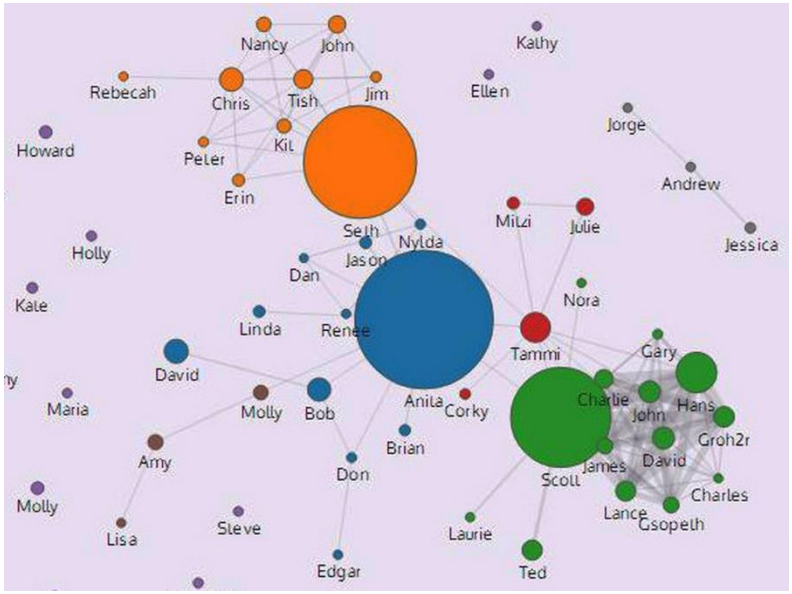
CHAPTER ONE

An Introduction to Electronic Commerce

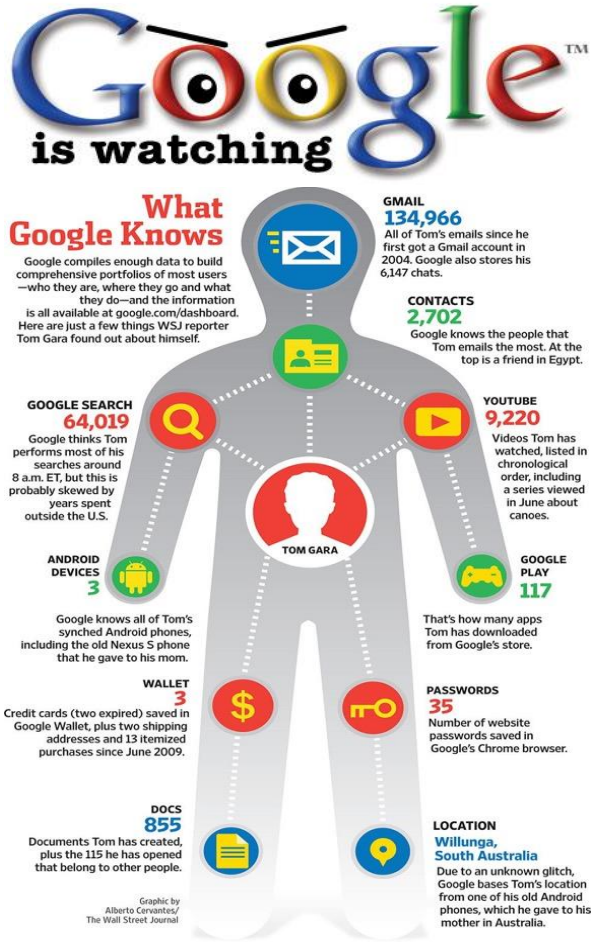
Big Companies Know Everything

Big companies including Google, Amazon, Facebook, LinkedIn, Twitter, Alibaba, know a lot about you AND your connections.



In great details, **not only metadata!**

Google Knows You Better Than You Do



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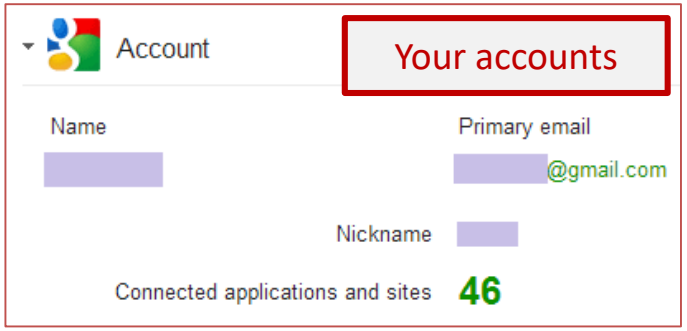

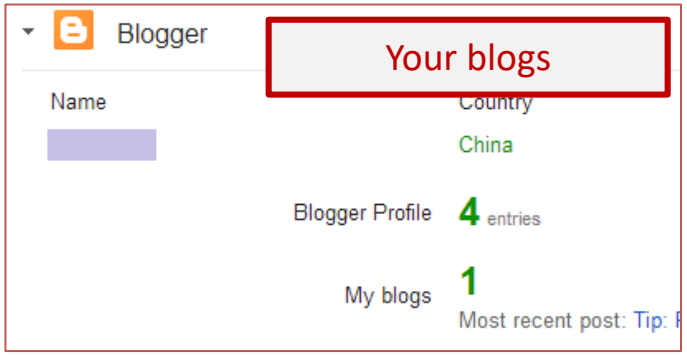

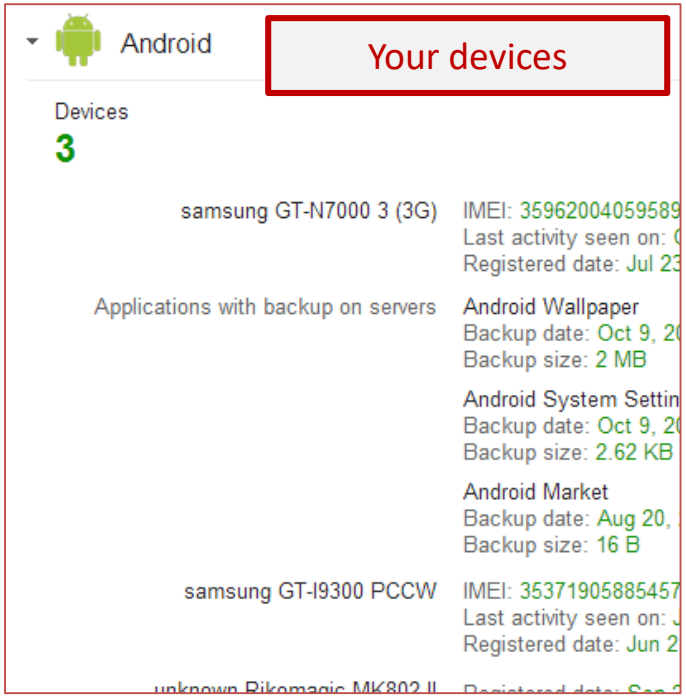

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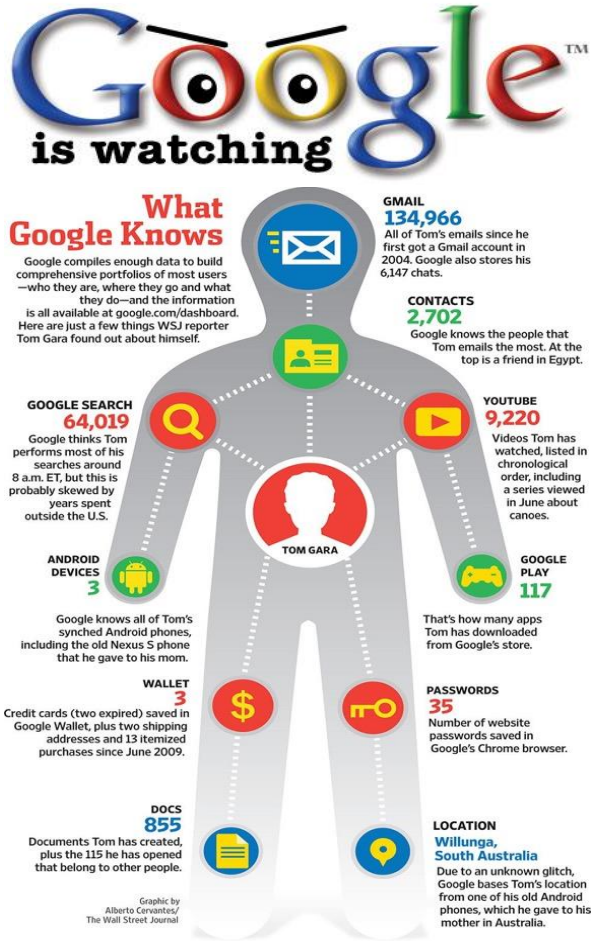

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https://www.google.com/settings/dashboard

