supplier relationships
  - Also called supply management
- Procurement staff have high product knowledge to identify and evaluate appropriate suppliers
  - Sourcing is identifying suppliers and determining qualifications
  - e-sourcing is the use of Internet technologies in sourcing activities

Purchasing Activities (cont'd.)

- Business purchasing process is more complex than most consumer purchasing processes
- Spend is the total yearly dollar amount for goods and services purchased
  - Managing spend is an important function and can be a key component in overall profitability

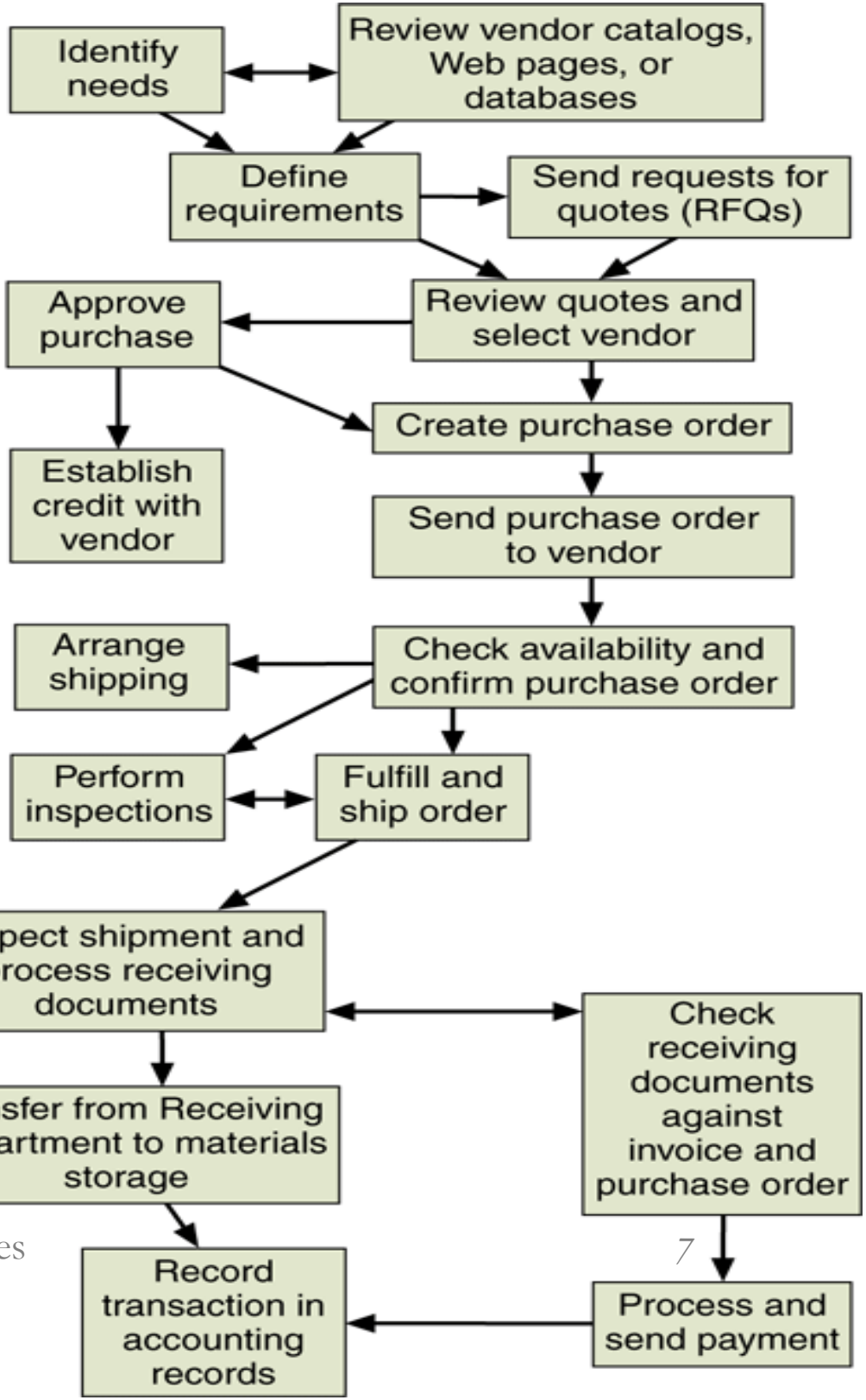

FIGURE 5-1 Steps in a typical business purchasing process

Direct vs. Indirect Materials Purchasing

- Direct materials are those materials that become part of the finished product in a manufacturing process. E.g., iron ore for Steel manufacturer
- Direct materials purchasing
  - Replenishment purchasing (contract purchasing)
    - Company negotiates long-term material contracts
  - Spot purchasing
    - Purchases made in loosely organized (spot) market
    - If demand exceeds contract purchasing estimates
- Indirect materials are all other materials company purchases
  - Includes factory supplies such as sandpaper, hand tools and replacement parts for machinery

