Chapter 3

Strategic Information Systems For Competitive Advantage

Information Technology For Management 4th Edition
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Chapter Objectives

- Describe strategic information systems (SISs) and explain their advantages.
- Describe Porter's competitive forces model and how information technology helps companies improve their competitive positions.
- Describe 12 strategies companies can use to achieve competitive advantage in their industry.
- Describe Porter's value chain model and its relationship to information technology.
- Describe how linking information systems across organizations helps companies achieve competitive advantage.
- Describe global competition and global business drivers.
- Describe representative SISs and the advantage they provide to organizations.
- Discuss the challenges associated with sustaining competitive advantage.

Strategic Information System Continued

The goals, processes, products, or environmental relationships that help an organization gain a competitive advantage or reduce a competitive disadvantage.
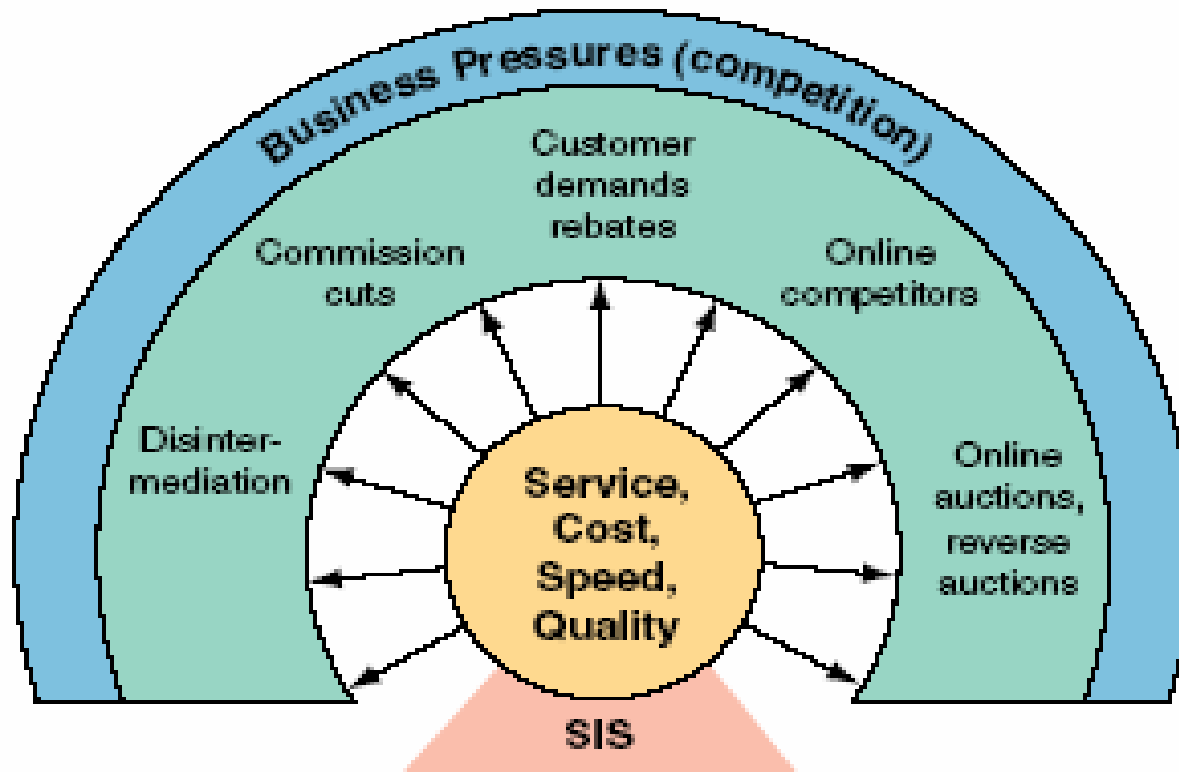
Strategic Management

Strategic management is the way an organization maps or crafts the strategy of its future operations.

- *SWOT Analysis*
- *Product Life Cycle*
- *Quality Preference*
- *...*

Strategy Evaluation & Dev

Need
Analy

High

G1 G2 G3 G4 G5 G6

D Low
Prefere

Information Technology – Supports Strategic Management

- **Innovative applications:** Create innovative applications that provide direct strategic advantage to organizations.

