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Chapter 6
Selling to Businesses Online

Learning Objectives

In this chapter, you will learn about:

- How businesses use the Internet to improve purchasing, logistics, and other support activities

- Electronic data interchange and how it works

- How businesses have moved some of their electronic data interchange operations to the Internet

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Learning Objectives (cont'd.)

- Supply chain management and how businesses are using Internet technologies to improve it

- Electronic marketplaces and portals that make purchase-sale negotiations easier and more efficient

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Purchasing, Logistics, and Business Support Processes

- Recap
  - Strategy issues arise when providing information to potential customers
  - Value chain model's primary activities
    - Identify customers, market and sell, and deliver
  - Many business models for selling on the Web
    - Used in B2B e-commerce
    - Apply to B2C e-commerce

Purchasing, Logistics, and Business Support Processes (cont'd.)

- Companies use electronic commerce to:
  - Improve purchasing and logistics
  - Improve all support activities
  - Provide potential cost reductions, business process improvements
- Necessary characteristic: flexibility
  - Economic organizations evolving from hierarchical structures to new, more flexible network structures
- Reduced transaction cost through Internet and Web technologies for business processes

Purchasing, Logistics, and Business Support Processes (cont'd.)

- **Outsourcing**: use of other organizations to perform specific activities

  - Typically manufacturing

- **Offshoring**: outsourcing done by organizations in other countries

  - Internet-enabled activities: purchasing, research and development, record keeping, information management

    - **Business process offshoring**

  - **Impact sourcing** or **smart sourcing**: offshoring done by or through not-for-profit organizations

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Purchasing Activities

- Identify and evaluate vendors, select specific products, place orders, resolve any issues after receiving ordered goods or services
- **Supply chain**
  - 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

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Purchasing Activities (cont'd.)

- Traditionally
  - Purchasing department buys components at lowest price possible
  - Bidding process focus: individual component cost
- Procurement includes:
  - All purchasing activities
  - Monitoring all purchase transaction elements
  - Managing and developing supplier relationships

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Purchasing Activities (cont'd.)

- Procurement also called supply management
- Procurement staff have high product knowledge
  - Identify and evaluate appropriate suppliers
- **Sourcing** procurement activity
  - Identifying suppliers, determining qualifications
- **e-sourcing**
  - Using Internet technologies in sourcing activities

Purchasing Activities (cont'd.)

- Business purchasing process
  - More complex than most consumer purchasing processes
  - **Spend**
    - Total yearly dollar amount for goods and services purchased

- Institute for Supply Management (ISM)
  - Main organization for procurement professionals

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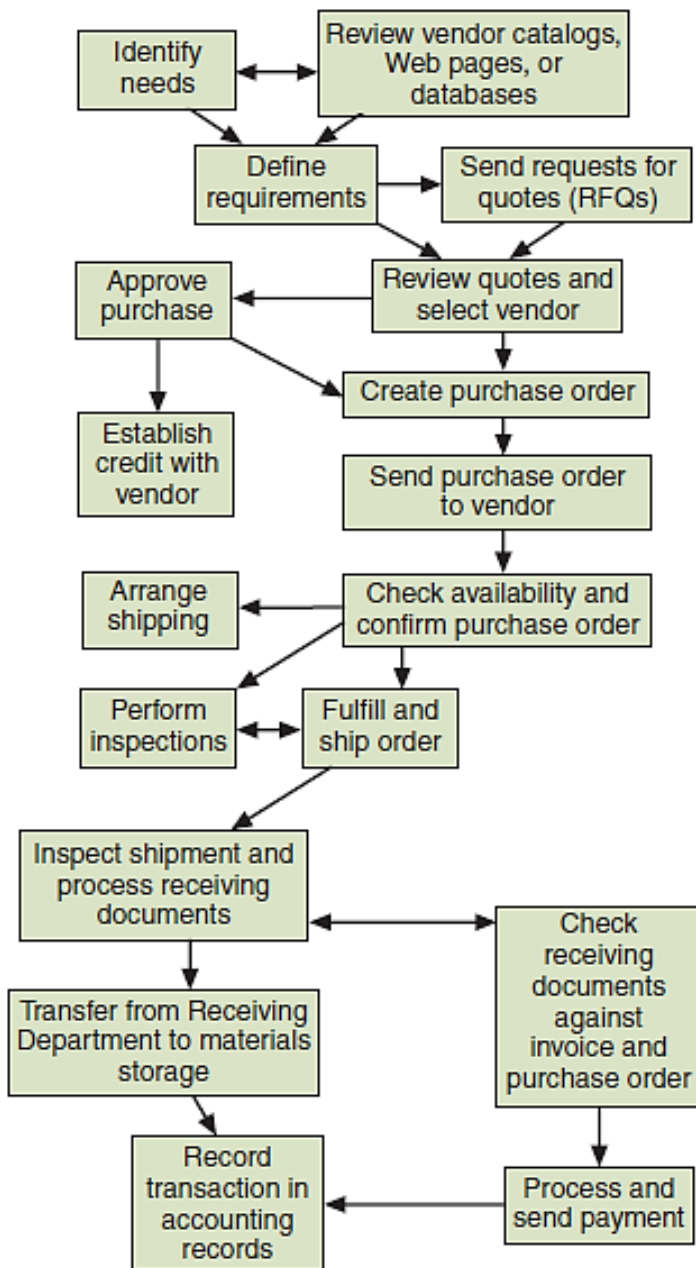
FIGURE 6-1 Steps in a typical business purchasing process

