

## Management Information Systems: Managing the Digital Firm

Seventeenth Edition



### Chapter 3

Information Systems, Organizations,  
and Strategy

Pearson

Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved

## Learning Objectives

- 3.1 Which features of organizations do managers need to know about to build and use information systems successfully?
- 3.2 What is the impact of information systems on organizations?
- 3.3 How do Porter's competitive forces model, the value chain model, synergies, core competencies, and network economics help companies develop competitive strategies using information systems?
- 3.4 What are the challenges posed by strategic information systems, and how should they be addressed?
- 3.5 How will MIS help my career?

Pearson

Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved

## Video Cases

Case 1: GE Becomes a Digital Firm: The Emerging Industrial Internet

Case 2: National Basketball Association: Competing on Global Delivery with Akamai OS Streaming

Pearson

Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved

## Walmart's New Supercenter Strategy (1 of 2)

- Problem
  - Opportunities from new technology
  - Large geographic footprint
  - Powerful competition
  - High costs
- Solutions
  - Determine business strategy
  - Design new products and services
  - Integrate multiple lines of business
  - Optimize in-store experience
  - Edge computing

Pearson

Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved

## Walmart's new Supercenter Strategy (2 of 2)

- Supercenter systems expedite ordering and shipping; provides new in-store services, warehousing for third-party sellers, targeted brand online ads
- Increases revenue and service
- Illustrates how information systems help business compete
- Demonstrates IT's role in helping organizations strengthen their competitive strategies by using new technologies

Pearson

Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved

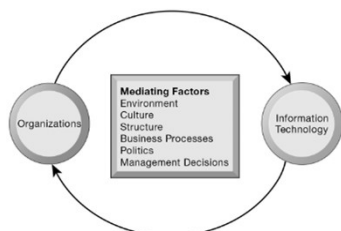
## The Relationship Between Organizations and Information Technology

- Information technology and organizations influence each other
  - Relationship influenced by organization's
    - Structure
    - Business processes
    - Politics
    - Culture
    - Environment
    - Management decisions

Pearson

Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved

**Figure 3.1 The Two-Way Relationship Between Organizations and Information Technology**



Pearson

Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved

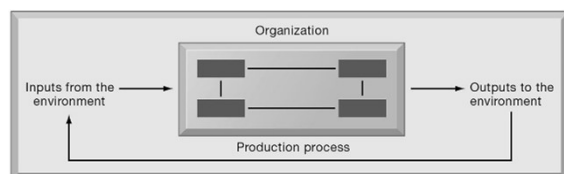
## What Is an Organization?

- Technical definition
  - Formal social structure that processes resources from environment to produce outputs
  - A formal legal entity with internal rules and procedures, as well as a social structure
- Behavioral definition
  - A collection of rights, privileges, obligations, and responsibilities that is delicately balanced over a period of time through conflict and conflict resolution

Pearson

Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved

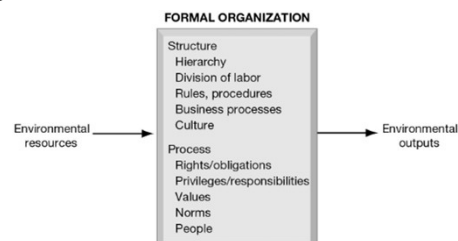
**Figure 3.2 The Technical Microeconomic Definition of the Organization**



Pearson

Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved

**Figure 3.3 The Behavioral View of Organizations**



Pearson

Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved

## Features of Organizations

- Use of hierarchical structure
- Accountability, authority in system of impartial decision making
- Adherence to principle of efficiency
- Routines and business processes
- Organizational politics, culture, environments, and structures

Pearson

Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved

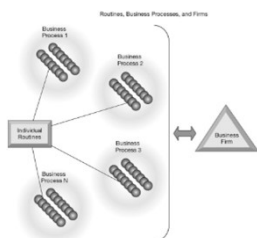
## Routines and Business Processes

- Routines (standard operating procedures)
  - Precise rules, procedures, and practices developed to cope with virtually all expected situations
- Business processes: Collections of routines
- Business firm: Collection of business processes

Pearson

Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved

**Figure 3.4 Routines, Business Processes, and Firms**



Pearson

Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved

### Organizational Politics

- Divergent viewpoints lead to political struggle, competition, and conflict
- Political resistance greatly hampers organizational change