Your readings

Books

My Library
11 books

Bookshelves
10

Purchased 0 books
Reviewed 0 books
Recently viewed 0 books
Browsing history 6 books

Your printers

Cloud Print

Connected Printers
4

Your mails

Gmail

Conversations
22,116

Most recent
Congregation on 6 Nov 2

Inbox 14 conversations
Most recent: Congregat

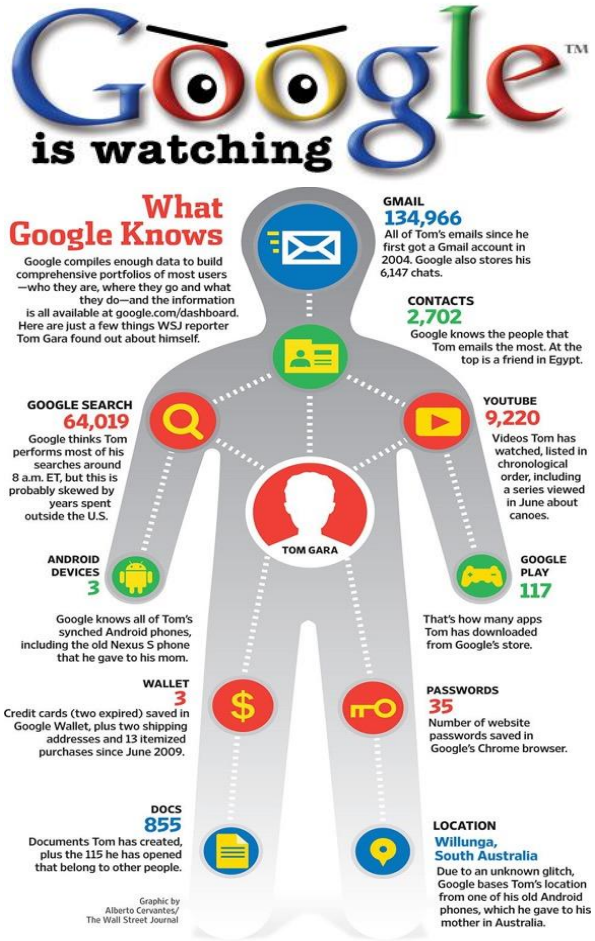
Sent Mail 1,765 conversations
Most recent: Reminder: Data Team Schedule) a

Chat history 303 conversations

Spam 286 conversations
Most recent: Internation [WREP2014] -Call For P

Trash 55 conversations
Most recent: Fwd: 揚塵

Google Knows You Better Than You Do



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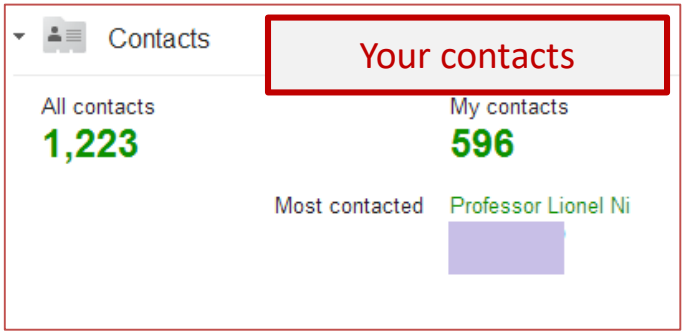

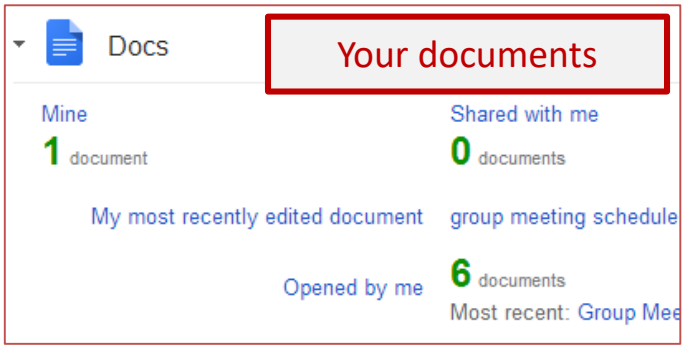

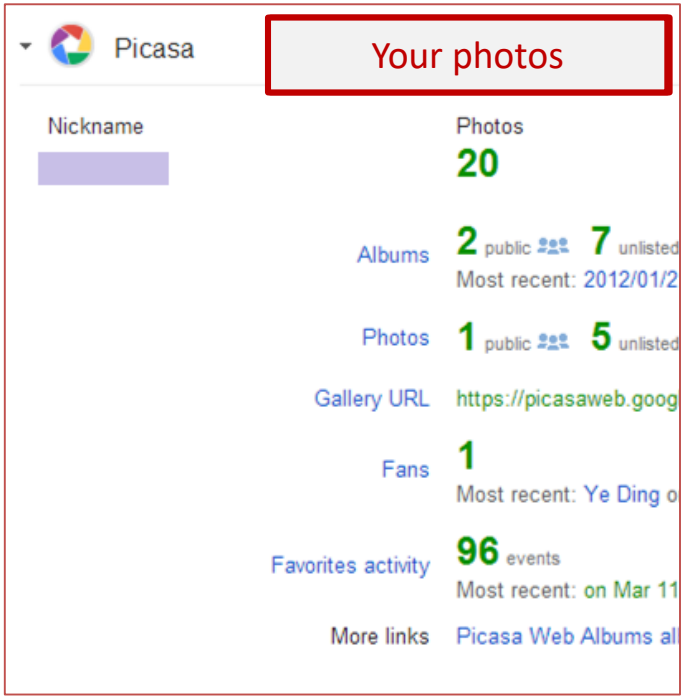

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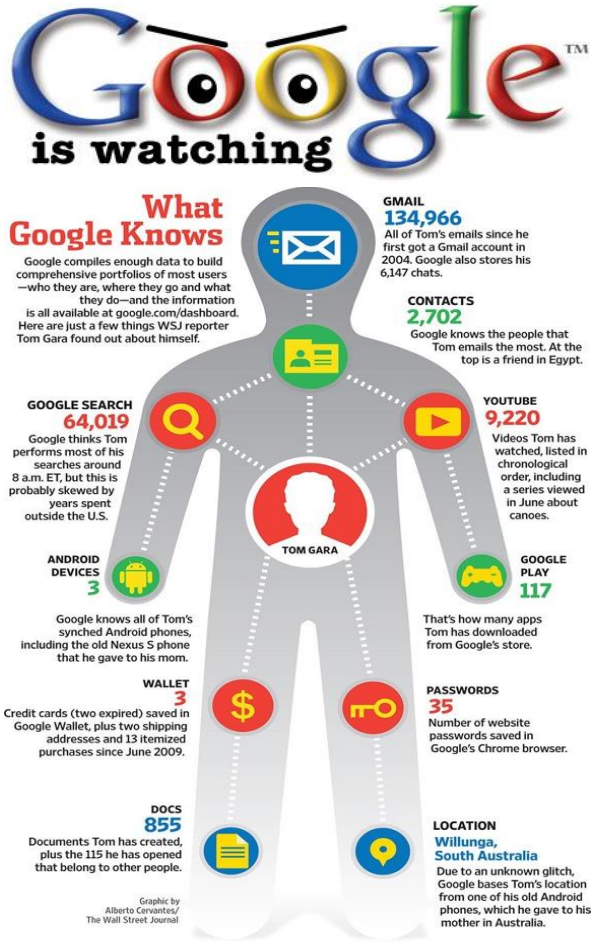