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Direct vs. Indirect Materials Purchasing

- **Direct materials**
  - Become part of finished product
- Direct materials purchasing: two types
  - **Replenishment purchasing** (**contract purchasing**)
    - Company negotiates long-term material contracts
  - **Spot purchasing**
    - Purchases made in loosely organized market (**spot market**); demand exceeds estimates made for contract purchasing
- **Indirect materials**
  - All other materials company purchases

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Direct vs. Indirect Materials Purchasing (cont'd.)

- **Maintenance, repair, and operating** (**MRO**) supplies
  - Indirect materials purchased on a recurring basis
  - Standard items (commodities) with price as main criterion
- **Purchasing cards** (**p-cards**) provide:
  - Managers ability to make multiple small purchases
  - Cost-tracking information to procurement
- Leading Suppliers:
  - MRO: McMaster-Carr, W.W. Grainger,
  - Office Depot, Staples, Digi-Key, Newark.com

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FIGURE 6-2 Grainger.com Web store

Logistics Activities

- Classic objective
  - Provide the right goods in the right quantities in the right place at the right time
- Important support activity for sales and purchasing
- Includes managing the movements of:
  - Inbound materials and supplies
  - Outbound finished goods and services
- Web and the Internet
  - Providing increasing number of opportunities to better manage activities

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Logistics Activities (cont'd.)

- Example: Schneider Track and Trace system
  - Real-time shipment information: customers' browsers
- **Third-party logistics** (**3PL**) provider
  - Operates all (large portion) of customer's materials movement activities
    - Examples: Ryder and Whirlpool
- Excellent example of second-wave e-commerce
  - Marriage of GPS and portable computing technologies with the Internet (Examples: Fed Ex and UPS)
- Third-wave e-commerce supported by smart phones

Business Process Support Activities

- **General categories**
  - Finance and administration, human resources, technology development

Finance and Administration	Human Resources	Technology Development
Making payments to suppliers	Hiring employees	Creating and maintaining virtual collaborative research workgroups
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 6-3 Categories of support activities

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Business Process
Support Activities (cont'd.)

- Human resources and /or payroll functions often outsourced by small/midsized companies

- Common support activity: training
  - Underlies multiple primary activities
  - Putting training materials on company intranet
    - Can distribute materials to many different sales offices
    - Can coordinate materials in corporate headquarters

- **Knowledge management**
  - Intentional collection, classification, dissemination of information about a company, its products and processes (Examples: Ericsson, KMWorld)

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E-Government

- **E-Government**
  - Use of electronic commerce by governments and government agencies
    - Enhances functions performed for stakeholders
    - Enhances businesslike activity operations
- U.S. government examples
  - Financial Management Service (FMS): Pay.gov site
  - Bureau of Public Debt: TreasuryDirect site
  - Department of Homeland Security (DHS)
    - Internet technology use initiatives to enable information sharing among agencies

E-Government (cont'd.)

- Examples in other countries
  - United Kingdom
    - Department for Work and Pensions Web site
  - Singapore Government Online site
- State government sites
  - California's one-stop portal site: CA.GOV
  - Similar sites for most other states
- Examples in local government
  - Large cities: Minneapolis, New Orleans sites
  - Small cities: Cheviot, Ohio Web site as one example

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FIGURE 6-4 State of California portal site

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Network Model of Economic Organization in Purchasing: Supply Webs

- Trend in purchasing, logistics, and support activities
  - Shift from hierarchical structures
    - Toward network structures
  - Procurement departments' new tools (technology)
    - To negotiate with suppliers and form strategic alliances

- Network model of economic organization
  - Other firms perform various support activities
  - **Supply Web**: term replacing "supply chain"
    - Due to parallel lines interconnected in a Web or network configuration