- **Competitive weapons:** Information systems themselves are recognized as a competitive weapon

- **Changes in processes:** IT supports changes in business processes that translate to strategic advantage

- **Links with business partners:** IT links a company with its business partners effectively and efficiently.

# Information Technology – Supports Strategic Management *(Continued)*

- **Cost reductions:** IT enables companies to reduce costs.

- **Relationships with suppliers and customers:** IT can be used to lock in suppliers and customers, or to build in switching costs.

- **New products:** A firm can leverage its investment in IT to create new products that are in demand in the marketplace.

- **Competitive intelligence:** IT provides competitive (business) intelligence by collecting and analyzing information about products, markets, competitors, and environmental changes .

Porter's Competitive Forces Model

Competitive Forces

Entry Barriers

Economies of scale
Proprietary product differences
Brand identity
Switching costs
Capital requirements
Access to distribution
Absolute cost advantages
  Proprietary learning curve
  Access to necessary inputs
  Proprietary low-cost product design
Government policy
Expected retaliation
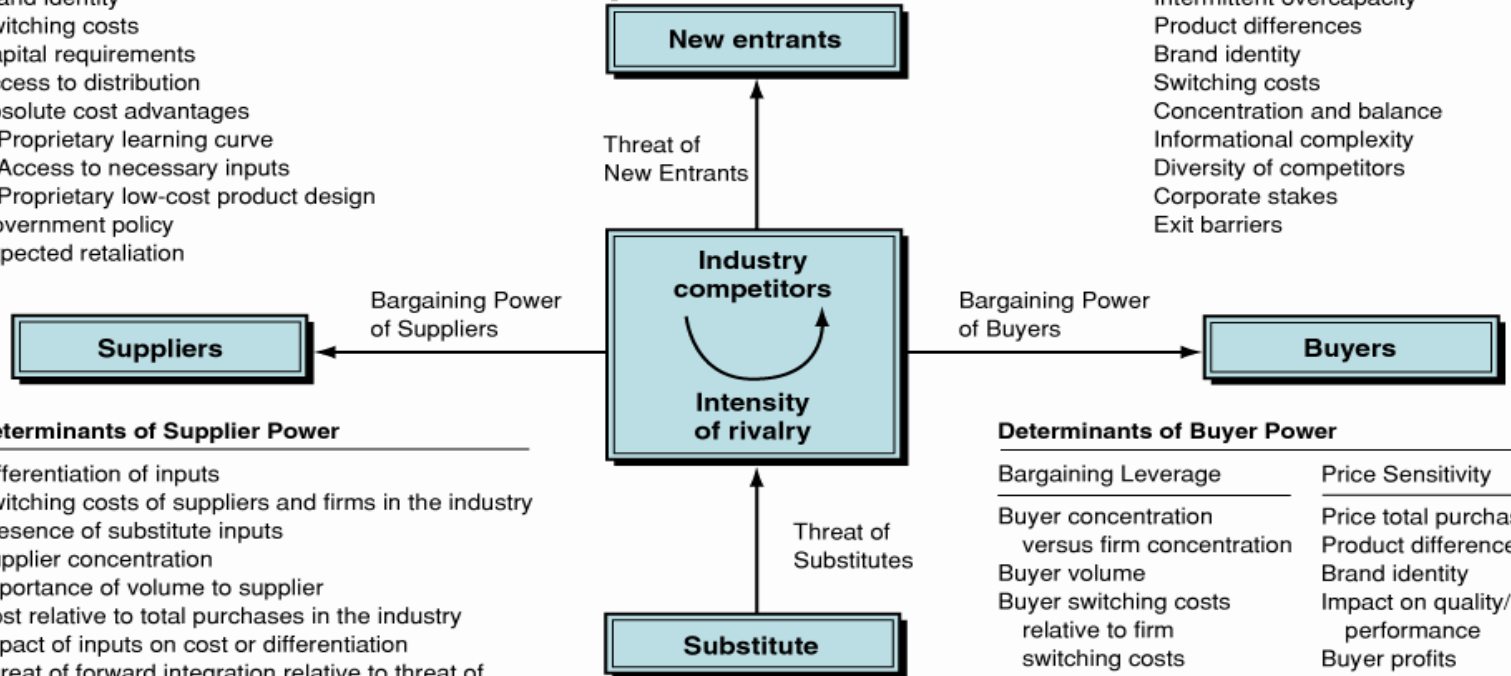
Rivalry Determinants