Pearson

Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved

### Organizational Culture

- Encompasses set of assumptions that define goal and product
  - What products the organization should produce
  - How and where it should be produced
  - For whom the products should be produced
- May be powerful unifying force as well as restraint on change

Pearson

Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved

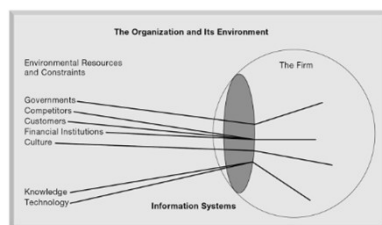
### Organizational Environments

- Organizations and environments have a reciprocal relationship
- Organizations are open to, and dependent on, the social and physical environment
- Organizations can influence their environments
- Environments generally change faster than organizations
- Information systems can be instrument of environmental scanning, act as a lens

Pearson

Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved

**Figure 3.5 Environments and Organizations Have a Reciprocal Relationship**



Pearson

Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved

### Disruptive Technologies

- Substitute products that perform as well as or better than existing product
- Technology that brings sweeping change to businesses, industries, markets
- Examples: personal computers, smartphones, Big Data, artificial intelligence, the Internet
- First movers and fast followers
  - First movers—inventors of disruptive technologies
  - Fast followers—firms with the size and resources to capitalize on that technology

Pearson

Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved

## Organizational Structure

- Five basic kinds of organizational structure (Mintzberg)
  - Entrepreneurial
  - Machine bureaucracy
  - Divisionalized bureaucracy
  - Professional bureaucracy
  - Adhocracy
- Information system often reflects organizational structure



Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved

## Other Organizational Features

- Goals
  - Coercive, utilitarian, normative, and so on
- Constituencies
- Leadership styles
- Types of tasks
- Different environments



Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved

## Economic Impacts

- IT changes relative costs of capital and the costs of information
- Information systems technology is a factor of production, like capital and labor
- IT affects the cost and quality of information and changes economics of information
  - Information technology helps firms contract in size because it can reduce transaction costs (the cost of participating in markets)
    - Outsourcing



Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved

## Transaction Cost Theory

- Firms seek to economize on transaction costs (the costs of participating in markets)
  - Vertical integration, hiring more employees, buying suppliers and distributors
- IT lowers market transaction costs, making it worthwhile for firms to transact with other firms rather than grow the number of employees



Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved

## Agency Theory

- Firm is nexus of contracts among self-interested parties requiring supervision
- Firms experience agency costs (the cost of managing and supervising) which rise as firm grows
- IT can reduce agency costs, making it possible for firms to grow without adding to the costs of supervising, and without adding employees



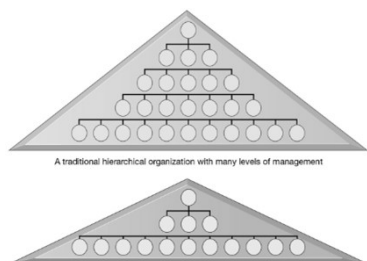
Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved

## Organizational and Behavioral Impacts

- IT flattens organizations
  - Decision making is pushed to lower levels
  - Fewer managers are needed (IT enables faster decision making and increases span of control)
- Postindustrial organizations
  - Organizations flatten because in postindustrial societies, authority increasingly relies on knowledge and competence rather than formal positions



Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved

**Figure 3.6 Flattening Organizations**

Pearson

Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved

## Understanding Organizational Resistance to Change

- Information systems become bound up in organizational politics because they influence access to a key resource—information
- Information systems potentially change an organization's structure, culture, politics, and work
- Four factors
  - Nature of the innovation
  - Structure of organization
  - Culture of organization
  - Tasks affected by innovation

Pearson

Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved

**Figure 3.7 Organizational Resistance to Information System Innovations**

Pearson

Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved

## The Internet and Organizations

- The Internet increases the accessibility, storage, and distribution of information and knowledge for organizations
- The Internet can greatly lower transaction and agency costs
  - Example: Large firm delivers internal manuals to employees via a corporate website, saving millions of dollars in distribution costs