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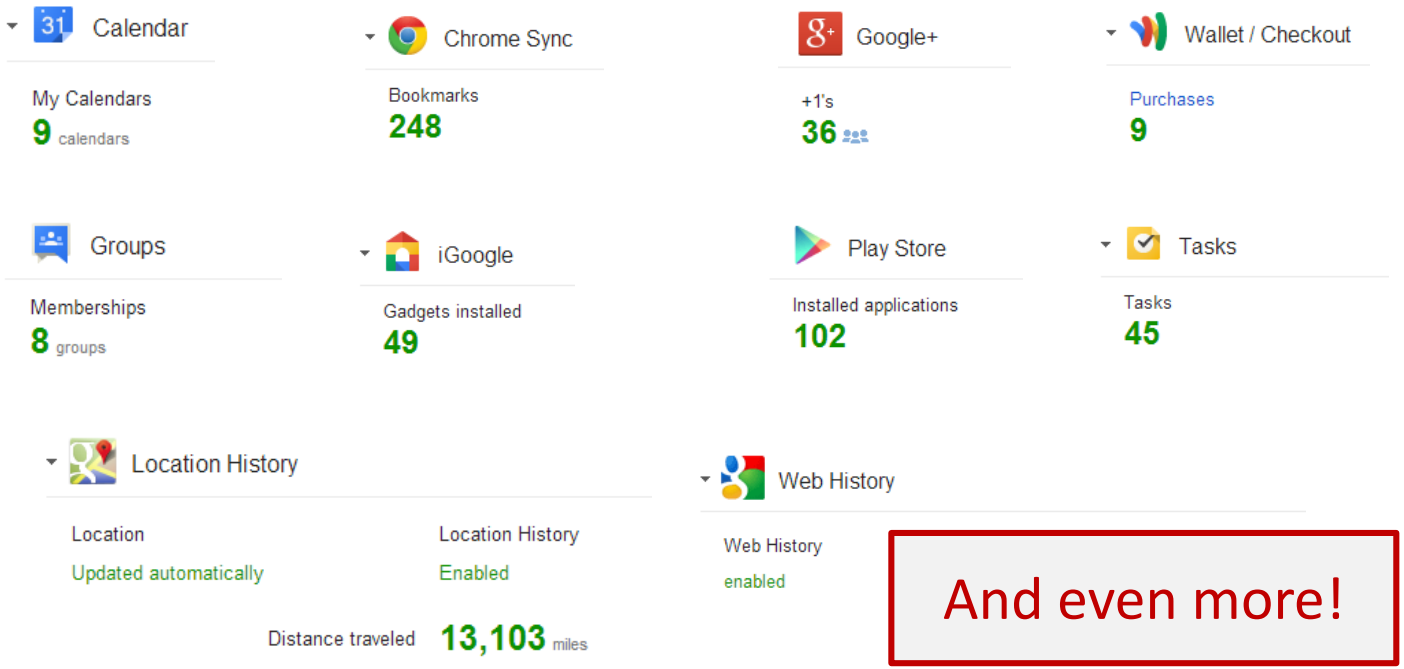
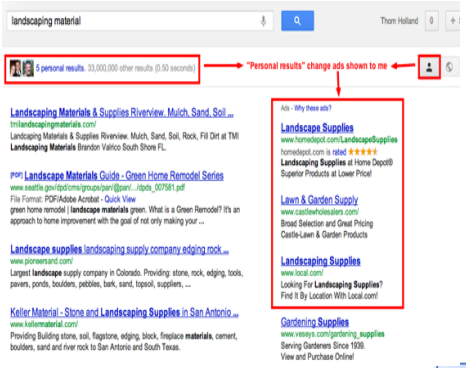


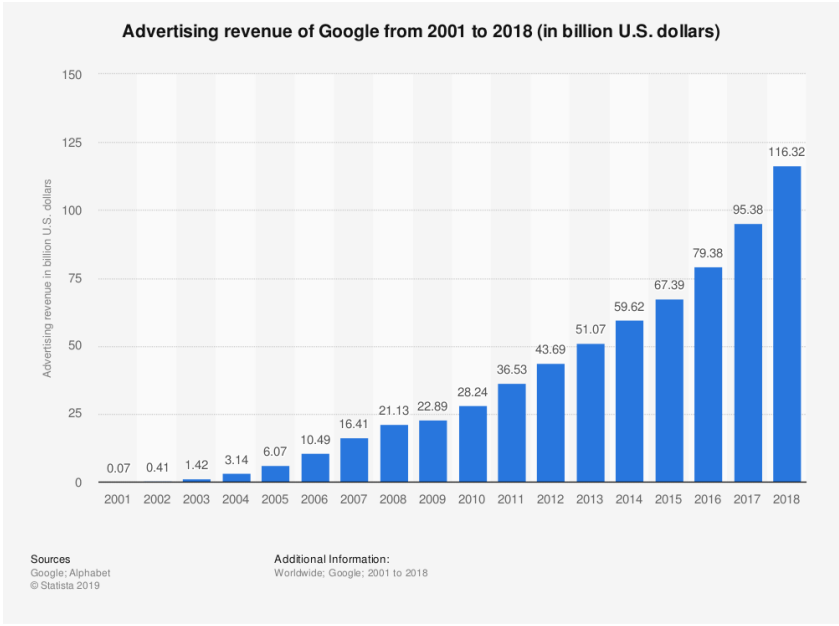
And even more!

Google Makes More Money with Your Data

Better search experiences



Personalized ads based on YOUR data



Google Ads	AdSense
Platform	**Page CTR↓**
Other devices	1.79%
Tablets	0.30%
Desktop	0.12%
High-end mobile devices	0.12%
Averages	—
Totals	**0.13%**

Enhanced click-through rate!

Enhanced click-through rate = MORE profits!

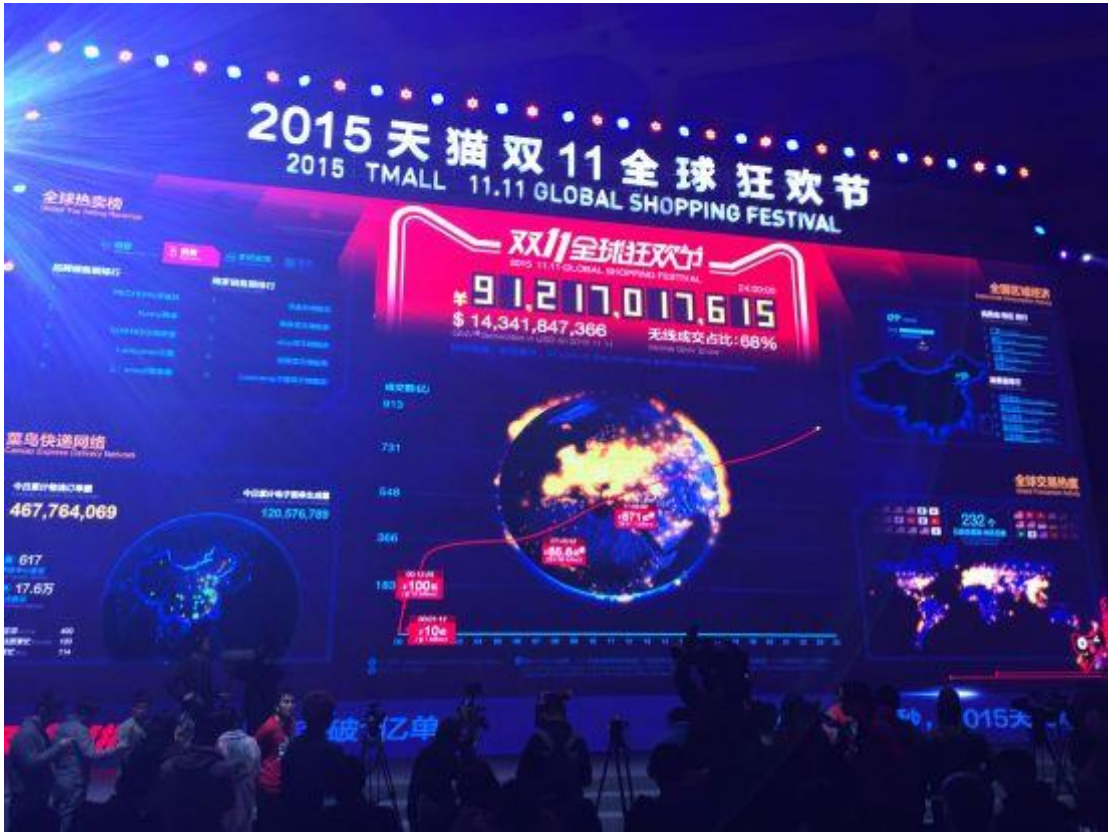
Alibaba Tmall Recommendation System

- Tmall uses 570 million users' clicks, purchases and other behavioral data for personalized recommendations
- More accurate recommendations leads to more revenue
- Tmall's recommended model has been optimized twice, and its accuracy has been increased by 80%

But, they are far from satisfied…

Taobao's Personalized Recommendation Plan - "千人千面"

In the early morning of November 12, 2015, Alibaba announced the full-day sales of Taobao Tmall "Double Eleven" Shopping Carnival: Alipay's turnover for the whole day was 91.217 billion US dollars, an increase of 59% from 57.112 billion in 2014.



Big Brother is Watching You

Facebook, LinkedIn, Twitter, Tencent, Weibo, …

They know a lot about your social circles.

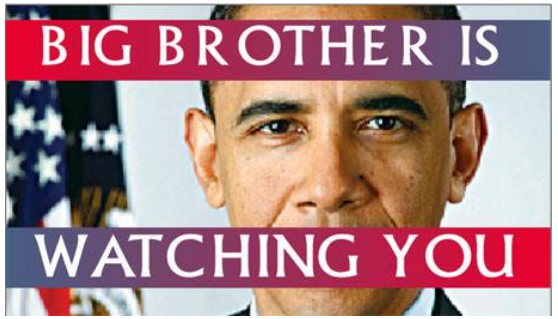
Amazon, Taobao, …

They know what you are going to buy before you do.