Electronic Data Interchange

- Computer-to-computer business information transfer
  - Between two businesses using a standard format
- Trading partners
  - Two businesses exchanging information
- **EDI compatible**
  - Firms exchanging data in specific standard formats
- Reasons to be familiar with EDI
  - Most B2B e-commerce adapted from EDI or based on EDI principles
  - Dominant technology for electronic B2B transactions

Early Business Information Interchange Efforts

- 1800s and early 1900s
  - Need to create formal business transactions records
- 1950s
  - Computers store, process internal transaction records
  - Information flows: printed on paper
- 1960s: large volume transactions
  - Exchanged on punched cards or magnetic tape
- 1960s and 1970s
  - Transferred data over telephone lines
- Efforts increased efficiency, reduced errors

Early Business Information Interchange Efforts (cont'd.)

- Issue: incompatible data translation programs
- 1968: freight, shipping companies joined together
  - Created 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

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Emergence of Broader Standards: The Birth of EDI

- **American National Standards Institute** (**ANSI**)

  - United States coordinating body for standards

  - **Accredited Standards Committee X12** (**ASC X12**)

    - Develops and maintains EDI standards

  - **Data Interchange Standards Association** (**DISA**)

    - Administrative body coordinating ASC X12 activities

  - **Transaction sets**: names of the formats for specific business data interchanges

- **EDI for Administration, Commerce, and Transport** (**EDIFACT**, or **UN/EDIFACT**)

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Transaction Description	Transaction Set Identifiers	
	ASC X12	UN/EDIFACT
Ordering Transactions		
Purchase Order	850	ORDERS
Purchase Order Acknowledgement	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 6-5 Commonly used EDI transaction sets

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How EDI Works

- Basic idea: straightforward

- Implementation: complicated

- Example:

  - Company replacing metal-cutting machine

    - Steps to purchase using paper-based system

    - Steps to purchase using EDI

How EDI Works (cont'd.)

- Paper-based purchasing process
  - Buyer and vendor
    - Not using integrated software for business processes
  - Each information processing step results in paper document
    - Must be delivered to department handling next step
  - Paper-based information transfer
    - Mail, courier, fax
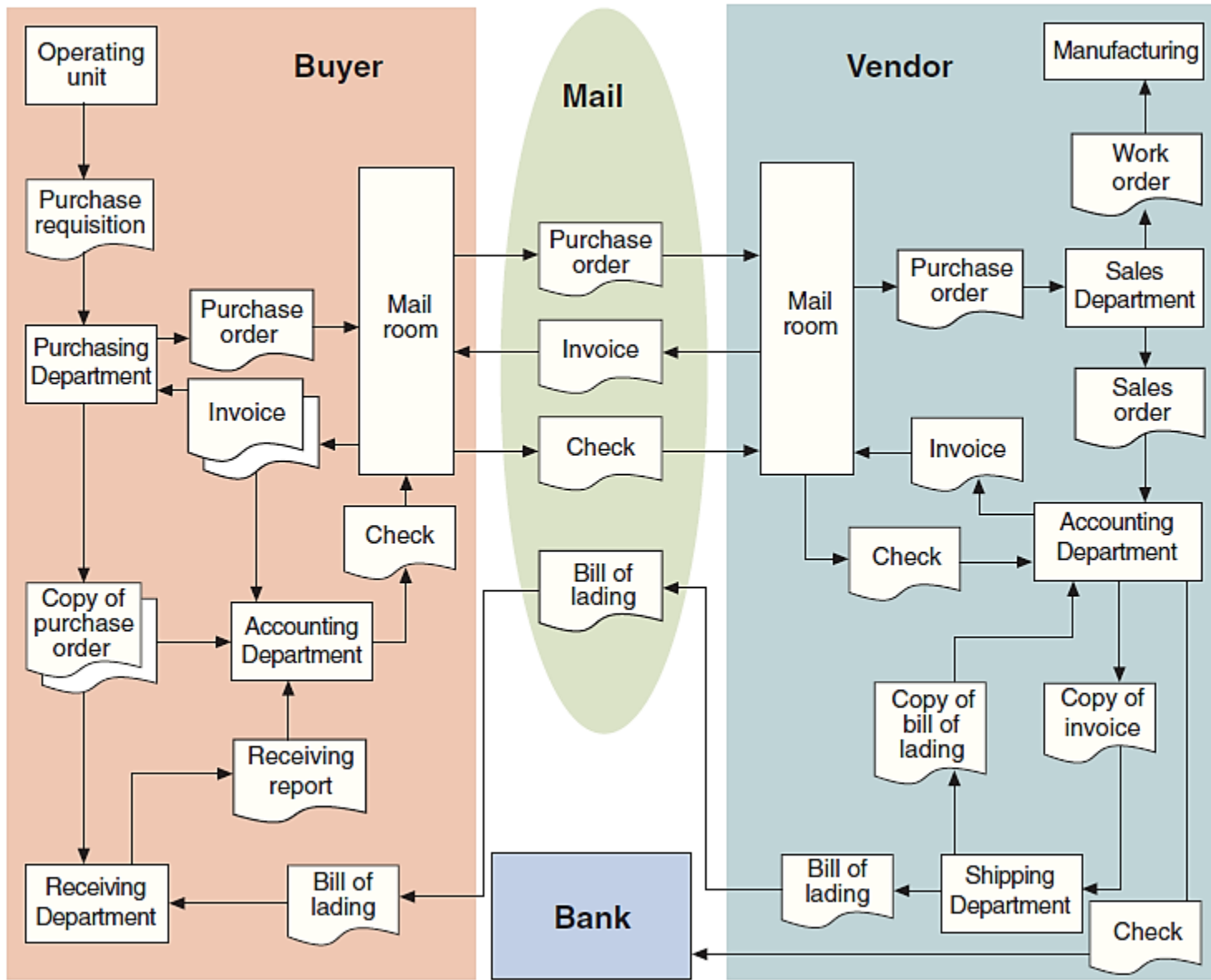 - Information flows shown in Figure 5-6