Pearson

Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved

## Implications for the Design and Understanding of Information Systems

- Organizational factors in planning a new system:
  - Environment
  - Structure
    - Hierarchy, specialization, routines, business processes
  - Culture and politics
  - Type of organization and style of leadership
  - Main interest groups affected by system; attitudes of end users
  - Tasks, decisions, and business processes the system will assist

Pearson

Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved

## Porter's Competitive Forces Model (1 of 3)

- Why do some firms become leaders in their industry?
- Michael Porter's competitive forces model
  - Provides general view of firm, its competitors, and environment
- Five competitive forces shape fate of firm:
  - Traditional competitors
  - New market entrants
  - Substitute products and services
  - Customers
  - Suppliers

Pearson

Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved

### Porter's Competitive Forces Model (2 of 3)

- Traditional competitors
  - All firms share market space with competitors who are continuously devising new products, services, efficiencies, and switching costs
- New market entrants
  - Some industries have high barriers to entry, for example, computer chip business
  - New companies have new equipment, younger workers, but little brand recognition

Pearson

Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved

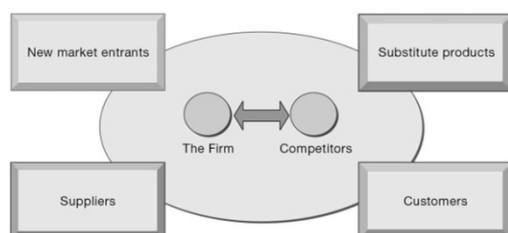
### Porter's Competitive Forces Model (3 of 3)

- Substitute products and services
  - Substitutes customers might use if your prices become too high, for example, iTunes substitutes for CD s
- Customers
  - Can customers easily switch to competitor's products? Can they force businesses to compete on price alone in transparent marketplace?
- Suppliers
  - Market power of suppliers when firm cannot raise prices as fast as suppliers

Pearson

Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved

### Figure 3.8 Porter's Competitive Forces Model



Pearson

Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved

### Information System Strategies for Dealing with Competitive Forces (1 of 3)

- Four generic strategies for dealing with competitive forces, enabled by using IT:
  - Low-cost leadership
  - Product differentiation
  - Focus on market niche
  - Strengthen customer and supplier intimacy

Pearson

Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved

### Information System Strategies for Dealing with Competitive Forces (2 of 3)

- Low-cost leadership
  - Produce products and services at a lower price than competitors
  - Example: Walmart's efficient customer response system
- Product differentiation
  - Enable new products or services, greatly change customer convenience and experience
  - Example: Google Nike
  - Mass customization; customer experience management

Pearson

Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved

### Interactive Session: Organizations: Shipping Wars

- Class discussion
  - Why is shipping so important for e-commerce? Explain your answer.
  - Compare the shipping strategies of Amazon, FedEx, and UPS. How are they related to each company's business model?
  - Will FedEx succeed in its push into ground shipping. Why or why not?

Pearson

Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved

## Interactive Session: Management: Customer Experience Management: A New Strategic Weapon

- Class Discussion
  - What is customer experience management? How can it contribute to competitive advantage?
  - How does information technology support customer experience management? Give examples.
  - How did information technology and customer experience management change operations and decision making at the organizations described in this case?

Pearson

Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved

## Information System Strategies for Dealing with Competitive Forces (3 of 3)

- Focus on market niche
  - Use information systems to enable a focused strategy on a single market niche; specialize
  - Example: Hilton Hotels' OnQ system
- Strengthen customer and supplier intimacy
  - Use information systems to develop strong ties and loyalty with customers and suppliers
  - Increase switching costs
  - Examples: Toyota, Amazon

Pearson

Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved

## The Internet's Impact on Competitive Advantage

- Transformation or threat to some industries
  - Examples: travel agency, printed encyclopedia, media
- Competitive forces still at work, but rivalry more intense
- Universal standards allow new rivals, entrants to market
- New opportunities for building brands and loyal customer bases

Pearson

Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved

## Smart Products and the Internet of Things

- Internet of Things (IoT)
  - Growing use of Internet-connected sensors in products
- Smart products
  - Fitness equipment, health trackers
- Expand product differentiation opportunities
  - Increasing rivalry between competitors
- Raise switching costs
- Inhibit new entrants
- May decrease power of suppliers