Logistics Activities

- Classic objective is to provide the right goods in the right quantities in the right place at the right time
- Managing materials, supplies and finished goods
  - Web and the Internet providing increasing number of opportunities to better manage activities
    - Lower transaction costs and constant connectivity between firms
- Marriage of GPS and portable computing with the Internet is an example of second-wave e-commerce
- Third-wave e-commerce supported by smart phones

Business Process Support Activities

- Supporting activities including: finance and administration, human resources (HR), technology development
  - Human resources, payroll, retirement plan servicing often outsourced by small/midsized companies
- Common support activity is training
  - May be handled by HR or individual departments

Finance and Administration	Human Resources	Technology Development
Making payments to suppliers	Hiring employees	Creating and maintaining virtual collaborative research work groups
Processing payments from customers	Training employees	Posting research results
Planning capital expenditures	Evaluating employees	Publishing research reports online
Budgeting	Administering benefit programs	Connecting researchers to outside sources of research and development services
Planning operations	Compliance with government record-keeping regulations	
Operating computing infrastructure		

FIGURE 5-2 Categories of support activities

E-Government

- Use of Internet technologies by governments and government agencies
  - Enhances functions performed for stakeholders and businesslike activity operations
  - U.S. government Financial Management Service (FMS) uses Pay.gov to handle activity
  - Bureau of Public Debt: TreasuryDirect site
  - Also used in other countries
- U.S. states and cities usually have sites
  - Information about laws and regulations, licenses, jobs, tourism and more

FIGURE 5-3
State of California portal site

Network Model of Economic Organization in Purchasing: Supply Webs

- Trend in purchasing, logistics, and support activities is the shift from hierarchical structures toward network structures
  - Procurement departments being given new tools to negotiate and possibly form strategic alliances
- Supply Web is replacing the term "supply chain"
  - Parallel lines interconnect to form a Web or network configuration made up of strategic alliance
- Roots of Web technology for B2B transactions lie in a hierarchically structured approach to inter-firm information transfer: electronic data exchange

Electronic Data Interchange

- Computer-to-computer business information transfer using a standard format
  - Businesses exchanging info are trading partners
- **EDI compatible** firms exchange data in specific standard formats
  - Often transaction data but can include other information related to transactions e.g., price quotes and order status inquiries
- Most B2B e-commerce adapted from EDI or based on EDI principles
- Dominant technology for electronic B2B transactions

Early Business Information Interchange Efforts

- The need to create formal business transaction records began in the late 1800s and early 1900s
- Companies were using computers for recording internal transactions by the 1950s
  - Information flows between companies still on paper which was slow, inefficient, redundant and unreliable
- In the 1960s businesses with volume transactions exchanged info on punched cards or magnetic tape
  - In the 1960s and 1970s technologies improved and intercompany information could be transferred over telephone lines

Early Business Information Interchange Efforts (cont'd.)

- Although these information transfer agreements between trading partners increased efficiency but not ideal
  - Incompatible data translation limited participation
- Freight and shipping companies joined together in 1968 to create a standardized information set
  - Used a computer file transmittable to any freight company adopting the standard
  - Benefits limited to members of industries that created standard-setting groups
- Full realization of EDI economies and efficiencies required standards for all companies in all industries

Emergence of Broader Standards: The Birth of EDI

- **American National Standards Institute (ANSI)** is the coordinating body for standards in the U.S.
  - Accredited Standards Committee X12 (ASC X12) develops and maintains **EDI standards**
  - Data Interchange Standards Association (DISA) is the administrative body coordinating ASC X12 activities
- **The ASC X12 standard** currently includes specifications for several hundred transaction sets, which are the names of the formats for specific business data interchanges
- In 1987, the United Nations published its first standards under the title EDI for Administration, Commerce, and Transport (EDIFACT, or UN/EDIFACT)

Transaction Description	Transaction Set Identifiers	
	ASC X12	UN/EDIFACT
Ordering Transactions		
Purchase Order	850	ORDERS
Purchase Order Acknowledgment	855	ORDRSP
Purchase Order Change	860	ORDCHG
Request for Quotation	840	REQOTE
Response to Request for Quotation	843	QUOTES
Shipping Transactions		
Ship Notice/Manifest (Advance Shipping Notice)	856	DESADV
Bill of Lading (Shipment Information)	858	IFTMCS
Receiving Advice	861	RECADV
Sales and Payment Transactions		
Invoice	810	INVOIC
Freight Invoice	859	IFTFCC
Payment Order/Remittance Advice	820	REMADV

FIGURE 5-4 Commonly used EDI transaction sets

How EDI Works

- Basic idea: straightforward
- Implementation: complicated
- Example:
  - Company replacing metal-cutting machine
    - Example 1: Steps to purchase using paper-based system
    - Example 2: Steps to purchase using EDI