Alibaba, VISA, …

They know about your (potential) financial troubles.

…



Introduction (1)

- Electronic commerce began in the United States
  - Since 2013, China has been the leader in online retail sales
  - More and more sales being made on smartphones
- China is the world's largest potential online market
  - Active Internet users and upward economic growth
  - Buyers use U.S. and domestic sites and are influenced by online reviews and discussions
  - Has led to online review sites and seller participation in Chinese chat and messaging sites

Introduction (2)

- Sellers in China must account for regional differences within a diverse country
  - Major cities vs. small towns
    - Branded luxury goods and big ticket items vs. everyday goods
  - Distribution and delivery difficult without well-developed roads and standardized shipping practices
    - Some sellers have created their own distribution systems
    - JD: 80 warehouses in 34 cities

Introduction (3)

- This Chapter addresses how online businesses have emerged and grown to accommodate various cultures and infrastructure challenges around the world

The Evolution of Electronic Commerce (1)

- Rapid growth from mid-1990s to 2000
- 2000: a major downturn
  - to 2003: Overly gloomy news reports
  - "Dot-com boom" followed by "dot-com bust"
- 2003: Signs of profound rebirth
  - Sales and profit growth returned
  - Electronic commerce grew faster than overall economy and became a larger part of the total economy

The Evolution of Electronic Commerce (2)

- 2008 general recession
  - Electronic commerce suffered far less than most of economy
- From 2003 to the present
  - Electronic commerce has expanded more in good times and contracted less in bad times than other economic sectors

Electronic Commerce and Electronic Business (1)

- Electronic commerce
  - To many people: shopping on the Web
  - It also means:
    - businesses trading with other businesses
    - Internal company processes
  - Broader term: electronic business (e-business)

Electronic Commerce and Electronic Business (2)

- E-business
  - IBM defines as
    - The transformation of key business processes through the use of Internet technologies
  - In this book:
    - E-commerce and E-business are used interchangeably
    - Includes all business activities using Internet technologies
      - Internet and World Wide Web (Web)
      - Wireless transmissions on mobile telephone networks
- Dot-com (pure dot-com) business
  - Businesses operating only online

Categories of Electronic Commerce

- Grouped by the types of entities
- Three most commonly used categories:
  - Business-to-consumer (B2C)
    - Consumer shopping on the Web
  - Business-to-business (B2B): e-procurement
    - Transactions conducted between Web businesses
    - Supply management (procurement) departments
      - Negotiate purchase transactions with suppliers
  - Business processes
    - Use of Internet technologies within the business

Business Processes

- Business activity is a task performed by a worker doing his or her job
  - May or may not be related to a transaction
- Transaction is an exchange of value
  - Value: purchase, sale, or conversion of raw materials into finished product
  - Involves at least one business activity
- Business processes are groups of logical, related, sequential activities and transactions
- Web helps people work more effectively

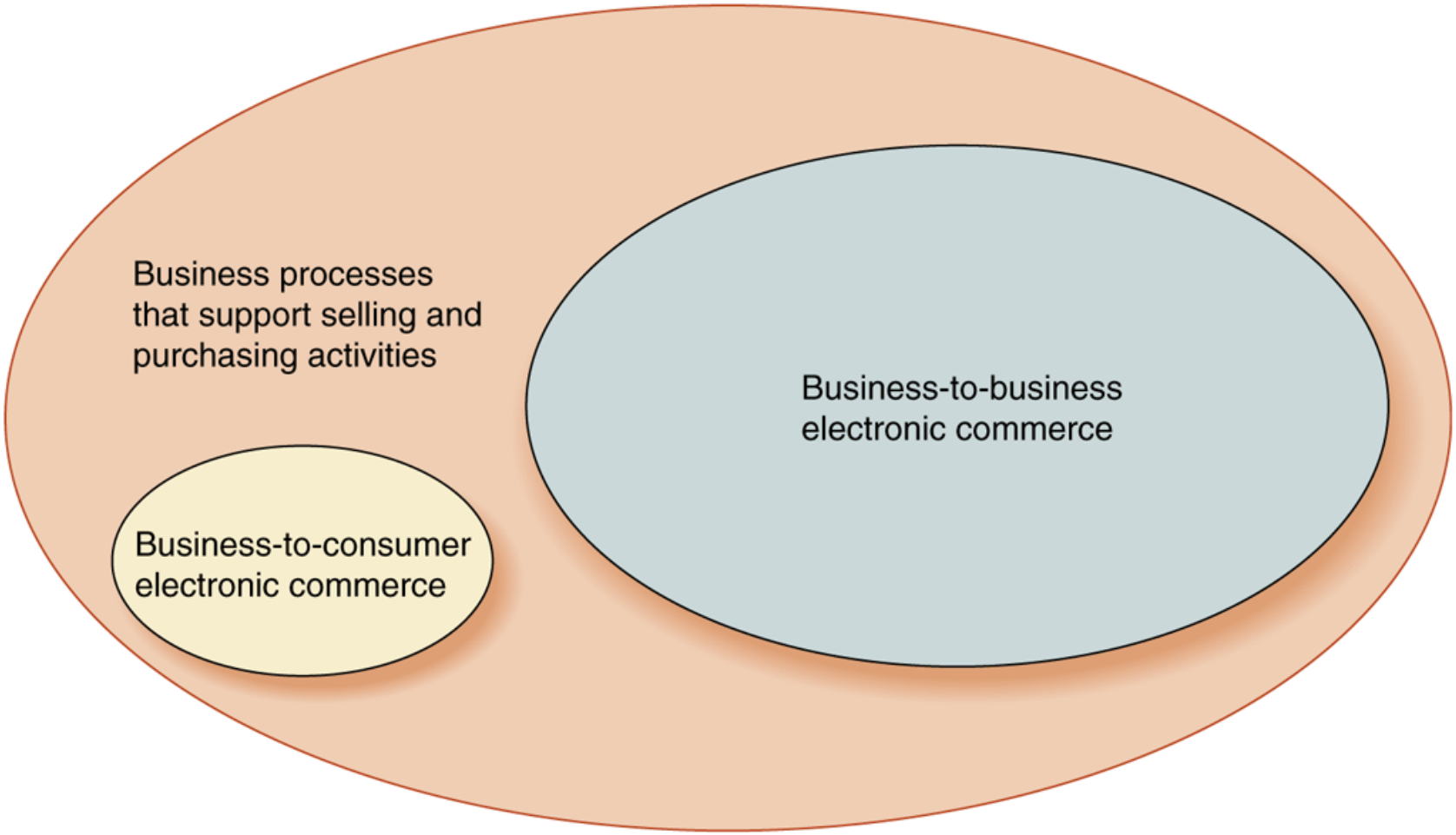
An Example of Business Processes

A typical business process – shipping goods to customers

- Inspecting the goods
- Packing the goods
- Negotiating with a freight company to deliver the goods
- Creating and printing the shipping documents
- Loading the goods onto the truck
- Sending payment to the freight company

Relative Size of Electronic Commerce Elements (1)

- Rough approximation shown in Figure 1-1
- In terms of dollar volume and number of transactions
  - B2B much greater than B2C
- Number of transactions
  - Supporting business processes greater than B2C and B2B combined


Business processes
that support selling and
purchasing activities
Business-to-business
electronic commerce
Business-to-consumer
electronic commerce

Relative Size of Electronic Commerce Elements (2)

- Consumer-to-consumer (C2C)
  - Individuals buying and selling among themselves
    - Web auction site
  - C2C sales included in B2C category
    - Seller acts as a business (for transaction purposes)
- Business-to-government (B2G)
  - Business transactions with government agencies
    - Paying taxes, filing required reports
  - B2G transactions included in B2B discussions

Category	Description	Example
Business-to-consumer (B2C)	Businesses sell products or services to individual consumers.	Walmart.com sells merchandise to consumers through its Web site.
Business-to-business (B2B)	Businesses sell products or services to other businesses.	Grainger.com sells industrial supplies to large and small businesses through its Web site.
Business processes that support buying and selling activities	Businesses and other organizations maintain and use information to identify and evaluate customers, suppliers, and employees. Increasingly, businesses share this information in carefully managed ways with their customers, suppliers, employees, and business partners.	Dell Computer uses secure Internet connections to share current sales and sales forecast information with suppliers. The suppliers can use this information to plan their own production and deliver component parts to Dell in the right quantities at the right time.
Consumer-to-consumer (C2C)	Participants in an online marketplace can buy and sell goods to each other. Because one party is selling, and thus acting as a business, this book treats C2C transactions as part of B2C electronic commerce.	Consumers and businesses trade with each other in the eBay.com online marketplace.
Business-to-government (B2G)	Businesses sell goods or services to governments and government agencies. This book treats B2G transactions as part of B2C electronic commerce.	CA.gov procurement site allows businesses to sell online to the state of California.

