Information Systems, Organizations, and Strategy


Learning Objectives (1/2)

- 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.

Learning Objectives (2/2)

- 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.

Organizations and Information Systems (1/2)

- 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.

- Features of organizations
  - All modern organizations share some characteristics, such as:
    - Use of hierarchical structure
    - Accountability, authority in system of impartial decision making
    - Adherence to principle of efficiency
    - Other features include: Routines and business processes and organizational politics, culture, environments and structures

- Features of organizations
  - 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

All organizations are composed of individual routines and behaviors, a collection of which make up a business process. A collection of business processes make up the business firm. New information system applications require that individual routines and business processes change to achieve high levels of organizational performance.
Features of organizations (4/10)

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

Features of organizations (5/10)

• 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

Features of organizations (6/10)

• 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

Features of organizations (7/10)

Environments and Organizations Have a Reciprocal Relationship

- 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.
Features of organizations (8/10)

• **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

Features of organizations (9/10)

• **Organizational structure**
  • Five basic kinds of structure
    • **Entrepreneurial**: Small start-up business
    • **Machine bureaucracy**: Midsize manufacturing firm
    • **Divisionalized bureaucracy**: Fortune 500 firms
    • **Professional bureaucracy**: Law firms, school systems, hospitals
    • **Adhocracy**: Consulting firms

Features of organizations (10/10)

• **Other Organizational Features**
  • Goals
  • Constituencies
  • Leadership styles
  • Tasks
  • Surrounding environments

How Information Systems Impact Organizations (1/11)

• **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 (2/11)

- Transaction cost theory
  - Firms seek to economize on cost of participating in market (transaction costs)
  - IT lowers market transaction costs for firm, making it worthwhile for firms to transact with other firms rather than grow the number of employees

How Information Systems Impact Organizations (4/11)

- 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

Figure 3-6: The Transaction Cost Theory of the Impact of Information Technology on the Organization

Figure 3-7: The Agency Cost Theory of the Impact of Information Technology on the Organization
How Information Systems Impact Organizations (6/11)

- 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

How Information Systems Impact Organizations (8/11)

- Organizational resistance to change
  - Information systems become bound up in organizational politics because they influence access to a key resource –
  - 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

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.
• 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 corporate Web site, saving millions of dollars in distribution costs

• Central organizational factors to consider when 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

• Why do some firms become leaders within 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

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.
Using IS to Achieve Competitive Advantage (3/4)

- **Traditional competitors**
  - All firms share market space with competitors who are continuously devising new products, services, efficiencies, switching costs

- **New market entrants**
  - Some industries have high barriers to entry, e.g., computer chip business
  - New companies have new equipment, younger workers, but little brand recognition

Using IS to Achieve Competitive Advantage (4/4)

- **Substitute products and services**
  - Substitutes customers might use if your prices become too high, e.g., iTunes substitutes for CDs

- **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

IS Strategies for Dealing with Competitive Forces (1/3)

- **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**

IS Strategies for Dealing with Competitive Forces (2/3)

- **Low-cost leadership**
  - produce products and services at a lower price than competitors while enhancing quality and level of service
  - Examples: Wal-Mart, Dell

- **Product differentiation**
  - Enable new products or services, greatly change customer convenience and experience
  - Examples: Google, Land’s End, Apple iPhone
IS Strategies for Dealing with Competitive Forces (3/3)

- **Focus on market niche**
  - Use information systems to enable a focused strategy on a single market niche; specialize
  - Example: Hilton Hotels

- **Strengthen customer and supplier intimacy**
  - Use information systems to develop strong ties and loyalty with customers and suppliers; increase switching costs
  - Example: Chrysler, Amazon

The Business Value Chain (1/4)

- **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 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**

The Business Value Chain (2/4)

- **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 can add a margin of value to a firm's products or services.

Figure 3-11
• **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

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**The Value Web**

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.