Achieving Competitive Advantage with Information Systems

Essentials of Management Information Systems
Chapter 3 Achieving Competitive Advantage with Information Systems

STUDENT LEARNING OBJECTIVES

- How does Porter's competitive forces model help companies develop competitive strategies using information systems?
- How do the value chain and value web models help businesses identify opportunities for strategic information system applications?
- How do information systems help businesses use synergies, core competencies, and network-based strategies to achieve competitive advantage?

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STUDENT LEARNING OBJECTIVES

- **How do competing on a global scale and promoting quality enhance competitive advantage?**

- **Evaluate the role of business process management (BPM) in enhancing competitiveness.**

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Porter's Competitive Forces Model

- **One way to understand competitive advantage**
- **Five competitive forces shape fate of firm**
    1. **Traditional competitors**
        - Competitors in market space continuously devise new products, new efficiencies, switching costs.
    2. **New market entrants**
        - Some industries have low barriers to entry:
            - E.g., food industry versus microchip industry
        - Newer companies may have advantages:
            - Newer equipment, younger workforce, and so on.

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Porter's Competitive Forces Model

3. **Substitute products and services**
    *   Substitutes customers can purchase if your prices too high.
    *   E.g., Internet music service versus CDs.
4. **Customers**
    *   Can customers easily switch to competitor's products?
    *   Can customers force firm and competitors to compete on price alone (transparent marketplace).
5. **Suppliers**
    *   The more suppliers a firm has, the greater control it can exercise over suppliers.

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Porter's Competitive Forces Model

In Porter's competitive forces model, the strategic position of the firm and its strategies are determined not only by competition with its traditional direct competitors but also by four forces in the industry's environment: new market entrants, substitute products, customers, and suppliers.
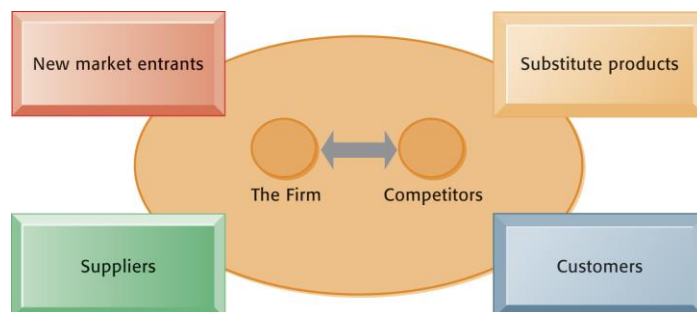

Figure 3-1

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Using Information Systems to Achieve Competitive Advantage

Information System Strategies for Dealing with Competitive Forces

- **Basic strategy: Align IT with business objectives**
  - **75 percent of businesses fail to align their IT with their business objectives, leading to lower profitability.**
  - **To align IT:**
    - **Identify business goals and strategies.**
    - **Break strategic goals into concrete activities and processes.**
    - **Identify metrics for measuring progress.**
    - **Determine how IT can help achieve business goals.**
    - **Measure actual performance.**

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Information System Strategies for Dealing with Competitive Forces

- **Low-cost leadership**
  - Use information systems to achieve the lowest operational costs and the lowest prices.
  - **E.g. Wal-Mart**
    - Inventory replenishment system sends orders to suppliers when purchase recorded at cash register.
    - Minimizes inventory at warehouses, operating costs.
    - Efficient customer response system.

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Supermarkets and large retail stores such as Wal-Mart use sales data captured at the checkout counter to determine which items have sold and need to be reordered. Wal-Mart's continuous replenishment system transmits orders to restock directly to its suppliers. The system enables Wal-Mart to keep costs low while fine-tuning its merchandise to meet customer demands.

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Information System Strategies for Dealing with Competitive Forces

- **Product differentiation**
  - Use information systems to enable new products and services, or greatly change the customer convenience in using your existing products and services.
  - E.g., Google's continuous innovations, Apple's iPhone.
  - Use information systems to customize, personalize products to fit specifications of individual consumers.
    - **Dell**
    - **Mass customization at Lands' End**

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Information System Strategies for Dealing with Competitive Forces

- **Focus on market niche.**
  - Use information systems to enable specific market focus, and serve narrow target market better than competitors.
    - **Analyzes customer buying habits, preferences**
    - **Advertising pitches to smaller and smaller target markets**
  - E.g., Hilton Hotel's OnQ System
    - **Analyzes data collected on guests to determine preferences and guest's profitability**

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Information System Strategies for Dealing with Competitive Forces

- **Strengthen customer and supplier intimacy.**
  - Strong linkages to customers and suppliers increase switching costs and loyalty
  - **Toyota**: uses IS to facilitate direct access from suppliers to production schedules
    - Permits suppliers to decide how and when to ship suppliers to Chrysler factories, allowing more lead time in producing goods.
  - **Amazon**: keeps track of user preferences for purchases, and recommends titles purchased by others

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Information System Strategies for Dealing with Competitive Forces

- **Some companies pursue several strategies at same time.**
  - Dell emphasizes low cost plus customization of products.
- **Successfully using IS to achieve competitive advantage requires precise coordination of technology, organizations, and people.**

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Using Information Systems to Achieve Competitive Advantage

Interactive Session: People
How Much Do Credit Card Companies Know About You?