Industry growth
Fixed (or storage) costs/value added
Intermittent overcapacity
Product differences
Brand identity
Switching costs
Concentration and balance
Informational complexity
Diversity of competitors
Corporate stakes
Exit barriers

New entrants

Threat of
New Entrants

Bargaining Power
of Suppliers

Suppliers

Industry competitors

Intensity
of rivalry

Bargaining Power
of Buyers

Buyers

Determinants of Supplier Power

Differentiation of inputs
Switching costs of suppliers and firms in the industry
Presence of substitute inputs
Supplier concentration
Importance of volume to supplier
Cost relative to total purchases in the industry
Impact of inputs on cost or differentiation
Threat of forward integration relative to threat of
  backward integration by
  firms in the industry

Threat of
Substitutes

Substitute

Determinants of Substitution Threat

Relative price/performance
  of substitutes
Switching costs
Buyer propensity to
  substitute

Determinants of Buyer Power

Bargaining Leverage	Price Sensitivity
Buyer concentration versus firm concentration	Price total purchases
	Product differences
Buyer volume	Brand identity
Buyer switching costs relative to firm switching costs	Impact on quality/ performance
Buyer information	Buyer profits
Ability to backward integrate	Decision makers' incentives
Substitute products	
Pull-through	

We develop a Competitor Analysis

First Competitive Force

What Drives them?

What are they Doing and can do?

What are their strengths & weaknesses?

Is Competition intense?

We Analyze the Entry Barriers

Second Competitive Force

If nothing slows entry of competitors competition will become intense.

Incumbent Reaction?

What Actions are required to build market share?

Production Process?

We Analyze the Substitute Products

Third Competitive Force

Products or services from another industry enter the market

Customers becoming acclimated to using substitutes
Is the substitute market growing?

