

Information Systems and Business Strategy

Chapter 3 (9E)

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Ch 3 & Questions

1. What are information systems?

Explain the nature and interaction of technology, people, and organizational components

2. How do information systems influence organizational competitiveness?

Understand how IT can be used to achieve and sustain competitive advantage

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Organization of the IS Function

- **Typical firm has a unit called the IS department who are responsible for IT services**
- **Members of the IS department**
 - **Programmers**
 - **System analysts**
 - **Project managers**
 - **CIO**
 - **Database administrators**
 - **Network administrators**
 - **Chief information officer**
- **End users (users of IS services outside the IS department)**

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How IS Impact Organizations

- **Economic theories**
 - **IS/IT enables firms to lower their transaction costs and increase revenues with fewer employees (transaction cost theory)**
 - **Agency theory suggests that IS/IT enables firms to reduce management costs and increase revenues**
- **Behavioral theories**
 - **IS/IT has moved decision-making to lower levels of management and managers make decisions faster because information is readily available**
- **Post-industrial theories**
 - **Also support flattening of hierarchies, but reasons are that authority arises from knowledge and competence rather than formal positions; knowledge workers tend to be self-managed; task force organization**

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How IS Impact Organizations (cont)

- **Increasing flexibility as evidenced by ability of orgs to respond to changes and take advantage of new opportunities**
 - **Improved communication**
 - **Separation of work and location**
 - **Mass customization**
 - **Data-mining**
 - **The Internet**

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How IS Impact Organizations (cont)

- **The Internet and Organizations**
 - **The Internet increases the accessibility, storage, distribution of information and knowledge for business firms.**
 - **The Internet lowers the transaction and agency costs of firms.**
 - **Businesses are rapidly rebuilding their key business processes based on Internet technology. Example: online order entry, customer service, and fulfillment of orders.**

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How IS Impact Organizations (cont)

- **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.**

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IS and Business Strategy

- **Business strategy determines**
 - **The products and services a firm produces**
 - **The industries in which the firm competes**
 - **Competitors, suppliers, and customers of the firm**
 - **Long-term goals of the firm**

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Structure of Laudon & Laudon's Approach

- Strategic systems operate at three levels
 - Business is a single firm producing a set of related products/services
 - Firm (collection of businesses that make a single multidivisional firm)
 - Industry is a collection of firms that make up an industrial
- At each level there are different strategic uses of IS/IT
- At each level there are different models/concepts used for the analysis of how to use IS/IT strategically

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Models & Strategies

Level	Models	Strategies
Business	Porter's value chain	Product differentiation Low cost producer Focused differentiation
Firm	No model	Synergies Core competencies
Industry	Information partnerships Competitive forces model (Porter) Network economics	The three items on left are useful as concepts for determining competitive strategies at the industry level. The competitive forces model is the most systematic of the three.

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Porter's Value Chain Model

- **The value chain model looks at a business in terms of a set of primary and support activities that add value to the firm's products or services.**
- **VC model can be used to determine where information systems can have the most impact to effect the competitive position of the firm**
- **Firm gains a competitive advantage when it provides the product or service with more value or the same value at a lower price**

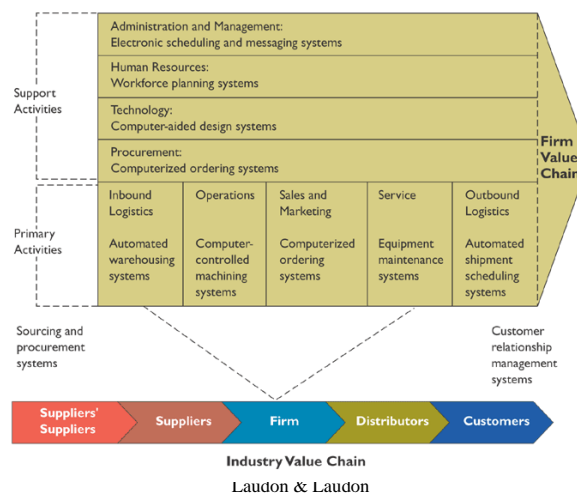
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Figure 3.11 The firm value chain and the industry value chain.