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FIGURE 6-6 Information flows in a paper-based purchasing process

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How EDI Works (cont'd.)

- 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
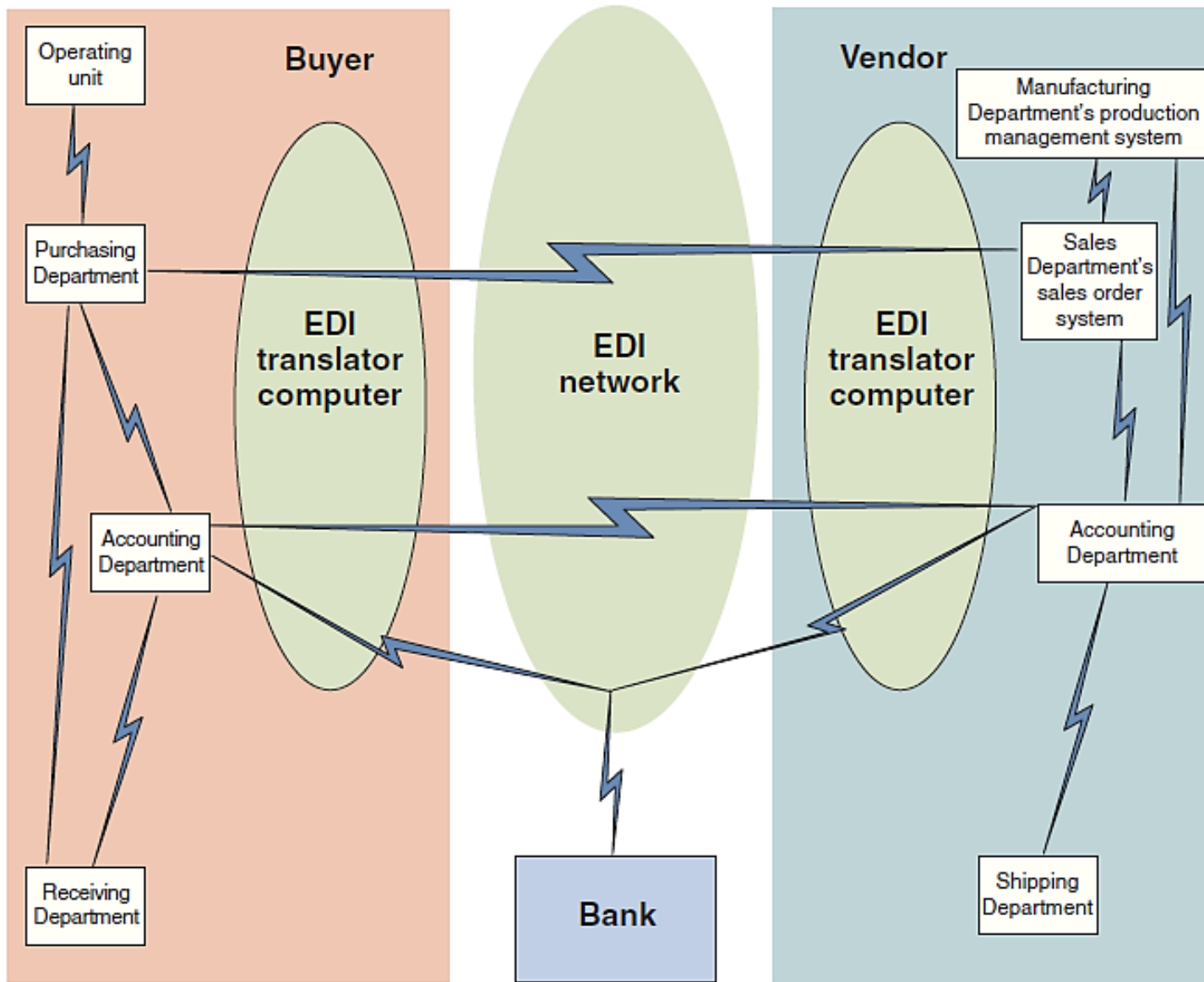 - Information flows shown in Figure 5-7