- **Read the Interactive Session and then discuss the following questions:**
  - **What competitive strategy are the credit card companies pursuing? How do information systems support that strategy?**
  - **What are the business benefits of analyzing customer purchase data and constructing behavioral profiles?**
  - **Are these practices by credit card companies ethical? Are they an invasion of privacy? Why or why not?**

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The Internet's Impact on Competitive Advantage

- **Enables new products and services**

- **Transforms industries**

- **Increases bargaining power of customers and suppliers**

- **Intensifies competitive rivalry**

- **Creates new opportunities for building brands and large customer bases**

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The Internet's Impact on Competitive Advantage

- **Existing competitors:** widens market, increasing competitors, reducing differences, pressure to compete on price

- **New entrants:** reduces barriers to entry (e.g., need for sales force declines), provides technology for driving business processes

- **Substitute products and services:** facilitates creation of new products and services

- **Customers' bargaining power:** bargaining power shifts to customer

- **Suppliers' bargaining power:** procurement over Internet raises power over suppliers, suppliers can benefit from reduced barriers to entry and elimination of intermediaries

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The Business Value Chain Model

- **Highlights specific activities in a business where competitive strategies can best be applied and where information systems are likely to have a strategic impact.**

  - **Primary activities**

  - **Support activities**

  - **Benchmarking**

  - **Best practices**

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The Value Chain Model

This figure provides examples of systems for both primary and support activities of a firm and of its value partners that would add a margin of value to a firm's products or services.
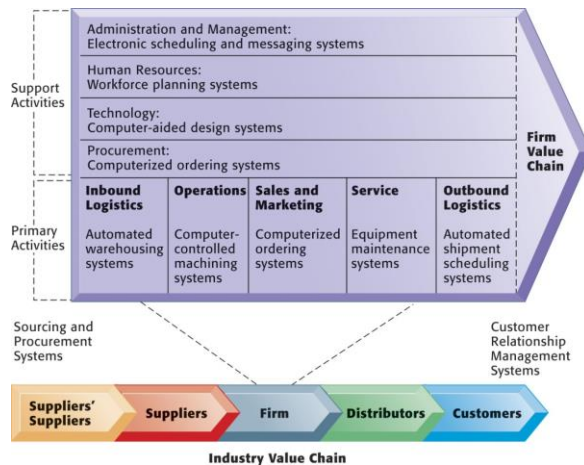
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Synergies, Core Competencies, and
Network-Based Strategies

- **Synergies:**

  - **When output of some units can be used as inputs to other units**

  - **When two firms can pool markets and expertise (e.g., recent bank mergers)**

  - **Lower costs and generate profits**

  - **Enabled by information systems that ties together disparate units so they act as whole**

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Synergies, Core Competencies, and
Network-Based Strategies

- **Core competency:**
  - **Activities for which firm is world-class leader.**
    - **E.g., world's best miniature parts designer, best package delivery service.**
  - **Relies on knowledge that is gained over many years of experience as well as knowledge research.**
  - **Any information system that encourages the sharing of knowledge across business units enhances competency.**
    - **E.g., Procter & Gamble uses intranet to help people working on similar problems share ideas and expertise.**

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**Synergies, Core Competencies, and
Network-Based Strategies**

- Network-based strategies:
  - **Network economics:**
    - Marginal costs of adding another participant are near zero, whereas marginal gain is much larger
    - E.g., larger number of participants in Internet, greater value to all participants
  - **Virtual company:**
    - Uses networks to link people, resources, and ally with other companies to create and distribute products without traditional organizational boundaries or physical locations

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Using Information Systems to Achieve Competitive Advantage

Disruptive Technologies: Riding the Wave

- Disruptive technologies:
  - **Technologies with disruptive impact on industries and businesses, rendering existing products, services and business models obsolete:**
    - **Personal computers**
    - **World Wide Web**
    - **Internet music services**
  - **First movers versus fast followers**
    - **First movers of disruptive technologies may fail to see potential, allowing second movers to reap rewards (fast followers)**