Pearson

Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved

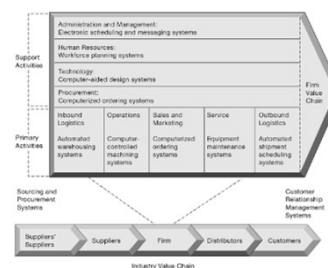
## The Business Value Chain Model

- Firm as series of activities that add value to products or services
- Highlights activities where competitive strategies can best be applied
  - Primary activities vs. support activities
- At each stage, determine how information systems can improve operational efficiency and improve customer and supplier intimacy
- Utilize benchmarking, industry best practices

Pearson

Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved

## Figure 3.9 The Value Chain Model



Pearson

Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved

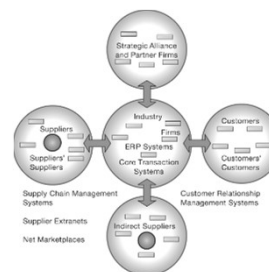
### Extending the Value Chain: The Value Web

- Firm's value chain is linked to value chains of suppliers, distributors, customers
- Industry value chain
- Value web
  - Collection of independent firms using highly synchronized IT to coordinate value chains to produce product or service collectively
  - More customer driven, less linear operation than traditional value chain

Pearson

Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved

### Figure 3.10 The Value Web



Pearson

Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved

### Synergies

- When output of some units are used as inputs to others, or organizations pool markets and expertise
- Example: Merger of Bank of NY and JP Morgan Chase
- Purchase of YouTube by Google

Pearson

Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved

### Core Competencies

- Activity for which firm is world-class leader
- Relies on knowledge, experience, and sharing this across business units
- Example: Procter & Gamble's intranet and directory of subject matter experts

Pearson

Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved

### Network-Based Strategies

- Take advantage of firm's abilities to network with one another
- Include use of:
  - Network economics
  - Virtual company model
  - Business ecosystems

Pearson

Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved

### Network Economics

- Marginal cost of adding new participant almost zero, with much greater marginal gain
- Value of community grows with size
- Value of software grows as installed customer base grows
- Compare to traditional economics and law of diminishing returns

Pearson

Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved



## Virtual Company Model

- Virtual company
  - Uses networks to ally with other companies
  - Creates and distributes products without being limited by traditional organizational boundaries or physical locations
- Example: Li & Fung
  - Manages production, shipment of garments for major fashion companies
  - Outsources all work to thousands of suppliers

Pearson

Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved

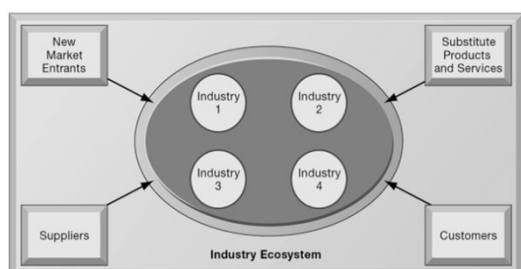
## Business Ecosystems and Platforms

- Industry sets of firms providing related services and products
- Platforms
  - Microsoft, Facebook
- Keystone firms
- Niche firms
- Individual firms can consider how IT will help them become profitable niche players in larger ecosystems

Pearson

Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved

**Figure 3.11 An Ecosystem Strategic Model**



Pearson

Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved

## Challenges Posed by Strategic Information Systems

- Sustaining competitive advantage
  - Competitors can retaliate and copy strategic systems
  - Systems may become tools for survival
- Aligning IT with business objectives
  - Performing strategic systems analysis
    - Structure of industry
    - Firm value chains

Pearson

Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved

## How Will MIS Help My Career?

- The Company: Superior Data Quality
- Position Description: Entry-level business development representative
- Job Requirements
- Interview Questions
- Author Tips

Pearson

Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved

## Copyright



This work is protected by United States copyright laws and is provided solely for the use of instructors in teaching their courses and assessing student learning. Dissemination or sale of any part of this work (including on the World Wide Web) will destroy the integrity of the work and is not permitted. The work and materials from it should never be made available to students except by instructors using the accompanying text in their classes. All recipients of this work are expected to abide by these restrictions and to honor the intended pedagogical purposes and the needs of other instructors who rely on these materials.

Pearson

Copyright © 2022, 2020, 2018 Pearson Education, Inc. All Rights Reserved