Paper-Based Purchasing Process

- Buyer and vendor not using integrated software for business processes so each information processing step results in paper document
    - Must be delivered to department handling next step
  - Paper-based information transfer
    - Mail, courier, fax
  - Information flows shown in Figure 5-5

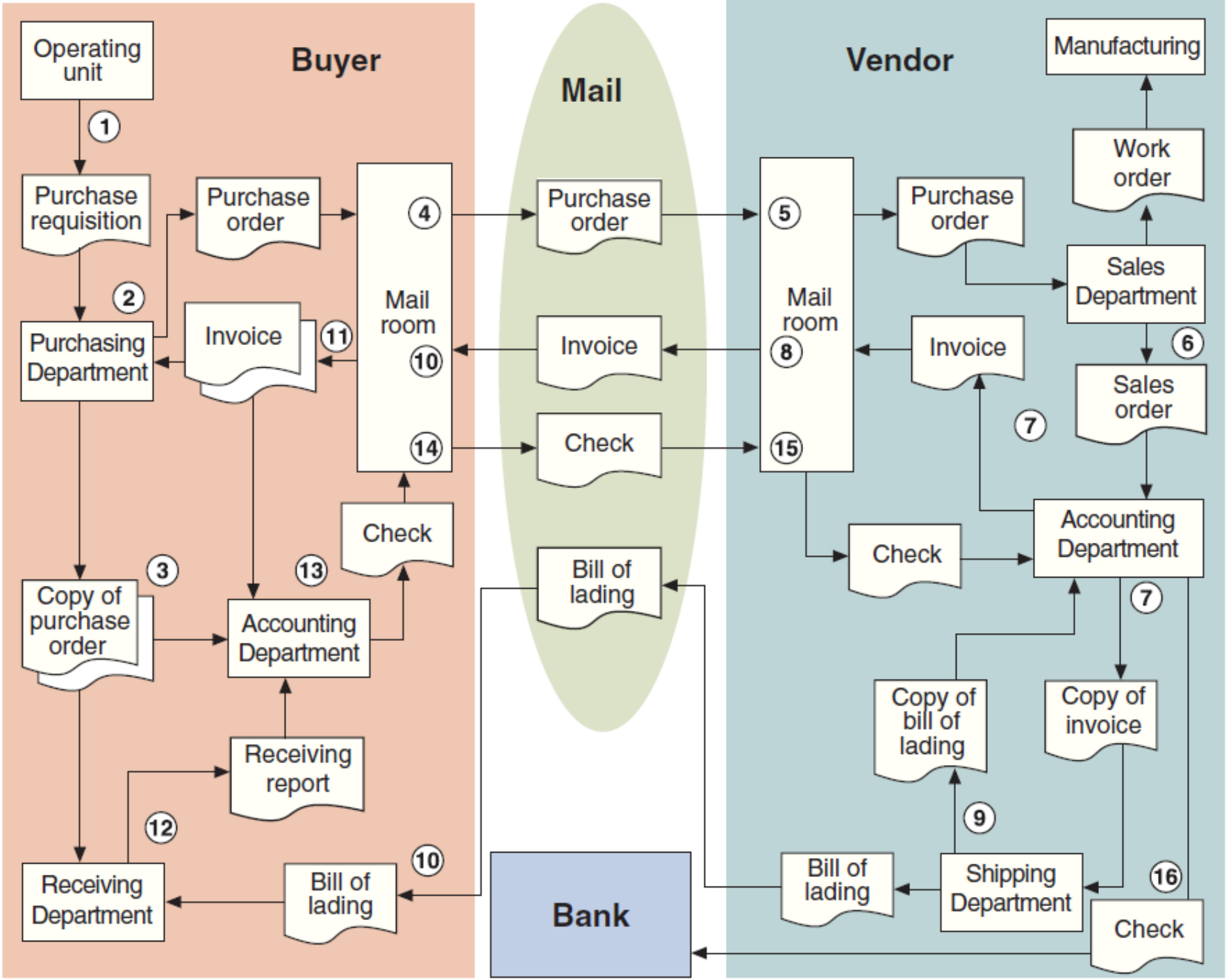

FIGURE 5-5 Information flows in a paper-based purchasing process

EDI Purchasing Process

- Mail service replaced with EDI network data communications
  - Paper flows within buyer's and vendor's organizations replaced with computers running EDI translation software
  - Information flows shown in Figure 5-6
  - **Comparisons:**
    - Same information is being provided to each department
    - Increase the efficiency and accuracy of business data exchange
    - Shorten the overall purchase process