We Analyze the Supply Chain
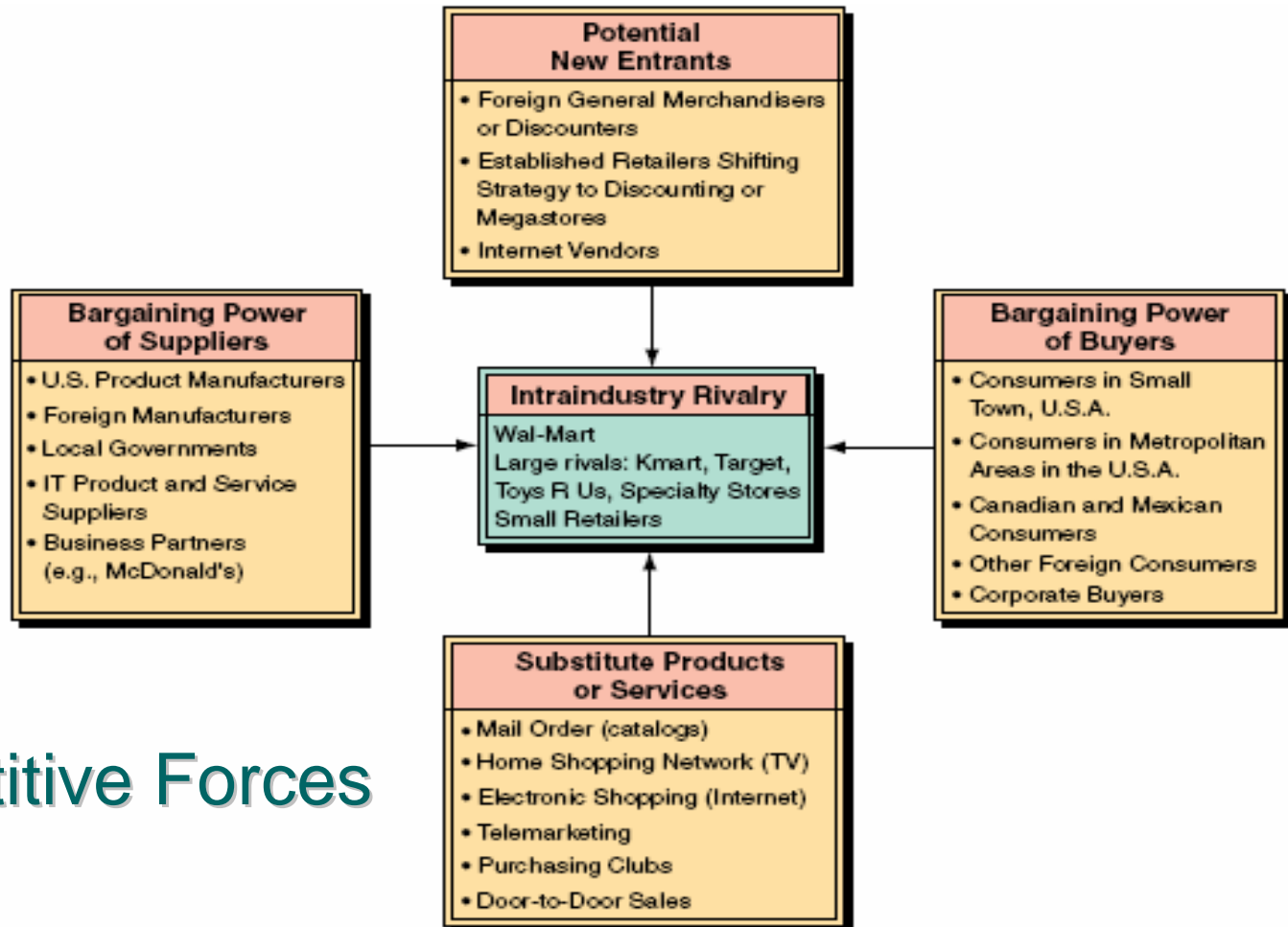
Fourth & Fifth Competitive Forces

The Suppliers

The Buyers

Who controls the transaction?

Each element adds value –
question who captures it?

Porter's Competitive Forces Model

Competitive Forces

Generic Strategies – Developing a Sustained Competitive Advantage

Analyzing the forces that influence a company's competitive position will assist management in crafting a *strategy* aimed at establishing a sustained competitive advantage. To establish such a position, a company needs to develop a strategy of performing activities differently than a competitor.

- Cost leadership strategy: Produce products and/or services at the lowest cost in the industry.

- Differentiation strategy: Offer different products, services, or product features.

- Niche strategy: Select a narrow-scope segment (niche market) and be the best in quality, speed, or cost in that market.

Generic Strategies – Developing a Sustained Competitive Advantage *(Continued)*

- Growth strategy: Increase market share, acquire more customers, or sell more products.

- Alliance strategy: Work with business partners in partnerships, alliances, joint ventures, or virtual companies.

- Innovation strategy: Introduce new products and services, put new features in existing products and services, or develop new ways to produce them.

- Operational effectiveness strategy: Improve the manner in which internal business processes are executed so that a firm performs similar activities better than rivals.

Generic Strategies – Developing a Sustained Competitive Advantage *(Continued)*

- **Customer-orientation strategy:** Concentrate on making customers happy

- **Time strategy:** Treat time as a resource, then manage it and use it to the firm's advantage.

- **Entry-barriers strategy:** Create barriers to entry.

- **Lock in customers or suppliers strategy:** Encourage customers or suppliers to stay with you rather than going to competitors.

- **Increase switching costs strategy:** Discourage customers or suppliers from going to competitors for economic reasons.

Our goal is to perform activities differently than a competitor. Those activities can be linked in a Value Chain Model.

The Value Chain

According to the value chain model (Porter, 1985), the activities conducted in any organization can be divided into two parts: primary activities and support activities.