Early Electronic Commerce (1)

- Electronic Funds Transfers (EFTs)
  - Also called wire transfers
  - Electronic transmissions of account exchange information over private communications networks
- Electronic Data Interchange (EDI)
  - Business-to-business transmission of computer-readable data in standard format
  - Standard transmitting formats benefits
    - Reduces errors, avoids printing and mailing costs and eliminates need to reenter data

Early Electronic Commerce (2)

- Trading partners
  - Businesses engaging in EDI with each other
  - EDI pioneers (example: Walmart) improved purchasing processes and supplier relationships
  - Pioneers faced high implementation costs
- Value-added network (VAN)
  - Independent firm offering EDI connection and transaction-forwarding services
- EDI continues to be a large portion of B2B electronic commerce

The First Wave of Electronic Commerce 1995-2003 (1)

- Characterized by its rapid growth (boom), followed by a rapid contraction (bust).
- Rapid growth stage: 1997 to 2000
  - More than 12,000 Internet businesses were started
  - Many investors competed for a fixed number of good ideas
    - Prices of the ideas increased
    - Good ideas were poorly implemented
    - Poor ideas were proposed and funded

The First Wave of Electronic Commerce 1995-2003 (2)

- Characterized by its rapid growth (boom), followed by a rapid contraction (bust).
- Rapid contract stage: 2000 to 2003
  - More than 5,000 start-ups went out of business
  - Extensive coverage of "dot.com bust"
  - However, $200 billion spent on bailing out and starting completely new online ventures
    - Set the stage for significant future growth in online business

The Second Wave of Electronic Commerce 2004-2009 (1)

- Characterized by expanding international scope
- Established companies used own funds to finance gradual expansion
- Faster, less expensive Internet technologies available
  - Increase in broadband connections is a key element of the B2C component of this wave
- E-mail became an integral part of marketing and customer contact strategies
- Renewed interest in Internet advertising

The Second Wave of Electronic Commerce 2004-2009 (2)

- Promise of available technologies fulfilled
  - Legal distribution of music, video, and other digital Products on the Web (Apple's iTunes)
- Web 2.0 technologies
  - Users participate in creating and modifying content on third party Web sites (Wikipedia, YouTube, and Facebook)
- Shift in online business strategy
  - Away from the first-mover advantage which is expensive and not always successful to a smart-follower strategy
    - "Second mouse gets the cheese"

The Third Wave of Electronic Commerce 2010 – Present (1)

- Factors in the third wave
  - Critical mass of mobile users with powerful devices
    - Increased availability of smartphones and tablets
    - Mobile apps used for over 40% of online sales
  - Increase in electronic commerce activity across the world
    - Growing number of people using handheld devices to access the Internet
  - Widespread participation in social networking
    - Businesses can use social commerce to advertise, promote or suggest specific products and services

The Third Wave of Electronic Commerce 2010 – Present (2)

- Factors in the third wave (cont'd)
  - Increased online participation by smaller businesses in sales, purchasing, and capital-raising activities
    - Crowdsourcing: web sites used to gather multiple small investors together for specific business funding activities
  - Sophisticated analysis of data companies collect about online customers
    - Big data and data analytics

The Third Wave of Electronic Commerce 2010 – Present (3)

- Factors in the third wave (cont'd)
  - Increased integration of tracking technologies into B2B electronic commerce and the management of business processes within companies
    - RFID (Radio Frequency Identification) devices and biometric technologies

Electronic Commerce Characteristic	First Wave	Second Wave	Third Wave
International Character of Electronic Commerce	Dominated by U.S. companies	Global enterprises in many countries participating in electronic commerce	Emergence of China, India, Brazil, and other countries as major centers of electronic commerce activity
Languages	Most electronic commerce Web sites in Englis	Many electronic commerce Web sites available in multiple languages	English is no longer the dominant language on Web sites worldwide
Funding	Many new companies started with outside investor money	Established companies funding electronic commerce initiatives with their own capital	Wide variety of funding sources available, including crowdsourcing
Connection Technologies	Many electronic commerce participants used slow Internet connections	Rapidly increasing use of broadband technologies for Internet connections	High bandwidth mobile telephone networks become an additional important connection technology
Contact with Customers	Unstructured e-mail communication with customers	Customized e-mail strategies are integral to customer contact	Social networking tools are important additions to e-mail contact
Advertising and Electronic Commerce Integration	Reliance on simple forms of online advertising as main revenue source	Use of multiple sophisticated advertising approaches and better integration of electronic commerce with existing business processes and strategies	Increasingly, advertising and marketing strategies are driven by available online communication technologies
Distribution of Digital Products	Widespread piracy due to ineffective distribution of digital products	New approaches to the sale and distribution of digital products	Sale and distribution of digital products becomes commonplace
First-mover Advantage	Rely on first-mover advantage to ensure success in all types of markets and industries	Realize that first-mover advantage leads to success only for some companies in certain specific markets and industries	First-mover advantage no longer seen as a key element in electronic commerce initiatives

Business Models, Revenue Models, and Business Processes (1)

- Business model
  - Set of processes combined to achieve company goal
- In the first wave of electronic commerce, investors sought Internet-driven business models
  - Expectations of rapid sales growth, market dominance
  - Successful "dot-com" business models emulated
  - Led to many business failures
  - Michael Porter argued business models did not exist

Business Models, Revenue Models, and Business Processes (2)

- Instead of copying model, companies should examine their business elements
  - Streamline, enhance, or replace with Internet technology driven processes
- Revenue model: specific collection of business processes used to identify, market and make sales to customers
  - Classifies revenue-generating activities for communication and analysis purposes

Focus on Specific Business Processes

- Examples of business processes
  - Purchasing raw materials or goods for resale
  - Converting materials and labor into finished goods
  - Managing transportation and logistics
  - Hiring and training employees
  - Managing business finances
- This course will help you identify processes that benefit from ecommerce technologies
  - Not all processes can be improved with technology
  - Firms can use it to help them adapt to change

Role of Merchandising

- Merchandising: combination of store design, layout, and product display knowledge
- Salespeople have skills to identify customer needs and meet them
- Merchandising and personal selling skills can be difficult to practice remotely
  - Companies must be able to transfer these skills to have Web site success
  - Some products are easier to sell on the Internet than others

Product/Process Suitability to Electronic Commerce (1)

- Some products good candidates for electronic commerce
  - Customers do not need to experience physical characteristics before purchase
  - Technology has made more processes suitable for electronic commerce
- Commodity items are standardized, well-known products or services only differentiated by price
  - Must have attractive shipping profile (with high value-to-weight ratio) to sell online
  - Includes books, clothing, shoes, kitchen accessories and other small household items

Well Suited to Electronic Commerce	Suited to a Combination of Electronic and Traditional Commerce Strategies	Well Suited to Traditional Commerce
Sale/purchase of books and CDs	Sale/purchase of automobiles	Sale/purchase of impulse items for immediate use
Sale/purchase of goods that have strong brand reputations	Banking and financial services	Sale/purchase of used, unbranded goods
Online delivery of software and digital content, such as music and movies	Roommate-matching services	
Sale/purchase of travel services	Sale/purchase of residential real estate	
Online shipment tracking	Sale/purchase of high-value jewelry and antiques	
Sale/purchase of investment and insurance products		

FIGURE 1-5 Business process suitability to type of commerce

Product/Process Suitability to Electronic Commerce (2)

- Easier-to-sell products using E-commerce have:
  - Strong brand reputation (e.g., jewelry)
  - Appeal to small but geographically diverse groups (e.g., collectible comic books)
- Traditional commerce better for (e.g., real estate, antiques):
  - Products relying on personal selling skills
  - Transactions involving large amounts of money
- Combination of electronic and traditional commerce strategies works best when business process includes both commodity and personal inspection elements (e.g., cars)

Opportunities for Electronic Commerce (1)

- Electronic commerce can help increase profits by increasing sales and decreasing business costs
- Virtual community
  - Gathering of people sharing a common interest
- E-commerce purchasing opportunities
  - Identify new suppliers and business partners
  - Efficiently obtain competitive bid information
  - Increase speed and accuracy of information exchange
  - Wider range of choices available 24 hours a day, everyday

Opportunities for Electronic Commerce (2)

- Benefits extend to general welfare of society
  - Lower costs to issue and secure
    - Electronic payments of tax refunds
    - Public retirement
    - Welfare support
  - Provides faster transmission
  - Provides fraud, theft loss protection
    - Electronic payments easier to audit and monitor
  - Telecommuting reduces traffic, pollution
  - Products and services available in remote areas

Electronic Commerce: Current Barriers

- Poor choices for electronic commerce
  - Perishable foods and high-cost, unique items (e.g., custom-designed jewelry)
- Four barriers
  - Need for critical mass of customers with appropriate technology
  - Unpredictability in costs and revenues related to technologies
  - Insufficient tools for hardware and software integration
  - Cultural and legal barriers