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Primary Activities of the VC Model

- **Inbound logistics - receiving and storing of materials**
 - Wal-Mart's continuous replenishment system
 - stockless inventory systems
- **Operations - transformation of inputs to finished goods or the process of providing a service**
 - computer controlled machinery used by Gillette for producing razor blades
- **Outbound logistics - storing and distributing the product**
 - airline reservation system
 - automated shipping scheduling systems

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Primary Activities of the VC Model (continued)

- **Sales and marketing - promoting and selling the firm's product**
 - industrial air conditioning firms provide computer-based modeling systems to help architects determine cooling requirements for commercial properties
 - Otis elevator uses sensors in its equipment that automatically notify service centers before malfunctions occur

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Support Activities for the VC Model

- **Administration and management**
 - voice mail and e-mail, intranets
- **Human resources**
 - employee skills database, systems that facilitate compliance with government regulations
- **Technology development - improving products and the production process**
 - an oil company uses infrared data gathered by satellite to search for oil deposits
 - CAD systems

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Support Activities for the VC Model (continued)

- **Procurement (purchasing inputs)**
 - on-line electronic auctions exist that provide access to excess inventory
 - retailers use on-line systems to access the inventory files and production schedules of their suppliers

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Business Level Strategies

- **Based on VC analysis that highlights activities that add value to the product/service**
- **Leveraging IS/IT involves applying IS/IT to the component in the VC that provides max benefit**
- **The goal of the analysis is to apply IS/IT to one or more components of the VC pursuant to one of the three strategies on the next slide**

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Three Strategies Used With Value Chain Analysis

- ***Product differentiation* involves developing new and unique products and services not easily duplicated by competitors**
- **Becoming the *low-cost producer* (provide same value but at a lower cost than competitors)**
- ***Focused differentiation* involves**
 - **Narrowing the market by developing niches for specialized products or services where a business can compete better than its rivals**
 - **Use of customer data (data mining, credit card transactions, Internet behavior)**

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IS/IT and the Strategies

- **Question managers must ask:**
 - **Can IT/IS be used to pursue one or more of the three strategies at one or more points in the VC?**
- **A system developed in response to this question will usually be strategic**

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Examples of Systems for Each Strategy

- **Product differentiation**
 - **Levi Strauss' s Personal Pair (*mass customization or one-to-one marketing*)**
 - **Hallmark's computer generated cards**
 - **Build to order products (Dell)**
- **Focus (market niche)**
 - **Customer data analysis through CRM**
 - **Harrah's case and Wyndham Hotels**
- **Low cost producer**
 - **CAD systems used in the automobile or airline industry**
 - **Insurance claim adjusters use of pen-based computers**

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Business Strategies for Digital Firms

- **Today digital firms view their value chain as part of a larger chain**
 - **the firm's value chains is linked to the value chains of their suppliers through SCM systems; Wal-Mart's (inventory replenishment)**
 - **the firm's value chain is linked to the value chain of their customers (efficient customer response systems)**
- **The concept of switching costs and locking customers in**

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Firm-Level Strategies and IS/IT

- **A firm is a collection of business units**
- **Main question here is "How can IS/IT contribute to the overall performance of these business units?"**
- **Two strategies**
 - ***create synergies* by linking together operations of different business units (Intranets, common inventory management for business units that employ the same inventory)**
 - ***enhance core competencies* by employing systems that encourage the sharing of knowledge across business units (datamining; knowledge management)**

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Industry-level Strategies and IS/IT