- Primary activities are those activities in which materials are purchased, processed into products, and delivered to customers. Each adds value to the product or service hence the value chain.
  - Inbound logistics (inputs)
  - Operations (manufacturing and testing)
  - Outbound logistics (storage and distribution)
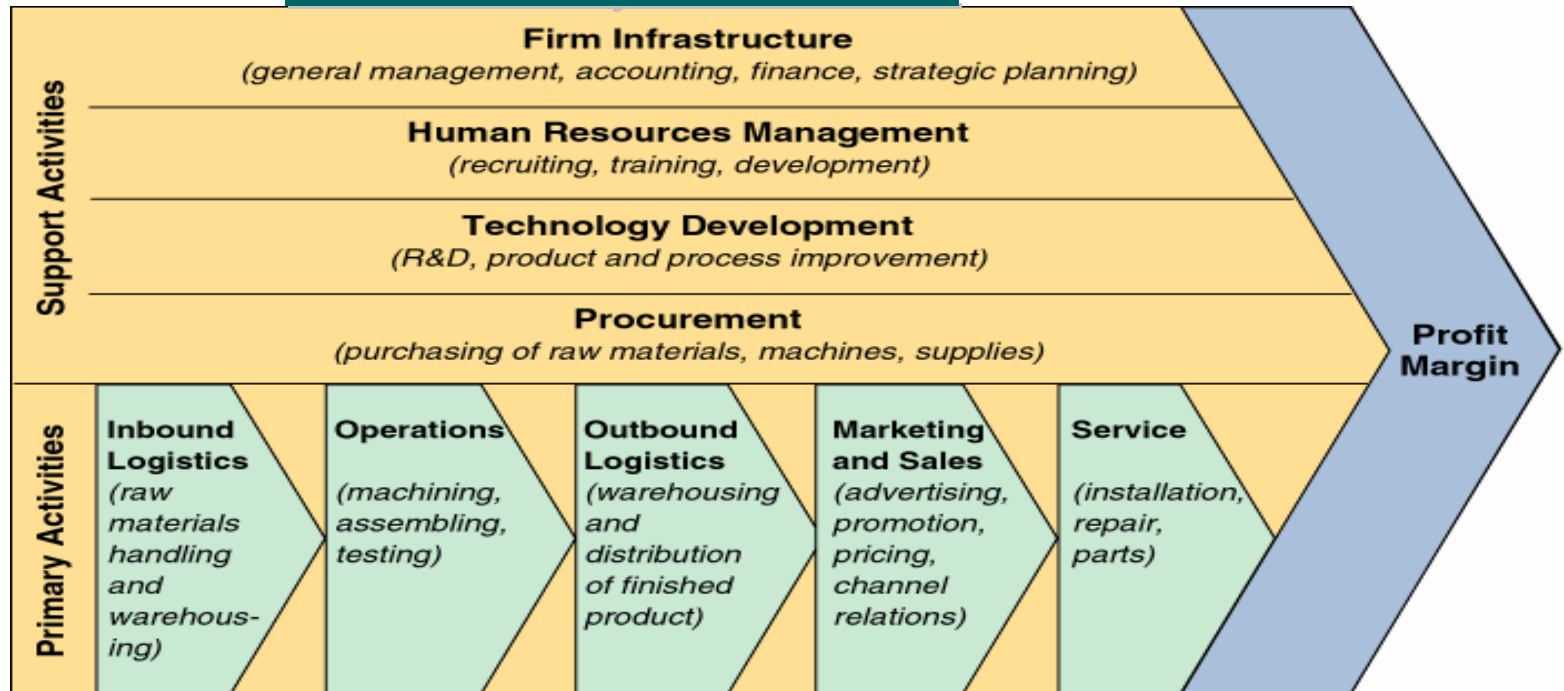 - Marketing and sales
  - Service

The Value Chain *(Continued)*

- ○ Unlike the primary activities, which directly add value to the product or service, the support activities are operations that support the creation of value (primary activities)

  - ○ The firm's infrastructure (accounting, finance, management)

  - ○ Human resources management

  - ○ Technology development (R&D)

  - ○ Procurement

The initial purpose of the value chain model was to analyze the internal operations of a corporation, in order to increase its efficiency, effectiveness, and competitiveness. We can extend that company analysis, by systematically evaluating a company's key processes and core competencies to eliminate any activities that do not add value to the product.