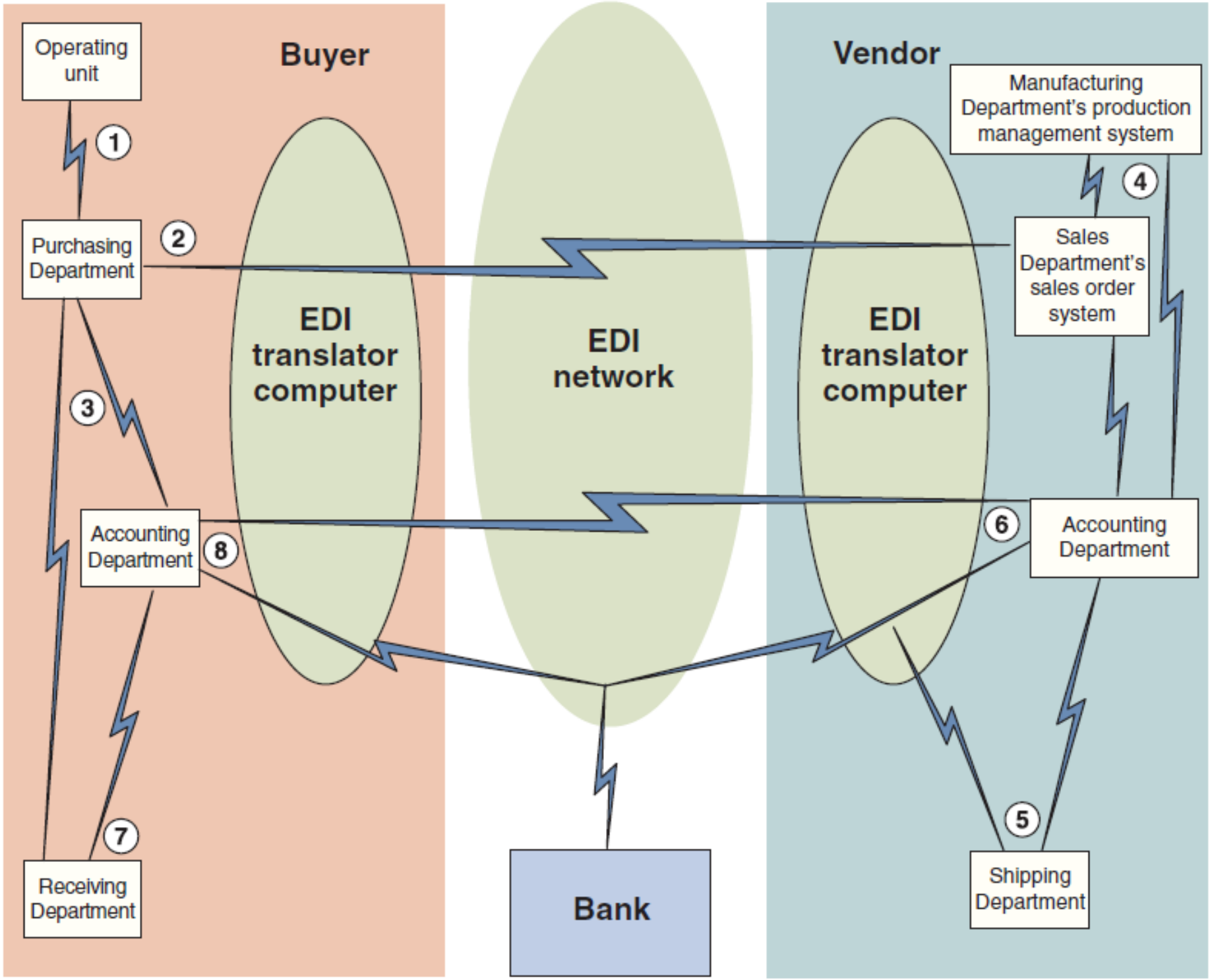

FIGURE 5-6 Information flows in an EDI purchasing process

Value-Added Networks

- Trading partners can implement the EDI network and EDI translation processes in several ways
- Each way uses one of two basic approaches
- **Direct connection EDI** requires each business to operate its own on-site EDI translator computer
  - Connected directly to each other using leased telecommunication lines (as shown in Figure 5-6)
  - Few companies use direct connection EDI because dedicated leased lines are expensive