Economic Forces and Electronic Commerce

- Economics
  - Study how people allocate scarce resources
- Markets
  - Potential sellers come into contact with potential buyers
  - Medium of exchange available (currency or barter)
- Hierarchical business organizations
  - Firms or companies
- Transaction costs
  - Motivation for moving economic activity to hierarchically structured firms

Transaction Costs

- Total costs a buyer and seller incur while gathering information and negotiating purchase-and-sale transaction
- Costs include:
  - Brokerage fees and sales commissions
  - Cost of information search and acquisition
  - Investment a seller makes in equipment or hiring of skilled employees
- Sweater dealer example (Figure 1-6)

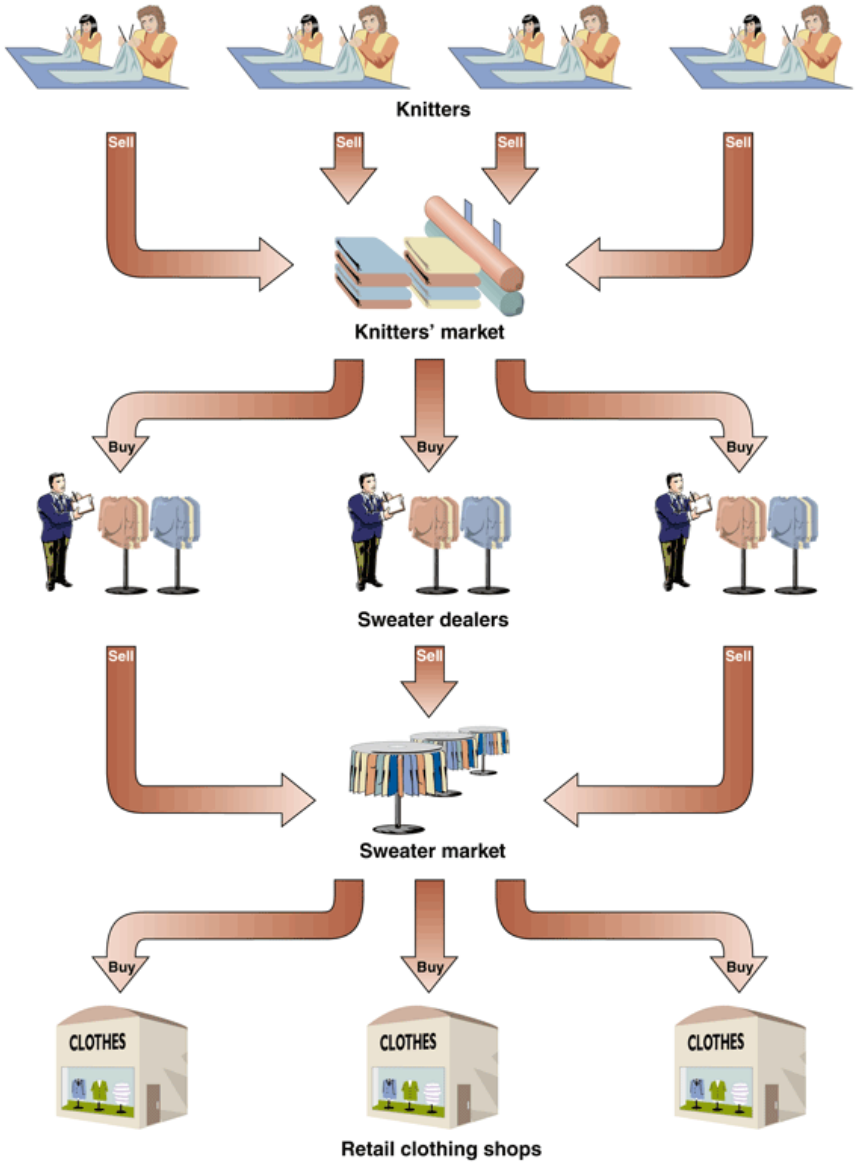


FIGURE 1-6 Market form of economic organization

Markets and Hierarchies (1)

- Coase's analysis of high transaction costs
  - Hierarchical organizations replace market-negotiated transactions, which include
    - Strong supervision and worker-monitoring elements
  - Vertical integration sweater example (Figure 1-7)
    - **Vertical integration**: the practice of an existing firm replacing its supplier markets with its own hierarchical structure for creating the supplied product

Markets and Hierarchies (2)

- Oliver Williamson (extended Coase's analysis)
  - Firms with **complex manufacturing and assembly operations**
    - Tend to be hierarchically organized, vertically integrated
  - Manufacturing innovations increased hierarchical monitoring activities' efficiency and effectiveness

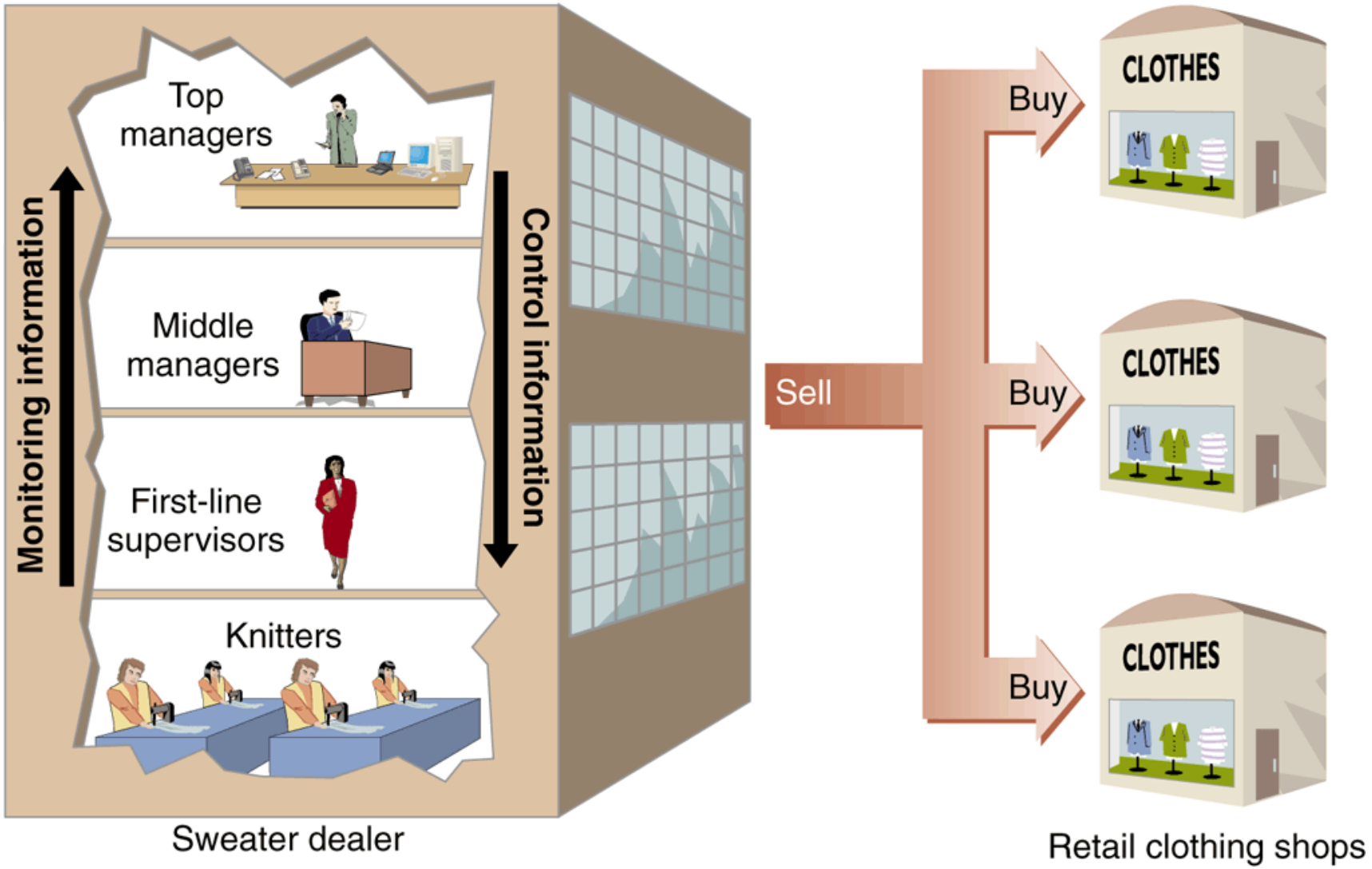


FIGURE 1-7 Hierarchical form of economic organization

Markets and Hierarchies (3)