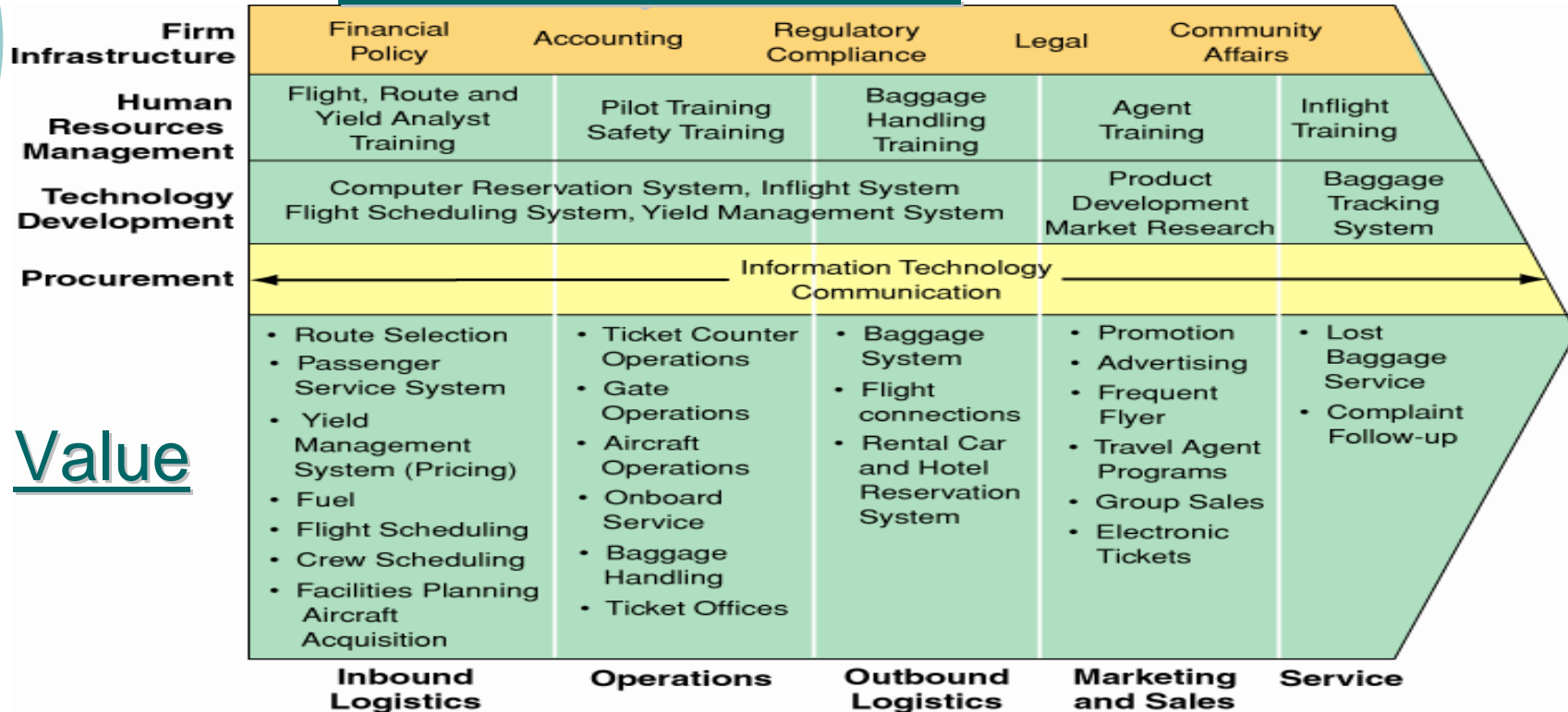# The Value Chain *(Continued)*

Secondary Activities
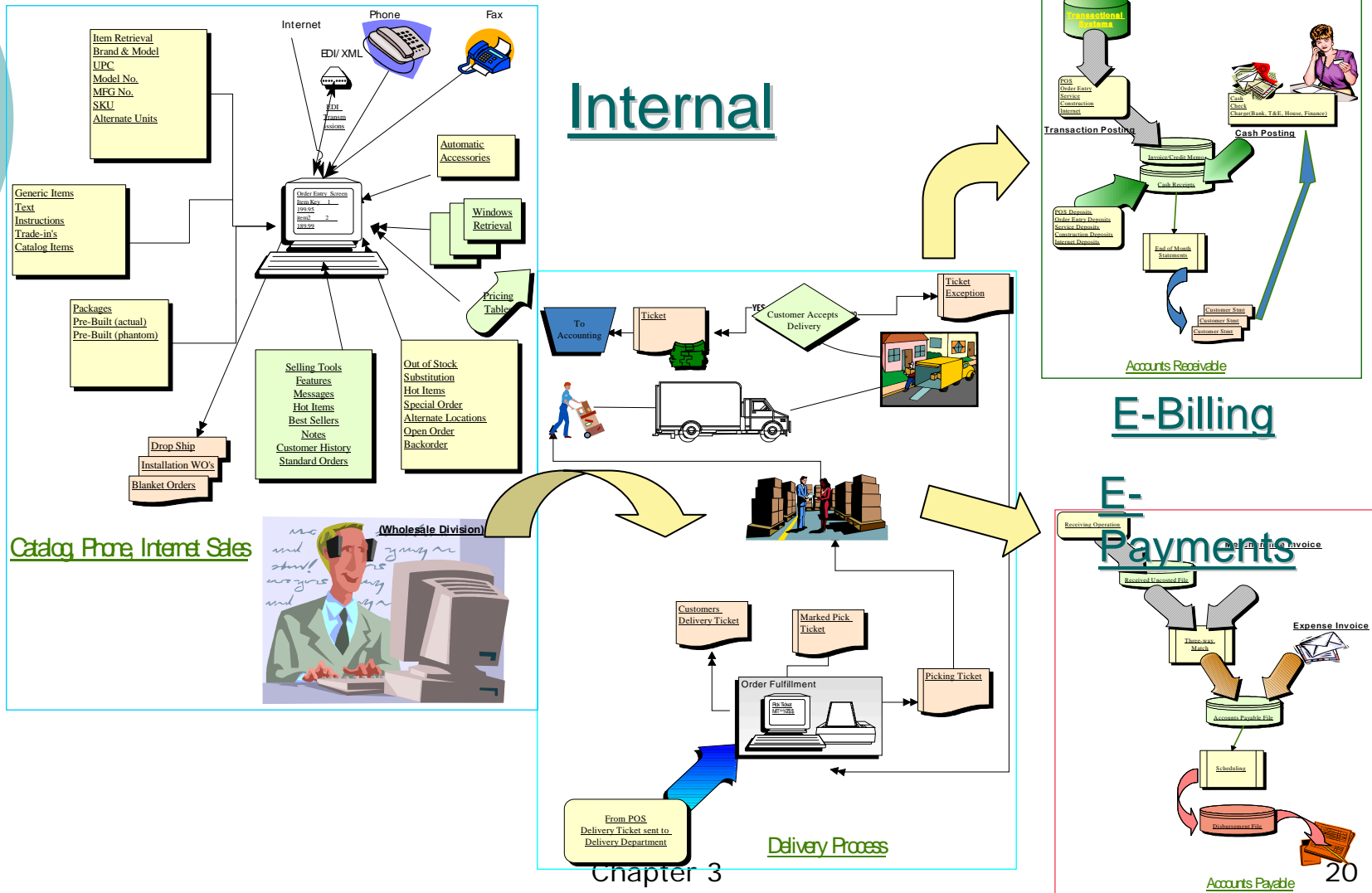
Value

Primary Activities

The Value Chain *(Continued)*

Secondary Activities

Firm Infrastructure	Financial Policy	Accounting	Regulatory Compliance	Legal	Community Affairs
Human Resources Management	Flight, Route and Yield Analyst Training	Pilot Training Safety Training	Baggage Handling Training	Agent Training	Inflight Training
Technology Development	Computer Reservation System, Inflight System Flight Scheduling System, Yield Management System			Product Development Market Research	Baggage Tracking System
Procurement	Information Technology Communication				