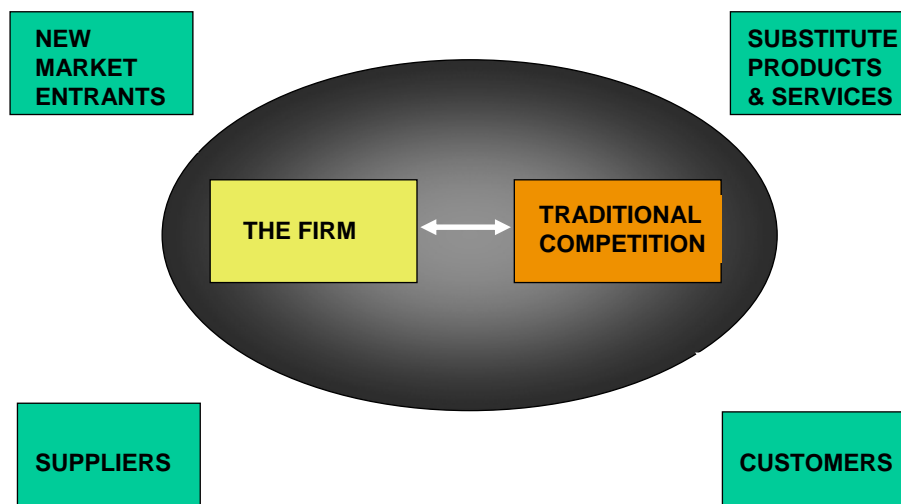
- **Key question here is: “How and when should we compete as opposed to cooperate with others in the industry?”**
- **Three concepts for analyzing strategies at this level**
 - **information partnerships (airlines and hotel chains; banks and airlines)**
 - **Competitive forces model**
 - **Network economics**

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Competitive Forces Model



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Cooperation Strategies and Competitive Forces

- **Firms that cooperate to establish industry wide standards for electronic transactions discourage substitute products and new entrants**
- **Firms establish IT-supported consortia and communication networks to coordinate activities relating to Federal and State agencies, foreign competition, or competing industries**
- **Covisint is an electronic exchange for procurement of automobile parts**
- **Industry sets (multiple related industries)**

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Competitive Forces Model and the Internet

- **Substitute products/services**
 - **Online banking, stock trading, reservations, online music**
- **Customer's bargaining power**
 - **Availability of pricing information (kbb.com)**
 - **Expansion of options (expedia.com, pricegrabber.com)**
- **Supplier's bargaining power**
 - **Procurement over the Internet raises bargaining power of customer**
 - **Suppliers benefit from reduced barriers to entry and elimination of intermediaries (alibaba.com)**

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Competitive Forces Model and the Internet (continued)

- **Threat of new entrants**
 - **The Internet has reduced barriers to entry such as the need for a sales force, access to channels, and physical assets**
- **Rivalries among existing competitors**
 - **Widens the geographic market**
 - **Increases number of competitors**
 - **Reduces differences among competitors**
 - **Pressure to compete on price**

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Network Economics

- **The network economics concept is that the marginal cost of adding another participant are near zero, but the marginal gain is much larger**
- **Building communities of users through the Internet**
 - **Microsoft's developer's network**
 - **Microsoft's attempts to place selected companies on the opening page of their browser**
 - **the airlines use of electronic mail to inform customers of excess capacity**

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Management Opportunities and Challenges

- **Opportunities**
 - **Firms face a continuing stream of IT-based opportunities to achieve strategic advantages**
- **Challenges**
 - **Some firms face big hurdles in implementing contemporary systems; resistance to change.**
 - **Once an advantage is achieved, there are difficulties in sustaining the advantage.**
 - **Organizations often cannot change fast enough to accommodate new technologies (Kodak).**

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Solutions: What Managers Can Do

- **Managers cannot depend on IS professionals to tell them about strategic opportunities**
- **Managers must understand what is happening in their industry in general and the role of technology in particular**
- **How do you do this?**

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Solutions: Questions to Ask

- **Perform a strategic systems analysis**
 - **Understand the structure and competitive dynamics of the industry where your firm operates**
 - **Understand the business, firm, and industry value chains**

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Summary Thoughts

- **Decreasing costs of IT means IT is available to all firms**
- **Competition hinges on the creative use of IT since all competitors have access to IT**
- **Employees who understand IT and can use it in creative ways have high value**
- **Innovation and creative use of IT is increased by increasing the number of IT-knowledgeable employees**
- **Individualizing competitive advantage or how do you contribute to the competitive advantage of your firm?**

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Strategic Option Generator (Wiseman)

- **Target**
 - **Supplier, customer, competitor**
- **Thrust**
 - **Differentiation, cost, innovation, growth, alliance**
- **Mode**
 - **Offensive or defensive**
- **Direction**
 - **Internal users, external users, or both**
- **Execution**

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