

Chapter 3

INFORMATION SYSTEMS, ORGANIZATIONS, AND STRATEGY

Dr. N. Abdolvand

Management Information System

Sources

- ◆ Management Information Systems, Ken Laudon & Jane Laudon, Prentice Hall

Dr. N. Abdolvand

Cases

- ◆ Case 1: National Basketball Association: Competing on Global Delivery with Akamai OS Streaming
- ◆ Case 2: IT and Geo-Mapping Help a Small Business Succeed (2009)
- ◆ Case 3: Customer Relationship Management for San Francisco's City Government
- ◆ Case 4: Materials Handling Equipment Corp: Enterprise Systems Drive Corporate Strategy for a small business

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Learning Objectives

- ◆ Identify and describe important features of organizations that managers need to know about in order to build and use information systems successfully.
- ◆ Demonstrate how Porter's competitive forces model helps companies develop competitive strategies using information systems.
- ◆ Explain how the value chain and value web models help businesses identify opportunities for strategic information system applications.
- ◆ Demonstrate how information systems help businesses use synergies, core competencies, and network-based strategies to achieve competitive advantage.
- ◆ Assess the challenges posed by strategic information systems and management solutions.

Dr. N. Abdolvand

Verizon or AT&T: Which Company Has the Best Digital Strategy?

- ◆ **Problem:** High-stakes competition in the wireless market
- ◆ **Solutions:**
 - **AT&T is marketing leading-edge devices**
 - Had 43% of U.S. smartphone users, but poorer network
 - **Verizon is investing in updating, expanding, and improving network**
 - Fewer smartphone customers, but most reliable in U.S.
- ◆ Demonstrates IT's central role in defining competitive strategy

Organizations and Information Systems

- ◆ Information technology and organizations influence one another
 - Complex relationship influenced by organization's
 - Structure
 - Business processes
 - Politics
 - Culture
 - Environment, and
 - Management decisions

THE TWO-WAY RELATIONSHIP BETWEEN ORGANIZATIONS AND INFORMATION TECHNOLOGY

This complex two-way relationship is mediated by many factors, not the least of which are the decisions made—or not made—by managers. Other factors mediating the relationship include the organizational culture, structure, politics, business processes, and environment.

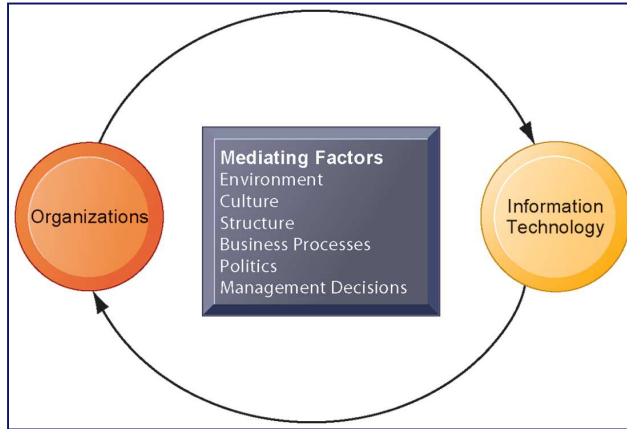


FIGURE 3-1

ENVIRONMENTS AND ORGANIZATIONS HAVE A RECIPROCAL RELATIONSHIP

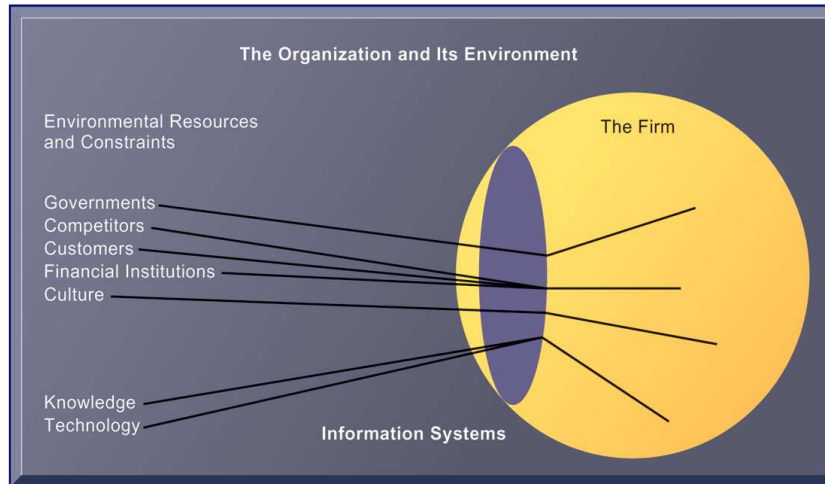


FIGURE 3-5 Environments shape what organizations can do, but organizations can influence their environments and decide to change environments altogether. Information technology plays a critical role in helping organizations perceive environmental change and in helping organizations act on their environment.