FIGURE 6-7 Information flows in an EDI purchasing process

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Value-Added Networks

- EDI network key elements
  - EDI network, two EDI translator computers
- **Direct connection EDI**
  - Businesses operate on-site EDI translator computers
    - Connected directly to each
  - Few companies use direct connection EDI
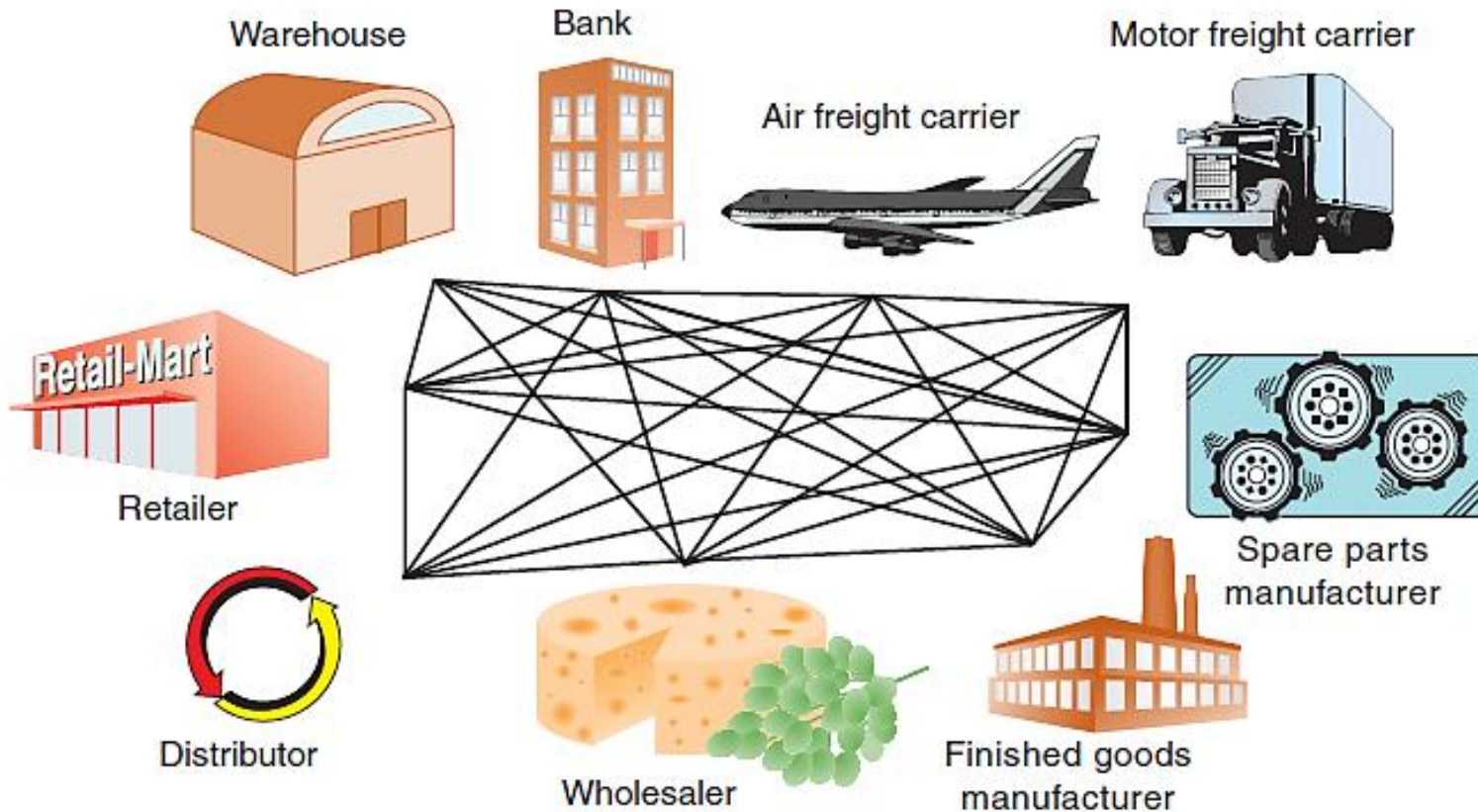   - Dedicated leased lines: expensive

FIGURE 6-8 Direct connection EDI

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Value-Added Networks (cont'd.)