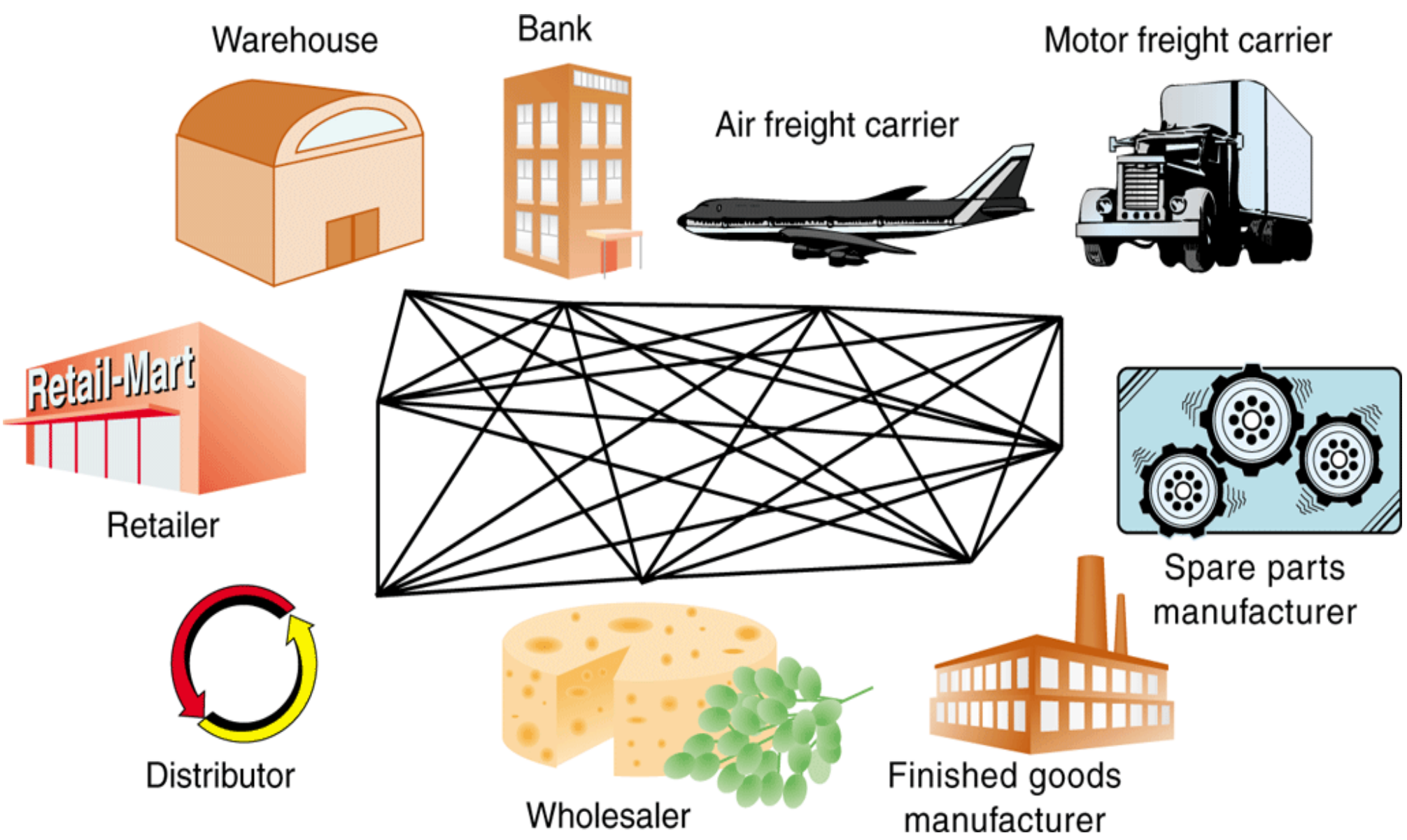

FIGURE 5-7 Direct connection EDI

Value-Added Networks (cont'd.)

- Company may use the services of a **value-added network (VAN)**
  - A company that provides communication equipment, software, and skills needed to receives, stores, forwards electronic messages containing EDI transaction sets
- With indirect connection EDI trading partners use VAN to retrieve EDI-formatted messages
  - Must install compatible EDI translator software
  - Trading partners pass messages through the VAN instead of directly connecting computers