Disruptive technologies

- ◆ Technology that brings about sweeping change to businesses, industries, markets
- ◆ Examples: personal computers, word processing software, the Internet, the PageRank algorithm
- ◆ First movers and fast followers
 - First movers – inventors of disruptive technologies
 - Fast followers – firms with the size and resources to capitalize on that technology

How Information Systems Impact Organizations and Business Firms

- ◆ 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

How Information Systems Impact Organizations and Business Firms

◆ 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 for a firm, making it worthwhile for firms to transact with other firms rather than grow the number of employees

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

Organizational and behavioral impacts

- ◆ IT flattens organizations
 - Decision making pushed to lower levels
 - Fewer managers 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

FLATTENING ORGANIZATIONS

How Information Systems Impact Organizations and Business Firms

Information systems can reduce the number of levels in an organization by providing managers with information to supervise larger numbers of workers and by giving lower-level employees more decision-making authority.

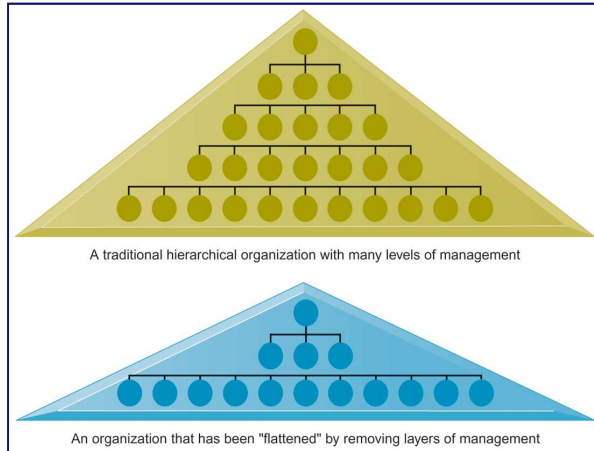


FIGURE 3-8

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
- ◆ Most common reason for failure of large projects is due to organizational and political resistance to change

ORGANIZATIONAL RESISTANCE AND THE MUTUALLY ADJUSTING RELATIONSHIP BETWEEN TECHNOLOGY AND THE ORGANIZATION

How Information Systems Impact Organizations and Business Firms

Implementing information systems has consequences for task arrangements, structures, and people. According to this model, to implement change, all four components must be changed simultaneously.

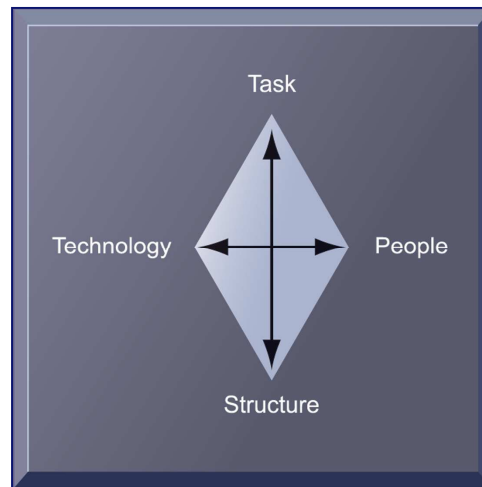


FIGURE 3-9

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 Web site, saving millions of dollars in distribution costs

Using Information Systems to Achieve Competitive Advantage

- ◆ 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
 1. Traditional competitors
 2. New market entrants
 3. Substitute products and services
 4. Customers
 5. Suppliers

PORTER'S COMPETITIVE FORCES MODEL

Using Information Systems to Achieve Competitive Advantage

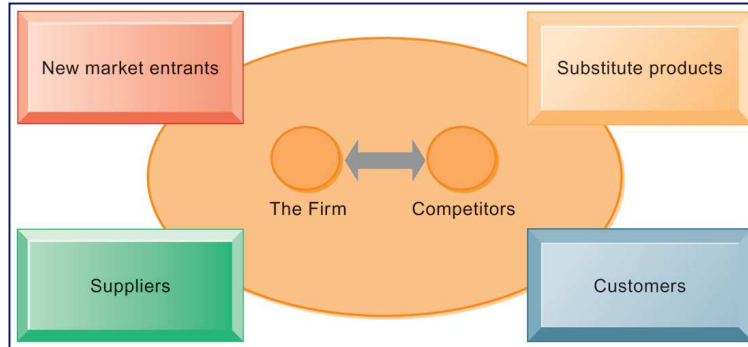


FIGURE 3-10 In Porter's competitive forces model, the strategic position of the firm and its strategies are determined not only by competition with its traditional direct competitors but also by four other forces in the industry's environment: new market entrants, substitute products, customers, and suppliers.