- Strategic **business unit** (business unit)
  - Organizations become too large to keep track of the operational activities effectively at the lowest level of the firm
  - Decentralization is a must
  - An autonomous part of a company
    - Large enough to manage itself
    - Small enough to quickly respond to business environment changes

Using Electronic Commerce to Reduce Transaction Costs (1)

- Electronic commerce can
  - Improve flow of information and increase coordination of actions
  - Reducing the cost of searching for potential buyers and sellers and increasing the number of potential market participants. Thus change attractiveness of vertical integration

Using Electronic Commerce to Reduce Transaction Costs (2)

- Example: employment transaction
  - Telecommuting reduces or eliminates transaction costs for the seller (employee), include:
    - Learning and adapting to the culture of new employers
    - House moving, loss of a spouse's job
    - …

Network Economic Structures

- Neither market nor hierarchy
- **Strategic alliances** (strategic partnerships)
  - Companies coordinate strategies, resources, skill sets by forming long-term stable relationships with other companies and individuals based on shared purposes
  - **Strategic partners** come together for specific projects or activities

Network Economic Structures

- Network organizations are well suited to information-intensive technology industries
  - Electronic commerce makes networks easier to construct and maintain
  - Castells predicts economic networks will become the organizing structure for social interactions

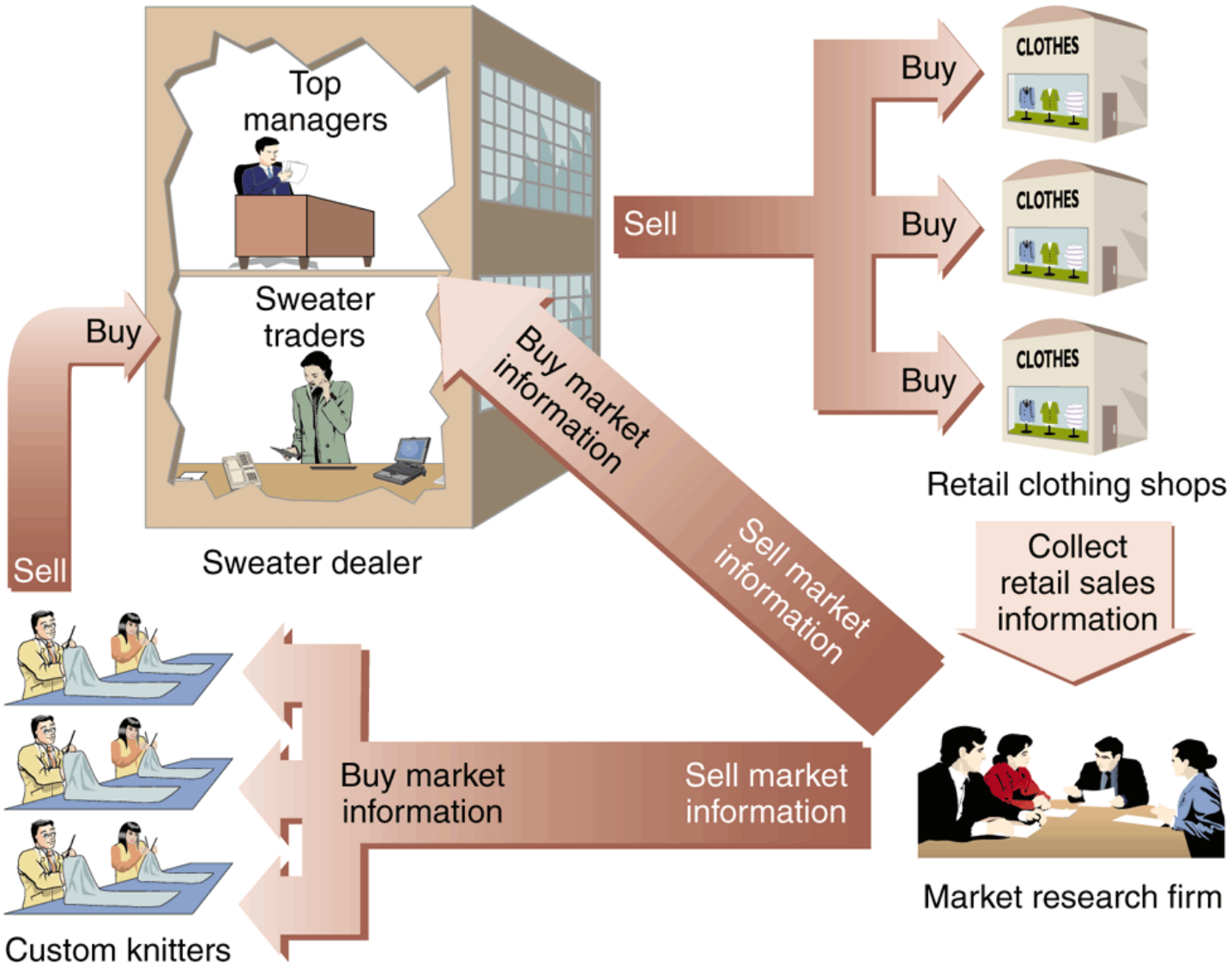


FIGURE 1-8 Network form of economic organization

Network Effects

- **Law of diminishing returns**
  - Activities yield less value as consumption amount increases
    - Example: hamburger consumption
- **Network effect**
  - Exception to law of diminishing returns
  - As more people or organizations participate in network, the value to each participant increases
  - This increase in value is called a **network effect**
  - Examples: Landline phones, e-mail

Identifying Electronic Commerce Opportunities

- Focus on specific business processes
  - Break business down
  - Series of value-adding activities that combine to make profits and meet firm's goals
- Business activities conducted by firms of all sizes
- Firm
  - Multiple business units owned by a common set of shareholders
- Industry
  - Multiple firms selling similar products to similar customers

Strategic Business Unit Value Chains (1)

- **Value chain**
  - A way of organizing strategic business unit activities to design, produce, promote, market, deliver, and support the products or services
  - Michael Porter also includes supporting activities such as human resource management and purchasing
- Strategic business unit primary activities
  - Design, identify customers, purchase materials and supplies, manufacture product or create service, market and sell, deliver, provide after-sale service and supporting activities

Strategic Business Unit Value Chains (2)

- Importance of primary activities depends on:
  - Product or service the business unit provides
  - Customers to which it sells
- Central corporate organization typically provides support activities
  - Finance and administration
  - Human resource
  - Technology development