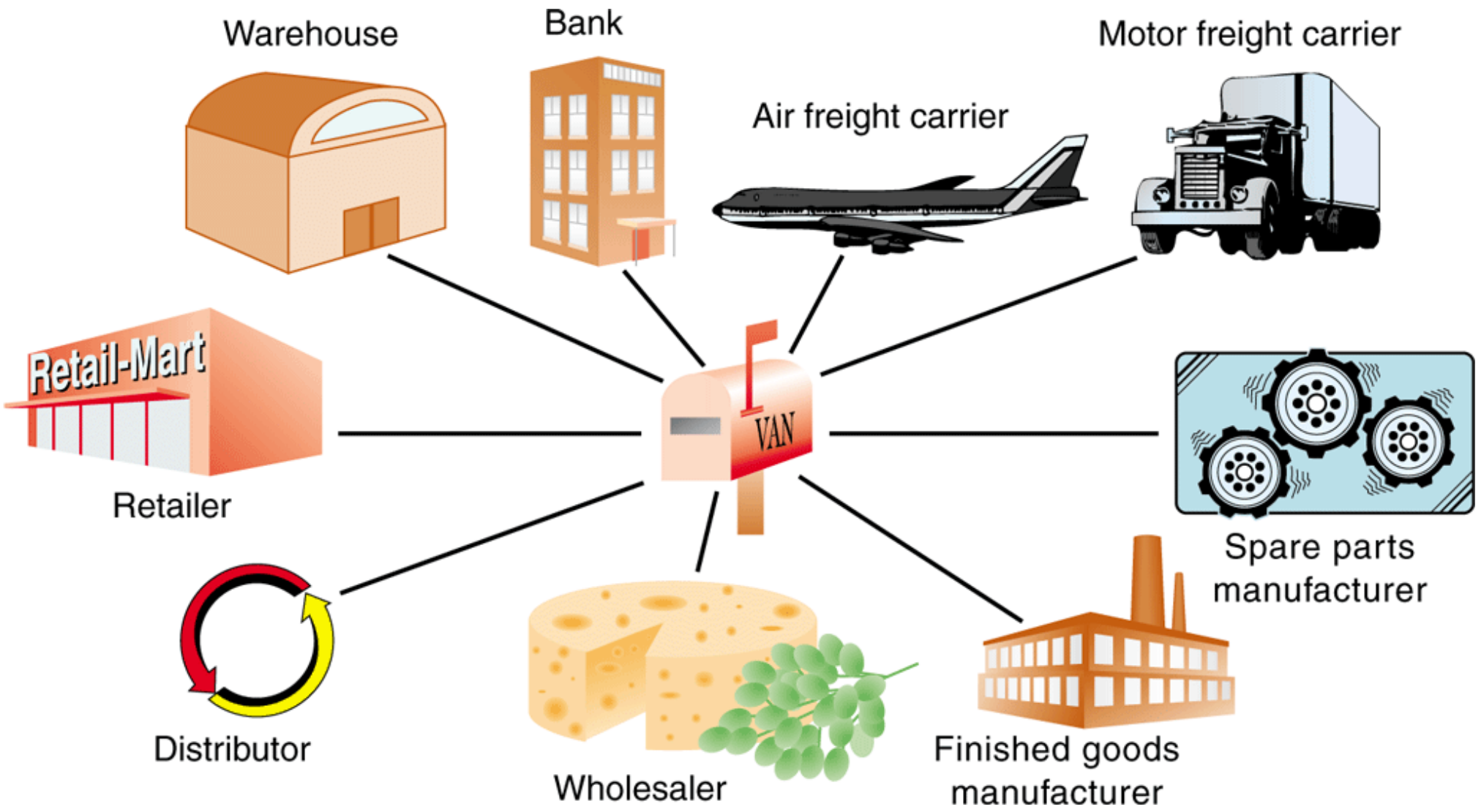

FIGURE 5-8 Indirect connection EDI through a VAN

Value-Added Networks (cont'd.)

- **Advantages** of a VAN
  - Users need to support only the VAN's one communications protocol instead of many possible protocols used by trading partners
  - The VAN can provide translation between different transaction sets used by trading partners (for example, the VAN can translate an ASC X12 set into a UN/EDIFACT set)
  - The VAN can perform automatic compliance checking to ensure that the transaction set is in the specified EDI format
  - The VAN records message activity in an audit log. This VAN audit log becomes an independent record of transactions; this record can be helpful
- Cost used to be a disadvantage, now much lower
  - Internet presents low-cost communications medium used by VAN services

Value-Added Networks (cont'd.)

- EDI on the Internet called Internet EDI, Web EDI, or open EDI
  - Internet is open architect network
- **EDIINT** (Electronic Data Interchange-Internet Integration, EDI-INT) is the most common protocol for Internet EDI transaction sets
- EDI exchanges are encoded using AS2 (Applicability Statement 2) or AS3 (Applicability Statement 3)
  - Both AS2 and AS3 transmissions return secure electronic receipts to the senders for every transaction, which helps establish nonrepudiation

EDI Payments

- EDI transaction sets provide instructions to trading partner's bank
    - Negotiable instruments, the electronic equivalent of checks
- Electronic funds transfers (EFTs) is the movement of money from one bank account to another
  - Executed using an Automated clearing house (ACH) system which is used by service banks to manage accounts with each other
    - Operated by U.S. Federal Reserve Banks, private ACHs

Supply Chain Management Using Internet Technologies

- **Supply chain management** is the job of managing integration of company supply management and logistics activities
  - Across multiple participants in a particular product's supply chain
  - **Ultimate goal** is to achieve higher-quality or lower-cost product at the end of the chain

Trading partners within a supply chain can:

- Share information about changes in customer demand
- Receive rapid notification of product design changes and adjustments
- Provide specifications and drawings more efficiently
- Increase the speed of processing transactions
- Reduce the cost of handling transactions
- Reduce errors in entering transaction data
- Share information about defect rates and types
- Better coordinate shipments with logistics partners and each other

FIGURE 5-9 Advantages of using Internet technologies in supply chain management

Cost of Supply Chain

- The only major disadvantage of using Internet technologies in supply chain management is the **cost** of those technologies.
- For most companies, however, the advantages provide much greater value than the costs of implementing and maintaining the technologies.