- Value-added network (VAN)
  - Receives, stores, forwards electronic messages containing EDI transaction sets
- **Indirect connection EDI**
  - Trading partners use VAN to retrieve EDI-formatted messages
- Companies providing VAN services
  - CovalentWorks, EasyLink Services, GXS, Kleinschmidt, Promethean Software Services, and SPS Commerce
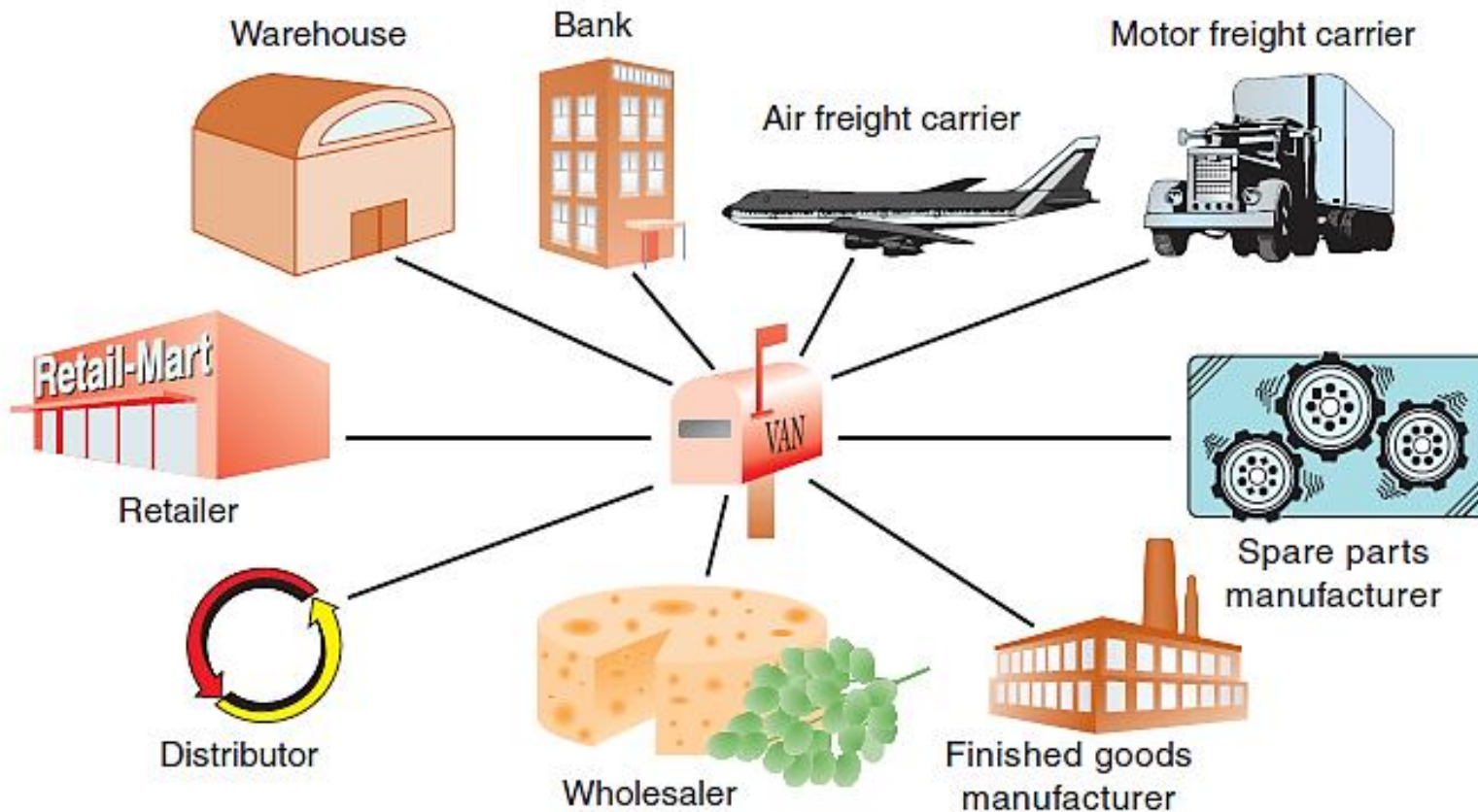
FIGURE 6-9 Indirect connection EDI through a VAN

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Value-Added Networks (cont'd.)