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Competing on a Global Scale

The Internet and Globalization

- Prior to the Internet, competing globally was only an option for huge firms able to afford factories, warehouses, and distribution centers abroad.
- The Internet drastically reduces costs of operating globally.
- Globalization benefits:
  - Scale economies and resource cost reduction
  - Higher utilization rates, fixed capital costs, and lower cost per unit of production
  - Speeding time to market

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Competing on a Global Scale

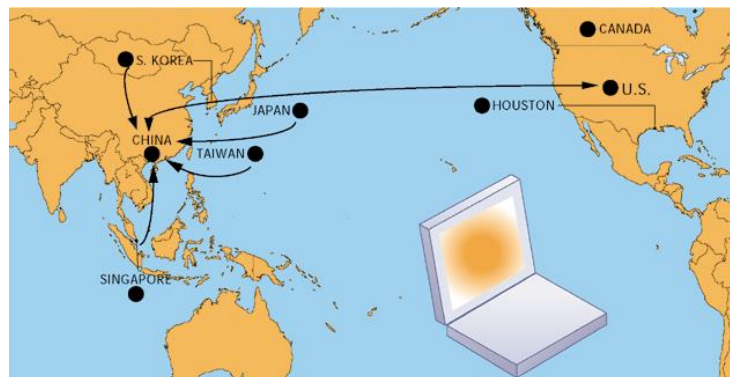**An HP Laptop's Path to Market**

Figure 3-4

Hewlett-Packard and other electronics companies assign distribution and production of their products to a number of different countries.

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Competing on a Global Scale

Interactive Session: Organizations
Will TV Succumb to the Internet?

- **Read the Interactive Session and then discuss the following questions:**
  - **What competitive forces have challenged the television industry? What problems have these forces created?**
  - **Describe the impact of disruptive technology on the companies discussed in this case.**
  - **How have the cable programming and delivery companies responded to the Internet?**
  - **What people, organization, and technology issues must be addressed to solve the cable industry's problems?**
  - **Have the cable companies found a successful new business model to compete with the Internet? Why or why not?**

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Competing on a Global Scale

Global Business and System Strategies

- **Domestic exporters**
  - **Heavy centralization of corporate activities in home country**
- **Multinationals**
  - **Concentrates financial management at central home base while decentralizing production, sales, and marketing to other countries**
- **Franchisers**
  - **Product created, designed, financed, and initially produced in home country but rely on foreign units for further production, marketing, and human resources**
- **Transnationals**
  - **Regional (not national) headquarters and perhaps world headquarters; optimizing resources as needed**

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Competing on a Global Scale

Global System Configurations

- **Centralized systems:**
    - All development and operation at domestic home base
- **Duplicated systems:**
    - Development at home base but operations managed by autonomous units in foreign locations
- **Decentralized systems:**
    - Each foreign unit designs own solutions and systems
- **Networked systems:**
    - Development and operations occur in integrated and coordinated fashion across all units

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Competing on Quality and Design

What Is Quality?

- **Producer perspective:**
    - Conformance to specifications and absence of variation from specs
- **Customer perspective:**
    - Physical quality (reliability), quality of service, psychological quality
- **Total quality management (TQM):**
    - Quality control is end in itself
    - All people, functions responsible for quality
- **Six sigma:**
    - Measure of quality: 3.4 defects/million opportunities

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Competing on Quality and Design

How Information Systems Improve Quality

- **Reduce cycle time and simplify production process.**
- **Benchmarking**
- **Use customer demands to improve products and services.**
- **Improve design quality and precision.**
  - Computer-aided design (CAD) systems
- **Improve production precision and tighten production tolerances.**

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Competing on Quality and Design

Computer-aided design (CAD) systems improve the quality and precision of product design by performing much of the design and testing work on the computer.