Materials-Tracking Technologies

- It is Challenging to track materials as they move from one company to another or within a company
- Optical scanners and bar codes can be used to help track movement of materials
- Integration of bar coding and EDI is now prevalent
  - Manages inventory flows and forecasts materials needs across the supply chain
  - Real-time location systems (RTLS) use bar codes to monitor inventory movements and ensure that goods are shipped as quickly as possible
- Second wave of electronic commerce includes new types of tracking integrated with Internet-based materials-tracking systems
  - The most promising technology now being used: RFID

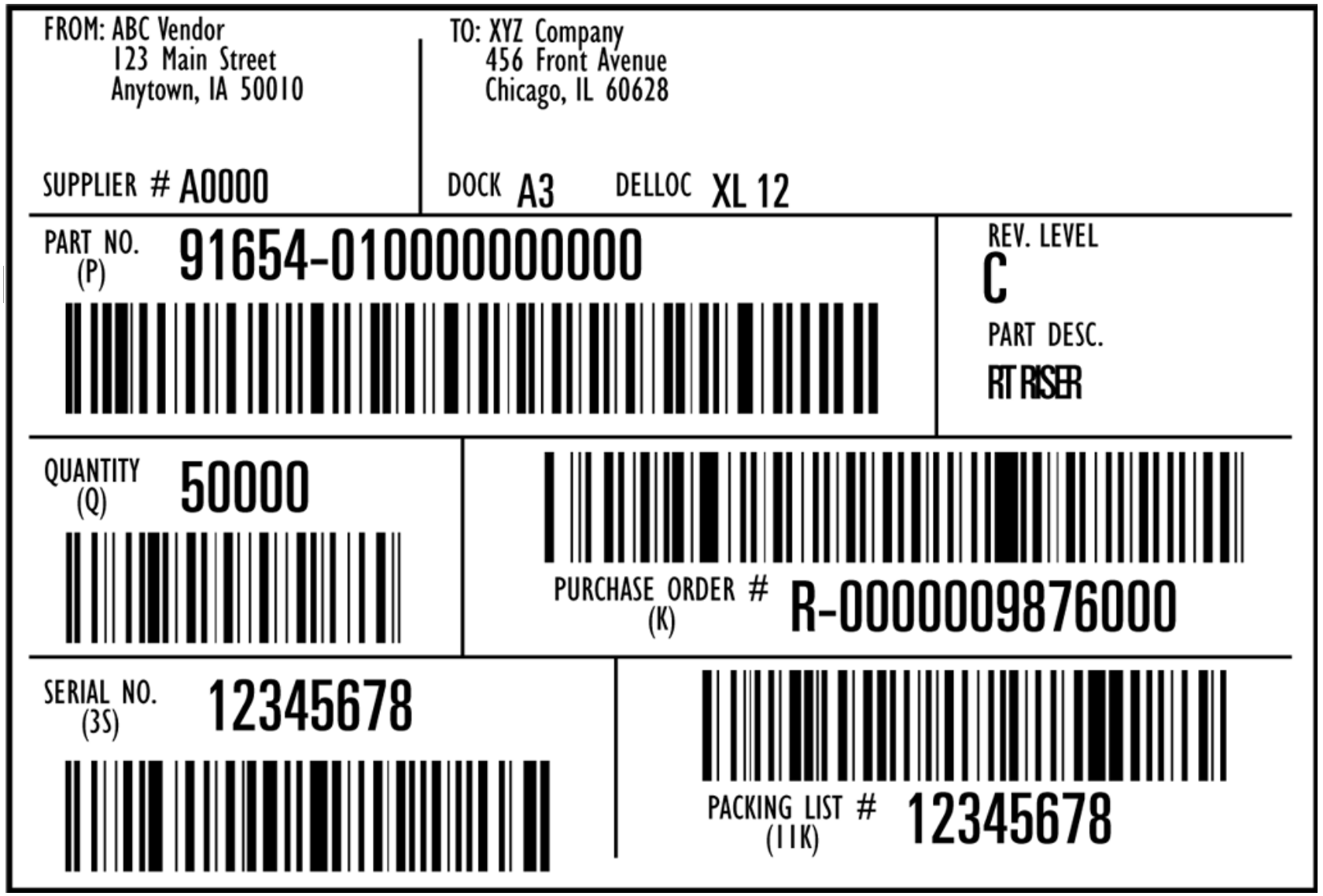

FIGURE 5-10 Shipping label with bar-coded elements from EDI transaction set 856, Advance Ship Notification

Materials-Tracking Technologies (cont'd.)

- **Radio Frequency Identification Devices (RFIDs)**
  - Small chips that use radio transmissions to track inventory
  - Quicker and more accurate than bar codes
  - **Active RFIDs** have their own power supply
  - **Passive RFID** tags are inexpensive and small and do NOT need a power source
  - **Goal** is to manage inventory better and reduce the incidence of stockouts

Materials-Tracking Technologies (cont'd.)