Value

Inbound Logistics	Operations	Outbound Logistics	Marketing and Sales	Service
• Route Selection • Passenger Service System • Yield Management System (Pricing) • Fuel • Flight Scheduling • Crew Scheduling • Facilities Planning Aircraft Acquisition	• Ticket Counter Operations • Gate Operations • Aircraft Operations • Onboard Service • Baggage Handling • Ticket Offices	• Baggage System • Flight connections • Rental Car and Hotel Reservation System	• Promotion • Advertising • Frequent Flyer • Travel Agent Programs • Group Sales • Electronic Tickets	• Lost Baggage Service • Complaint Follow-up

Primary Activities

The Value Chain *(Continued)*

Internal

E-Billing

E-Payments

Catalog, Phone, Internet Sales

Delivery Process

Accounts Receivable

Accounts Payable

The Value System

A firm's value chain is part of a larger stream of activities, which Porter calls a value system. A *value system* includes the suppliers that provide the inputs necessary to the firm and their value chains. This also is the basis for the *supply chain management* concept. Many of these alliances and business partnerships are based on Internet connectivity are called *interorganizational information systems* (IOSs)

- These Internet-based EDI systems offer strategic benefits
    - Faster business cycle (PO to Receiving)
    - Automation of business procedures (Automated Replenishment)
    - Reduced operational costs
    - Greater advantage in a fierce competitive environment

Global Competition

Many companies are operating in a *global environment*. Doing business in this environment is becoming more challenging as the political environment improves and as telecommunications and the Internet open the door to a large number of buyers, sellers, and competitors worldwide. This increased competition is forcing companies to look for better ways to compete globally.

- Global dimensions along which management can globalize
  - **Product**
  - **Markets & Placement**
  - **Promotion**
  - **Where value is added to the product**
  - **Competitive strategy**
  - **Use of non-home-country personnel - labor**
  Multidomestic Strategy: Zero standardization along the global dimensions. *Global Strategy:* Complete standardization along the seven global dimensions.

Sustaining a Strategic Information System (SIS)

Strategic information systems are designed to establish a profitable and sustainable position against the competitive forces in an industry. Due to advances in systems development it has become increasingly difficult to sustain an advantage for an extended period. Experience also indicates that information systems, by themselves, can rarely provide a sustainable competitive advantage. Therefore, the major problem that companies now face is how to sustain their competitive advantage.

○ One popular approach is to use *inward systems* that are not visible to competitors. These proprietary systems allow the company to perform the activities on their value chain differently than their competitors.

MANAGERIAL ISSUES

- **Risk in implementing strategic information systems.** The investment involved in implementing an SIS is high. Frequently these systems represent a major step forward and utilize new technology. Considering the contending business forces, the probability of success, and the cost of investment, a company considering a new strategic information system should undertake a formal risk analysis.

- **Planning.** Planning for an SIS is a major concern of organizations (Earl, 1993). Exploiting IT for competitive advantage can be viewed as one of four major activities of SIS planning. The other three are aligning investment in IS with business goals, directing efficient and effective management of IS resources and developing technology policies and architecture.

- **Sustaining competitive advantage.** As companies become larger and more sophisticated, they develop sufficient resources to quickly duplicate the successful systems of their competitors. Sustaining strategic systems is becoming more difficult and is related to the issue of being a risk-taking leader versus a follower in developing innovative systems.

- **Ethical issues.** Gaining competitive advantage through the use of IT may involve actions that are unethical, illegal, or both. Companies use IT to monitor the activities of other companies that may invade the privacy of individuals working there. In using business intelligence (e.g., spying on competitors), companies may engage in tactics such as pressuring competitors' employees to reveal information or using software that is the intellectual property of other companies without the knowledge of these other companies.

Chapter 3