- Advantages
  - Support one communications protocol (VAN)
  - VAN records message activity in audit log
    - Becomes independent transactions record
  - VAN provides translation between different transaction sets
  - VAN performs automatic compliance checking
  - VAN records message activity in audit log
    - Helps establish **nonrepudiation**: ability to establish that a particular transaction actually occurred

Value-Added Networks (cont'd.)

- Disadvantages: In the past, cost (fees)
- Today, affordable even for small companies
  - Internet presents low-cost communications medium used by VAN services
- EDI on the Internet: **Internet EDI**, **Web EDI**, **open EDI** (Internet is open architect network)

Value-Added Networks (cont'd.)

- **EDIINT** (**Electronic Data Interchange-Internet Integration**, **EDI-INT**)
    - most common protocol for Internet EDI transaction sets
- EDI exchanges encoded using
    - **AS2** (**Applicability Statement 2**) or **AS3** (**Applicability Statement 3**)
        - Secure electronic receipts returned to senders for every transaction, help establish repudiation

EDI Payments

- EDI transaction sets
  - Provide instructions to trading partner's bank
    - Negotiable instruments
    - Electronic equivalent of checks
- Electronic funds transfers (EFTs)
  - Movement of money from one bank account to another
  - **Automated clearing house** (**ACH**) system
    - Service banks use to manage accounts with each other
    - Operated by U.S. Federal Reserve Banks, private ACHs

Supply Chain Management Using Internet Technologies

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

Value Creation in the Supply Chain

- Firms engaging in supply chain management
  - Reaching beyond limits of their own organization's hierarchical structure
  - Creating new network form of organization among members of supply chain
- Originally developed to reduce costs
- Today: value added in the form of benefits to the ultimate consumer
  - Requires more holistic view of the entire supply chain

Value Creation in the Supply Chain (cont'd.)

- **Tier-one suppliers**
  - Small number of very capable suppliers
  - Original business establishes a long-term relationship
- **Tier-two suppliers**
  - Larger number of suppliers who tier-one suppliers develop long-term relationships with for components, raw materials
- **Tier-three suppliers**
  - Next level of suppliers
- Key element: trust

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Value Creation in the Supply Chain (cont'd.)

- **Supply alliances**

  - Long-term relationships among participants in the supply chain

  - Major barrier

    - Level of information sharing

- Example: Dell Computer

  - Reduced supply chain costs by sharing information with suppliers

- Buyers expect annual price reductions, quality improvements from suppliers

Value Creation in the Supply Chain (cont'd.)

- Marshall Fisher 1997 Harvard Business Review article
  - Described two types of organization goals
    - Efficient process goals
    - Market-responsive flexibility goals
- Successful supply chain management key elements
  - Clear communications
  - Quick responses to those communications
- Internet and Web technologies
  - Effective communications enhancers

Suppliers 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

FIGURE 6-10 Advantages of using Internet technologies in supply chain management

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Increasing Supply Chain Efficiencies

- Internet and Web technologies managing supply chains can:

  - Yield increases in efficiency throughout the chain

  - Increase process speed, reduce costs, increase manufacturing flexibility

    - Allows response to changes in quantity and nature of ultimate consumer demand

- Example: Boeing

  - Invested in new information systems increasing production efficiency of the supply chain

  - Also launched spare parts Web site

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Increasing Supply Chain Efficiencies (cont'd.)

- Example: Dell Computer
  - Famous for use of Web to sell custom-configured computers
  - Also used technology-enabled supply chain management
    - Give customers exactly what they want
    - Reduced inventory amount (three weeks to two hours)
  - Top suppliers have access to secure Web site
    - Tier-one suppliers can better plan their production
  - Dell accesses suppliers' information

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Materials-Tracking Technologies

- Troublesome task
  - Tracking materials as they move from one company to another
- Optical scanners and bar codes
  - Help track movement of materials
- Integration of bar coding and EDI: prevalent
- Second wave of electronic commerce
  - Integration of new types of tracking into Internet-based materials-tracking systems

FIGURE 6-11 Shipping label with bar-coded elements from EDI transaction set 856, Advance Ship Notification

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Materials-Tracking Technologies (cont'd.)

- **Real-time location systems** (**RTLS**)
  - Bar code tracking system
  - Used by fulfillment centers
- **Radio Frequency Identification Devices** (**RFIDs**)
  - Small chips using radio transmissions to track inventory
  - RFIDs read much more quickly, higher degree of accuracy than bar codes
  - Important development: passive RFID tag
    - Made cheaply and in very small sizes
    - No power supply required

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Materials-Tracking Technologies (cont'd.)