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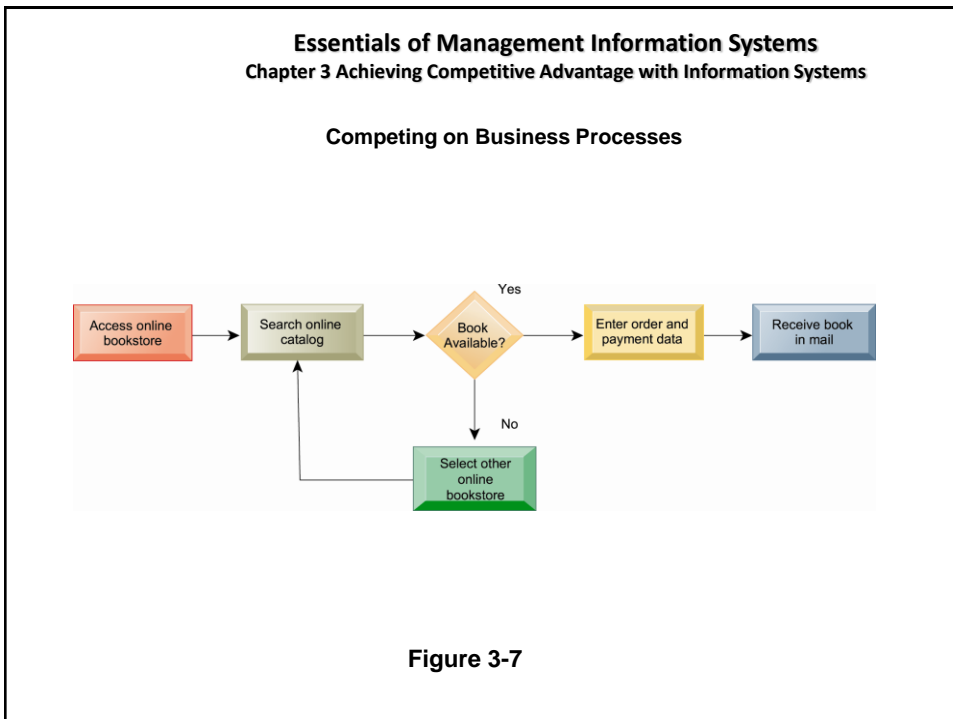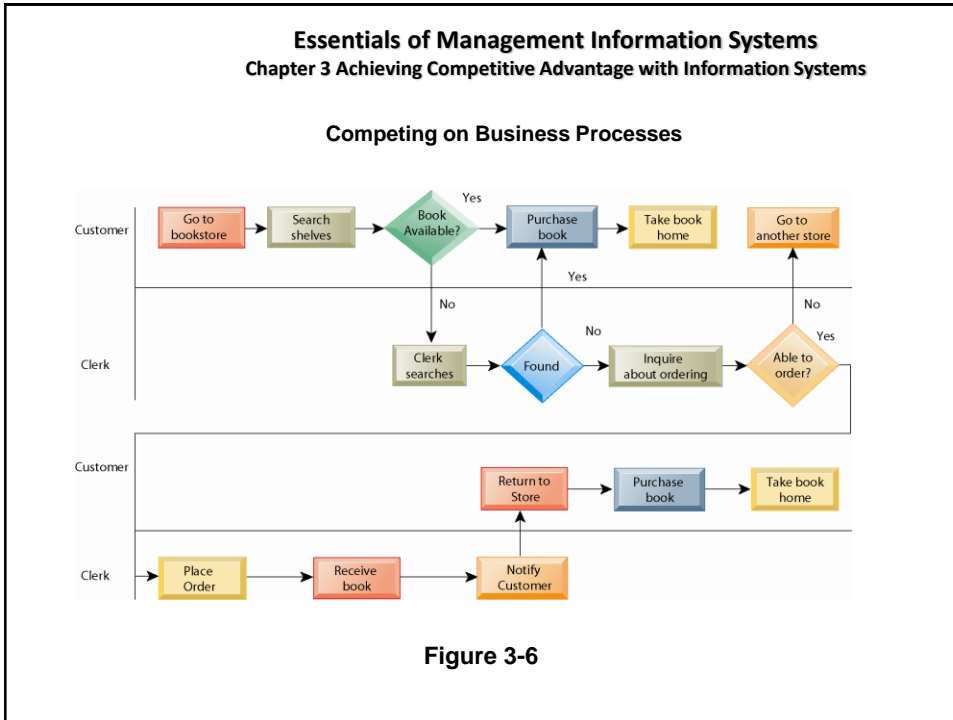Chapter 3 Achieving Competitive Advantage with Information Systems

Competing on Business Processes

- Businesses are collections of business processes—ways of working and getting things done. See Chapter 1.
- Some times they are written in manuals, but in many cases business processes are informal.
- In order to use information systems effectively, you need to change business processes.
- Before you can change processes, you need to change people's attitudes and behaviors, and even the organization itself.

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Competing on Business Processes

- Business process management = continuous improvement
    - Identify processes for change.
    - Analyze existing processes.
    - Design new process.
    - Implement new process.
    - Measure new process.

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Competing on Business Processes

Figure 3-6

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Competing on Business Processes

Figure 3-7

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Competing on Business Processes

Business Process Reengineering

- **A radical form of fast change**

- **Not continuous improvement, but elimination of old processes, replacement with new processes, in a brief time period**

- **Can produce dramatic gains in productivity, but increases organizational resistance to change**