- Bar code MUST be visible to read
- Neither of active RFID and passive RFID should be visible to read
- Industry observers believe RFID tagging in retail will become widespread starting in 2017 when many retailers plans to have them in all locations

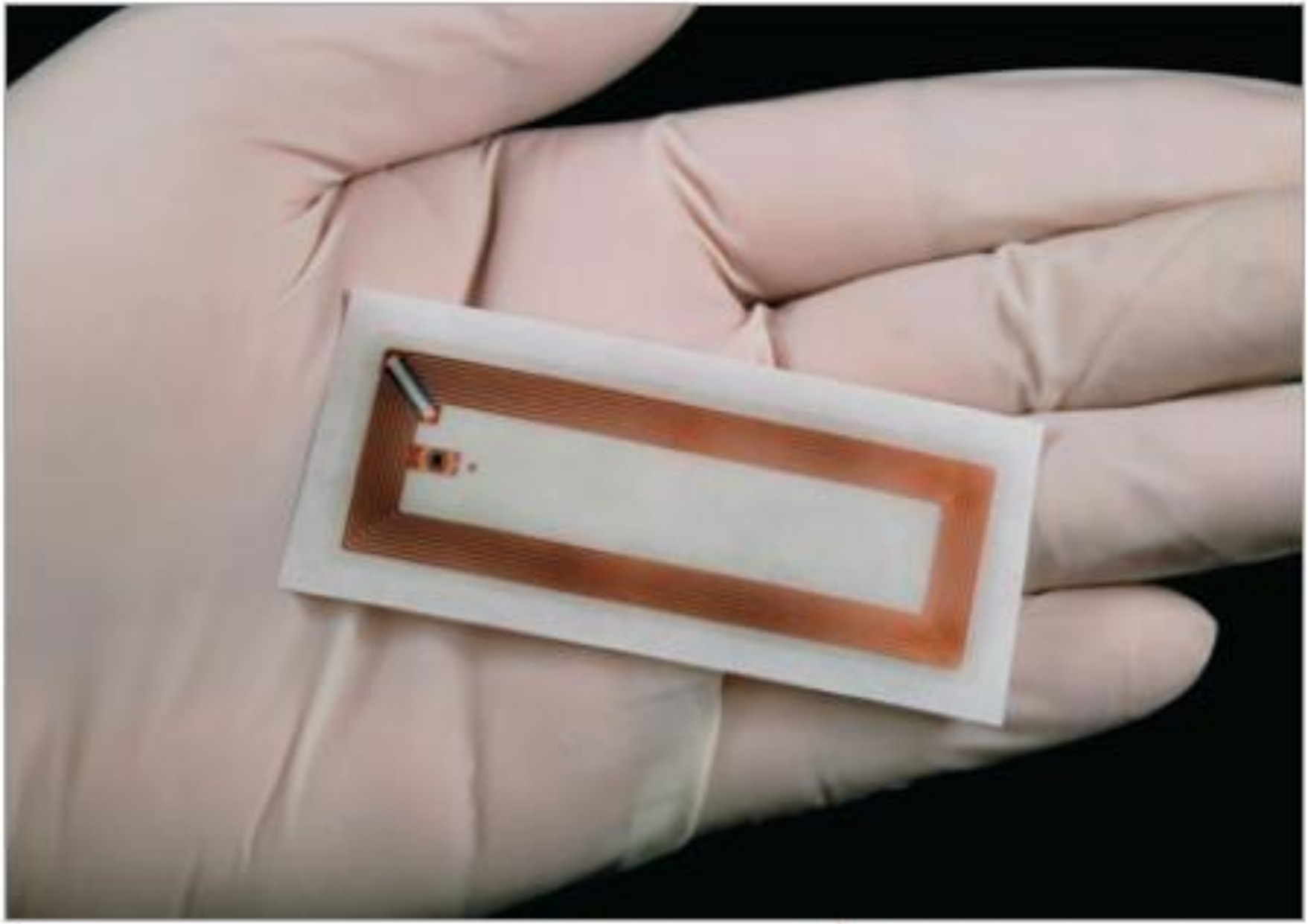

FIGURE 5-11 Passive RFID Tag

Feature	Bar Code	Passive RFID	Active RFID
Technology	Optical (laser)	Radio frequency signal	Radio frequency signal
Power source required	None	None	Battery
Must be visible to read?	Yes	No	No
Sources of interference	Dirt, oil/grease, torn tag	Some metals, liquids	Some metals, liquids
Tag reading rate	One at a time	Hundreds simultaneously	Hundreds simultaneously
Maximum read range	2–24 inches	20–40 feet	100–300 feet
Life of a tag	2–5 years	10 years	3–8 years
Cost of one tag	Fraction of a cent	7–15 cents	$15–$100
Cost of one reader	$80–$300	$500–$8000	$1000–$1500

FIGURE 5-12 Key features of bar code, passive RFID, and active RFID technologies

Building and Maintaining Trust in the Supply Chain

- Major issue in forming supply chain alliances is developing trust
- Key elements are continual communication and information sharing
- Internet and the Web provide excellent ways to communicate and share information and offer new avenues for building trust
  - Provides easy, inexpensive contact with customers
  - Gives buyers instant access to sales representatives
  - Provides comprehensive information quickly