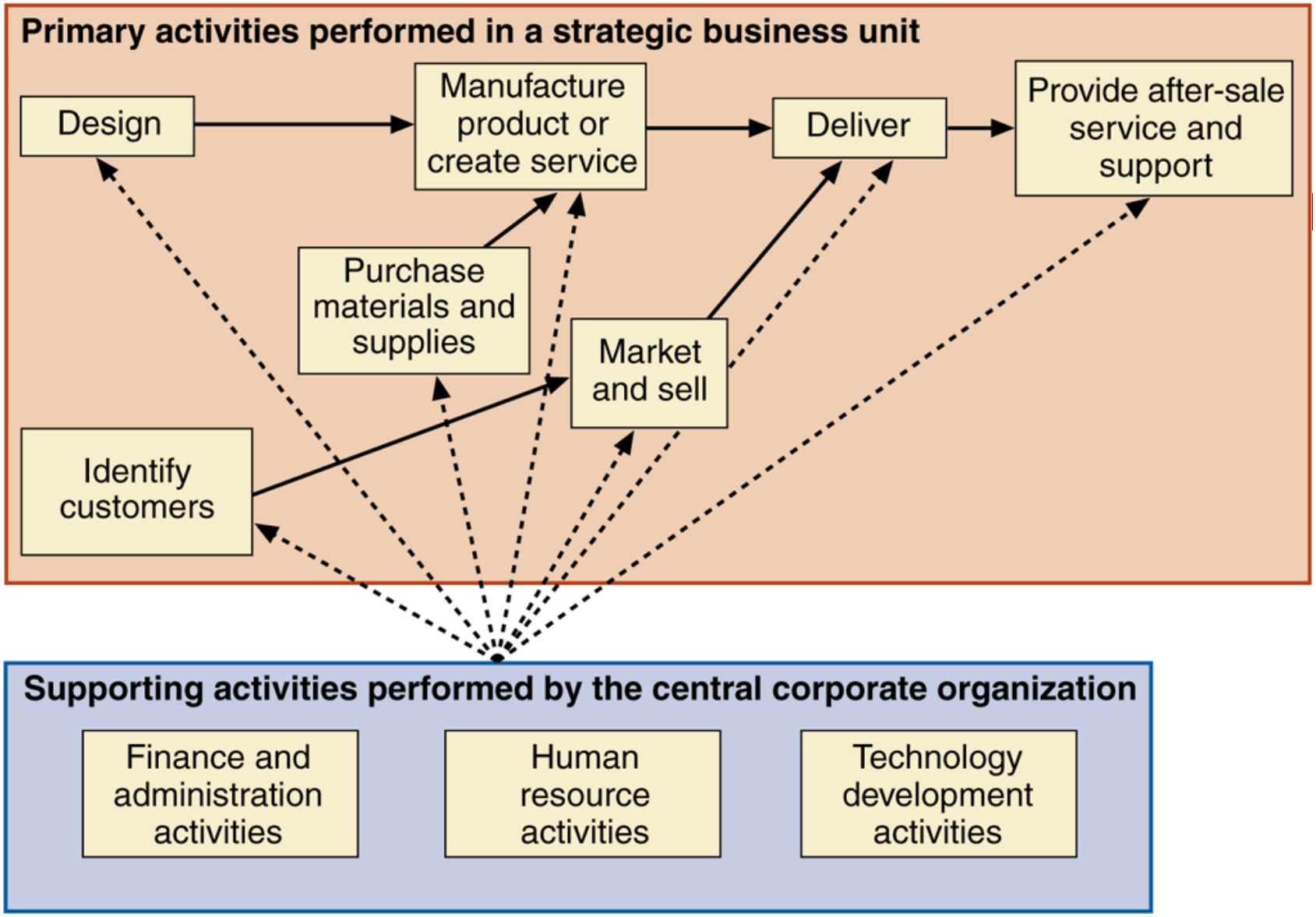


FIGURE 1-9 Value chain for a strategic business unit

Industry Value Chains

- Examine where strategic business unit fits within industry
- Porter's value system
  - Describes larger activities' stream into which a particular business unit's value chain is embedded
  - Industry value chain refers to value systems
- Awareness of businesses value chain activities
  - Allows identification of new opportunities for cost reduction, product improvement, or channel reconfiguration
  - Useful way to think about general business strategy

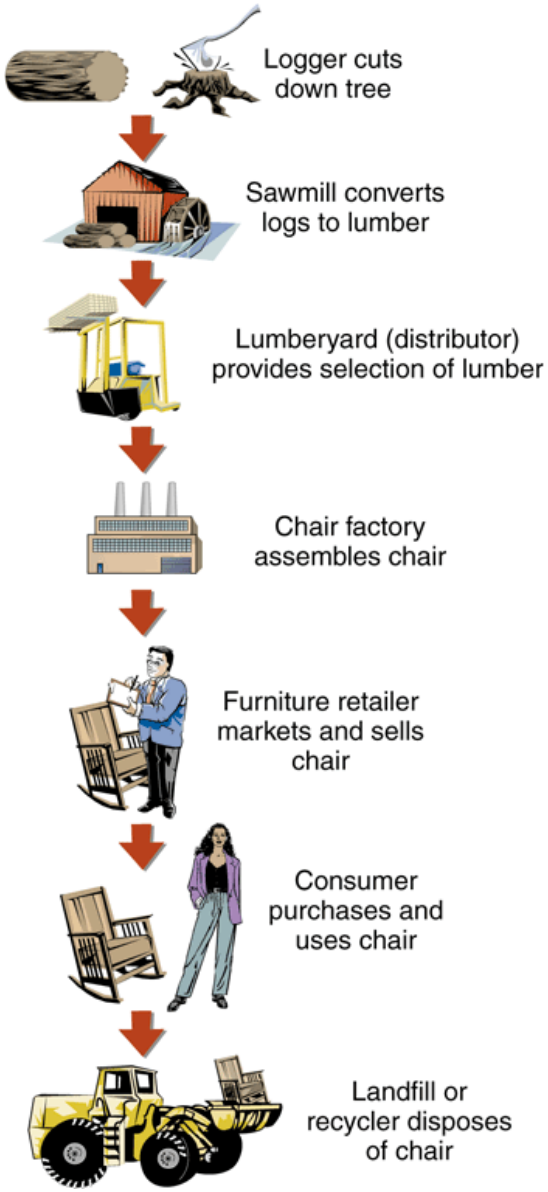


FIGURE 1-10 Industry value chain for a strategic business unit

SWOT Analysis: Evaluating Business Unit Opportunities

- Define SWOT (strengths, weaknesses, opportunities, and threats)
- First look into business unit
  - Identify strengths and weaknesses
- Then review operating environment
  - Identify opportunities and threats presented
- Take advantage of opportunities
  - Build on strengths
  - Avoid threats
  - Compensate for weaknesses

Strengths

- What does the company do well?
- Is the company strong in its market?
- Does the company have a strong sense of purpose and the culture to support that purpose?

Weaknesses

- What does the company do poorly?
- What problems could be avoided?
- Does the company have serious financial liabilities?

Opportunities

- Are industry trends moving upward?
- Do new markets exist for the company's products/services?
- Are there new technologies that the company can exploit?

Threats

- What are competitors doing well?
- What obstacles does the company face?
- Are there troubling changes in the company's business environment (technologies, laws, and regulations)?

FIGURE 1-11 SWOT analysis questions

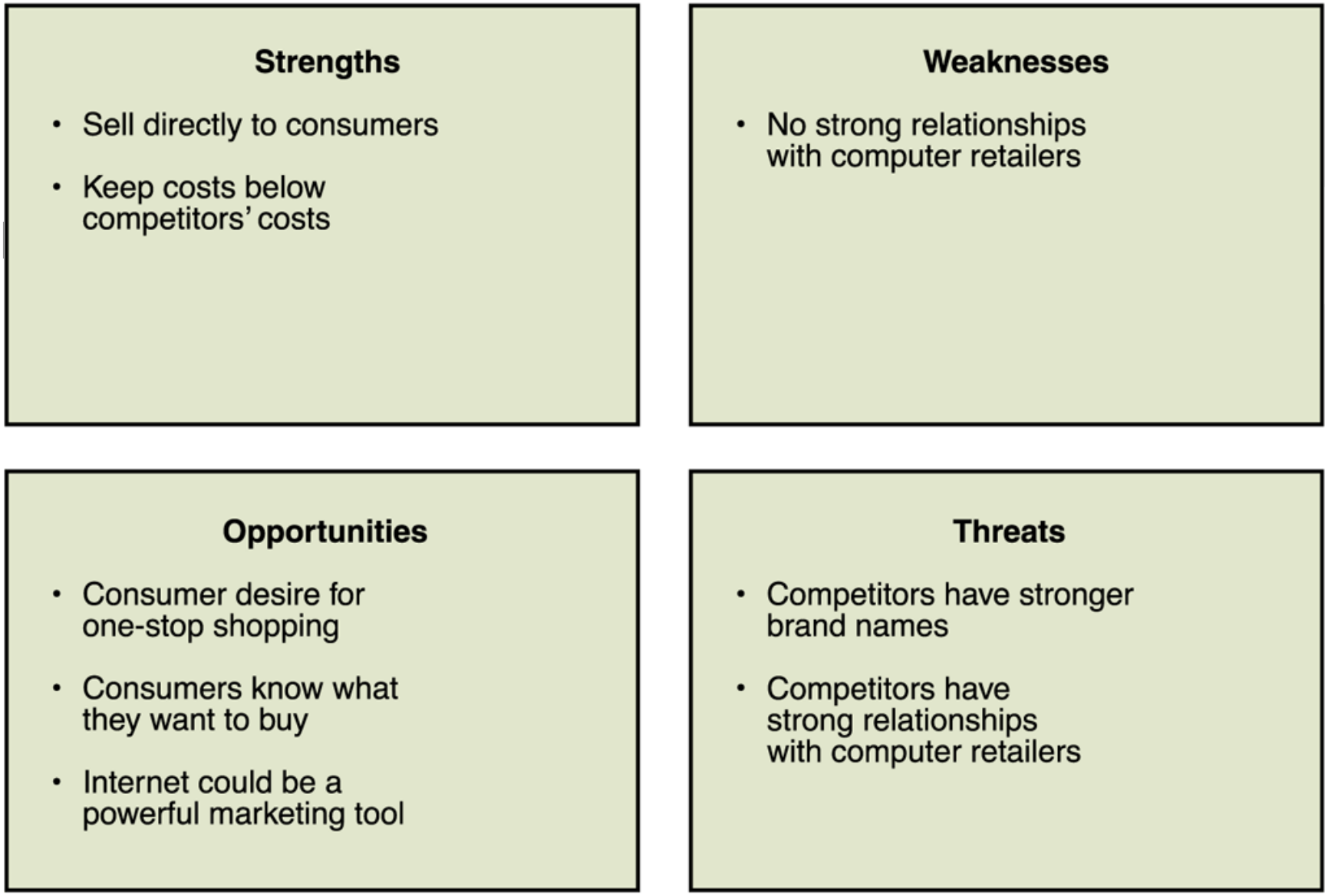


FIGURE 1-12 Results of Dell's SWOT analysis