- Example: 2003 (Wal-Mart)
  - Tested RFID tag use on merchandise for inventory tracking and control
  - Initiated plan to have all suppliers install RFID tags in shipped goods
  - Reduced incidence of **stockouts**
    - Retailer loses sales because it does not have specific goods on its shelves
- General acceptance of RFID tagging will not occur in most industries until 2015
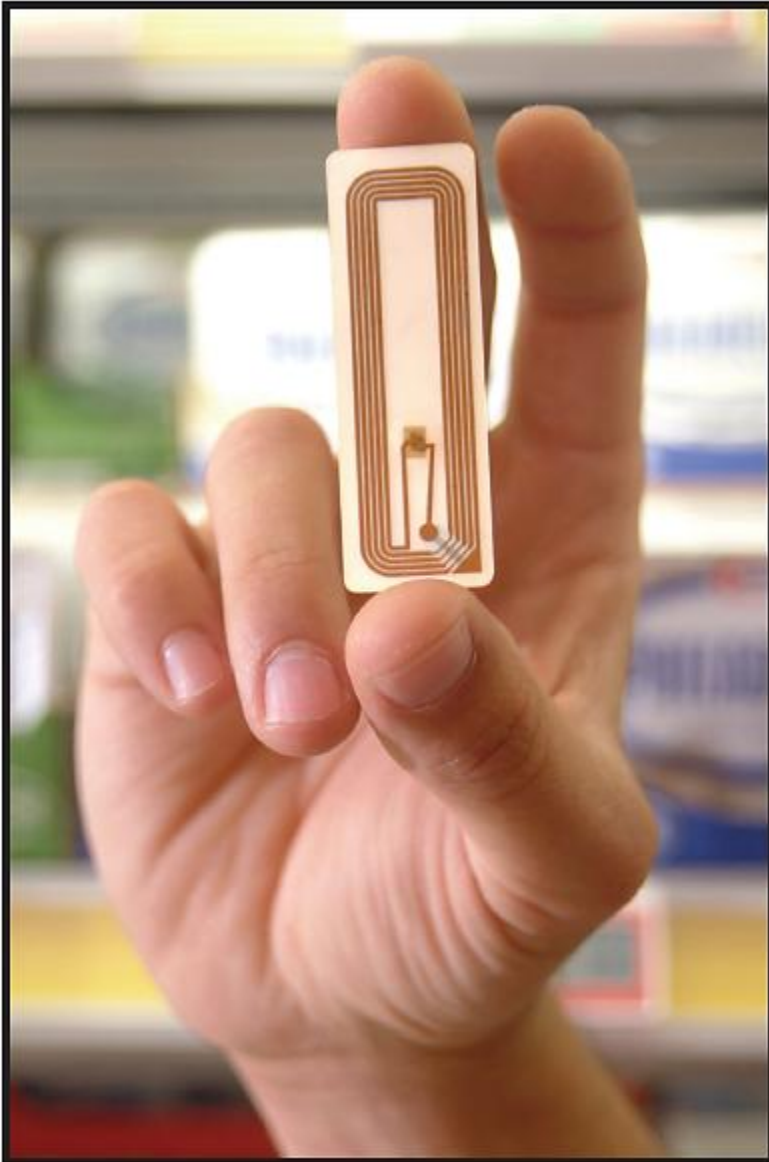
FIGURE 6-12 Passive RFID tag

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Creating an Ultimate Consumer Orientation in the Supply Chain

- **Ultimate consumer orientation**
  - Customer focus difficult to maintain
- Michelin North America
  - Pioneered use of Internet technology
    - To go beyond next step in its value chain
  - 1995: launched electronic commerce initiative
    - BIB NET extranet
  - Allowed dealer access to tire specifications, inventory status, and promotional information
    - Through simple-to-use Web browser interface

Building and Maintaining Trust in the Supply Chain

- Major issue: developing trust
- Key elements
  - Continual communication and information sharing
- Internet and the Web
  - Provide excellent ways to communicate and share information
  - Offer new avenues for building trust
    - Maintain contact with their customers
    - Afford buyers instant access to their sales representatives
    - Provide comprehensive information quickly

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Summary

- Using Internet and Web technologies

  - Improves purchasing and logistics primary activities

  - Improves support activities

- Companies and other large organizations extending reach of enterprise planning and control activities

  - Beyond organization's legal definitions

- Emerging network model of organization

  - Describes growth in interorganizational communications and coordination

Summary (cont'd.)

- History of EDI and how it works
  - Freight companies first introduced electronic commerce
  - Spread of EDI to virtually all large companies
    - Requires smaller businesses to seek an affordable way to participate in EDI
  - Internet providing inexpensive communications channel EDI lacked
    - Important force driving supply chain management technique adoption

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