Using Information Systems to Achieve Competitive Advantage

- ◆ Four generic strategies for dealing with competitive forces, enabled by using IT
 - Low-cost leadership: Walmart
 - Product differentiation: Google, Nike, Apple
 - Focus on market niche: Hilton Hotels
 - Strengthen customer and supplier intimacy: Netflix, Amazon

The Internet's impact on competitive advantage

- ◆ Transformation, destruction, threat to some industries
 - E.g. travel agency, printed encyclopedia, newspaper
- ◆ 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

TABLE 3-5 IMPACT OF THE INTERNET ON COMPETITIVE FORCES AND INDUSTRY STRUCTURE

COMPETITIVE FORCE	IMPACT OF THE INTERNET
Substitute products or services	Enables new substitutes to emerge with new approaches to meeting needs and performing functions
Customers' bargaining power	Availability of global price and product information shifts bargaining power to customers
Suppliers' bargaining power	Procurement over the Internet tends to raise bargaining power over suppliers; suppliers can also benefit from reduced barriers to entry and from the elimination of distributors and other intermediaries standing between them and their users
Threat of new entrants	The Internet reduces barriers to entry, such as the need for a sales force, access to channels, and physical assets; it provides a technology for driving business processes that makes other things easier to do
Positioning and rivalry among existing competitors	Widens the geographic market, increasing the number of competitors, and reducing differences among competitors; makes it more difficult to sustain operational advantages; puts pressure to compete on price

Business value chain model

- ◆ Views 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

THE VALUE CHAIN MODEL

Using Information Systems to Achieve Competitive Advantage

This figure provides examples of systems for both primary and support activities of a firm and of its value partners that can add a margin of value to a firm's products or services.

The diagram illustrates the Value Chain Model. It is divided into two main sections: Support Activities and Primary Activities. Support Activities include Administration and Management (Electronic scheduling and messaging systems), Human Resources (Workforce planning systems), Technology (Computer-aided design systems), and Procurement (Computerized ordering systems). Primary Activities are divided into five categories: Inbound Logistics (Automated warehousing systems), Operations (Computer-controlled machining systems), Sales and Marketing (Computerized ordering systems), Service (Equipment maintenance systems), and Outbound Logistics (Automated shipment scheduling systems). Below these, the Industry Value Chain is shown as a sequence of five steps: Suppliers' Suppliers, Suppliers, Firm, Distributors, and Customers. Dashed lines connect the Support and Primary Activities to the Firm step in the Industry Value Chain. Additional systems like Sourcing and Procurement Systems and Customer Relationship Management Systems are also indicated.

FIGURE 3-11

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Using Information Systems to Achieve Competitive Advantage

- ◆ 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

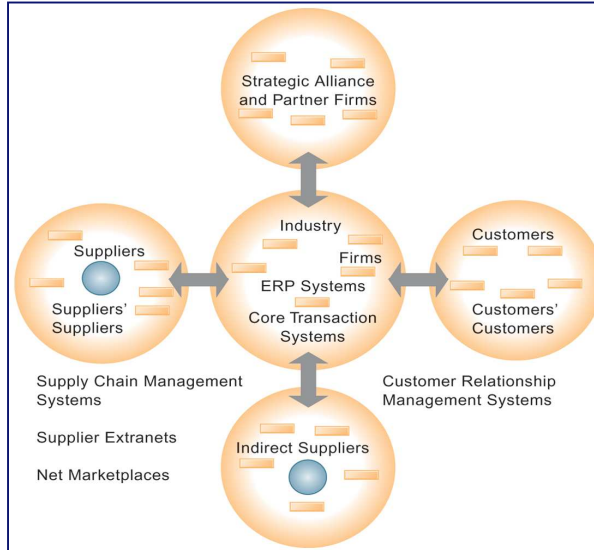
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THE VALUE WEB

Using Information Systems to Achieve Competitive Advantage

The value web is a networked system that can synchronize the value chains of business partners within an industry to respond rapidly to changes in supply and demand.

FIGURE 3-12



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Value web:

- ◆ Information systems can improve overall performance of business units by promoting synergies and core competencies
 - Synergies
 - When output of some units used as inputs to others, or organizations pool markets and expertise
 - Example: merger of Bank of NY and JPMorgan Chase

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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

Network-based strategies

- ◆ Take advantage of firm's abilities to network with each other
- ◆ Include use of:
 - Network economics
 - Virtual company model

Using Information Systems to Achieve Competitive Advantage

◆ Traditional economics: Law of diminishing returns

- The more any given resource is applied to production, the lower the marginal gain in output, until a point is reached where the additional inputs produce no additional outputs

◆ 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

Using Information Systems to Achieve Competitive Advantage

◆ Virtual company strategy

- Virtual company uses networks to ally with other companies to create and distribute products without being limited by traditional organizational boundaries or physical locations
- E.g. Li & Fung manages production, shipment of garments for major fashion companies, outsourcing all work to over 7,500 suppliers

Management Information Systems



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