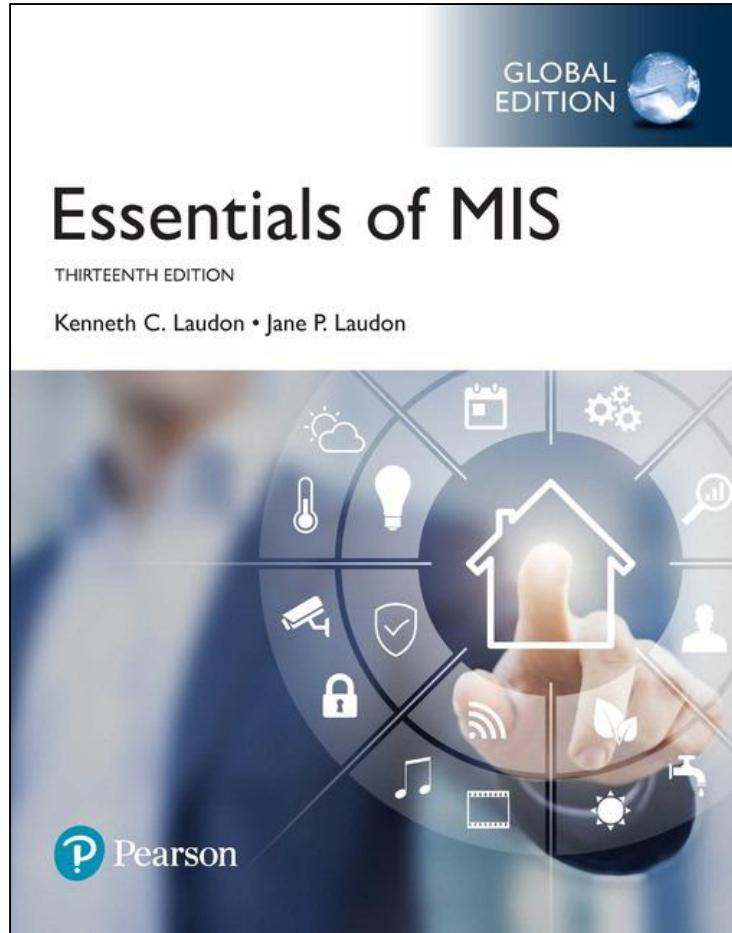# Essentials of Management Information Systems

Thirteenth Edition

Chapter 3

Achieving Competitive Advantage with Information Systems

Learning Objectives

3.1 How do Porter's competitive forces model, the value chain model, synergies, core competencies, and network-based strategies help companies use information systems for competitive advantage?

3.2 How do information systems help businesses compete globally?

3.3 How do information systems help businesses compete using quality and design?

3.4 What is the role of business process management (BPM) in enhancing competitiveness?

3.5 How will MIS help my career?

Porter's Competitive Forces Model

- **Five competitive forces shape fate of firm**
  - Traditional competitors
  - New market entrants
  - Substitute products and services
  - Customers
  - Suppliers

New market entrants

Substitute products

The Firm ⟷ Competitors

Suppliers

Customers

Ltd.
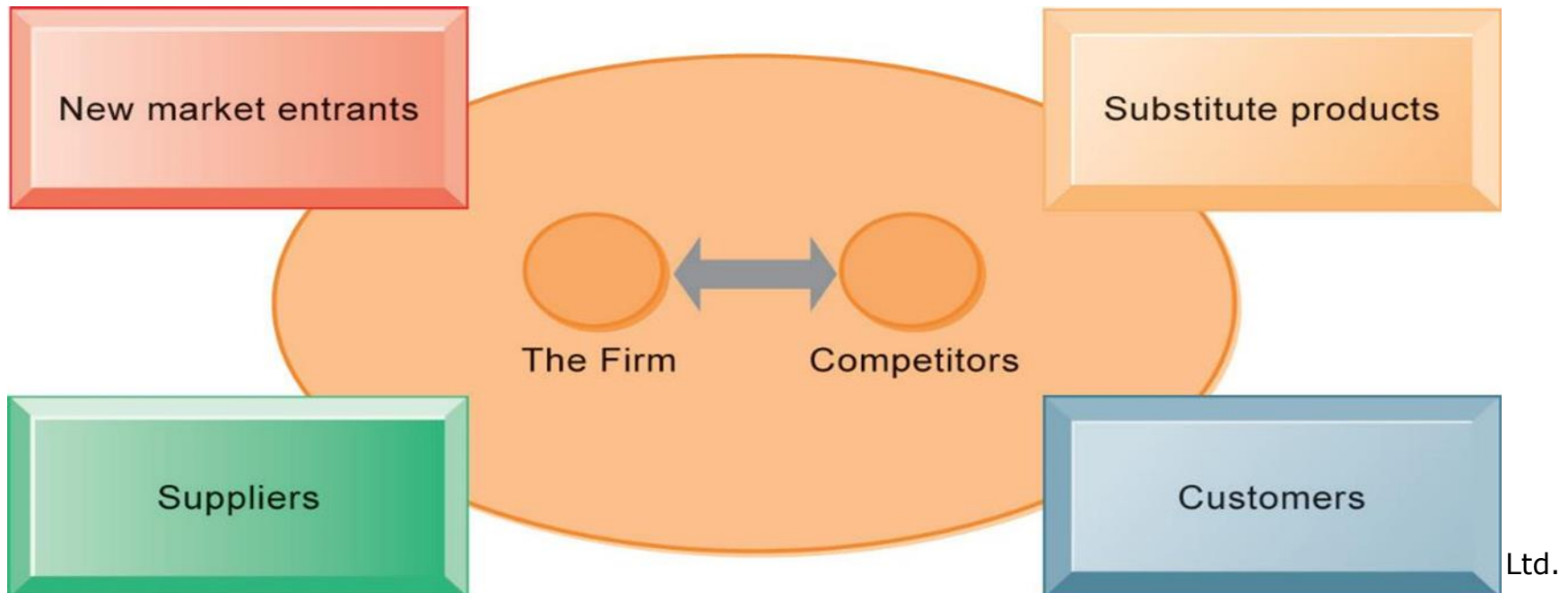
Information System Strategies for Dealing with Competitive Forces (1 of 3)

- Basic strategy: Align IT with business objectives
  - 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

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

Information System Strategies for Dealing with Competitive Forces (2of 3)

- **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
    - E.g., Nike's NIKEiD program for customized sneakers

- **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

Information System Strategies for Dealing with Competitive Forces (3 of 3)

- 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 supplies to plants, 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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The Internet's Impact on Competitive Advantage

- Enables new products and services

- Encourages substitute products

- Lowers barrier to entry

- Changes balance of power of customers and suppliers

- Transforms some industries

- Creates new opportunities for creating new markets, building brands, and large customer bases

- Smart products and the Internet of Things

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
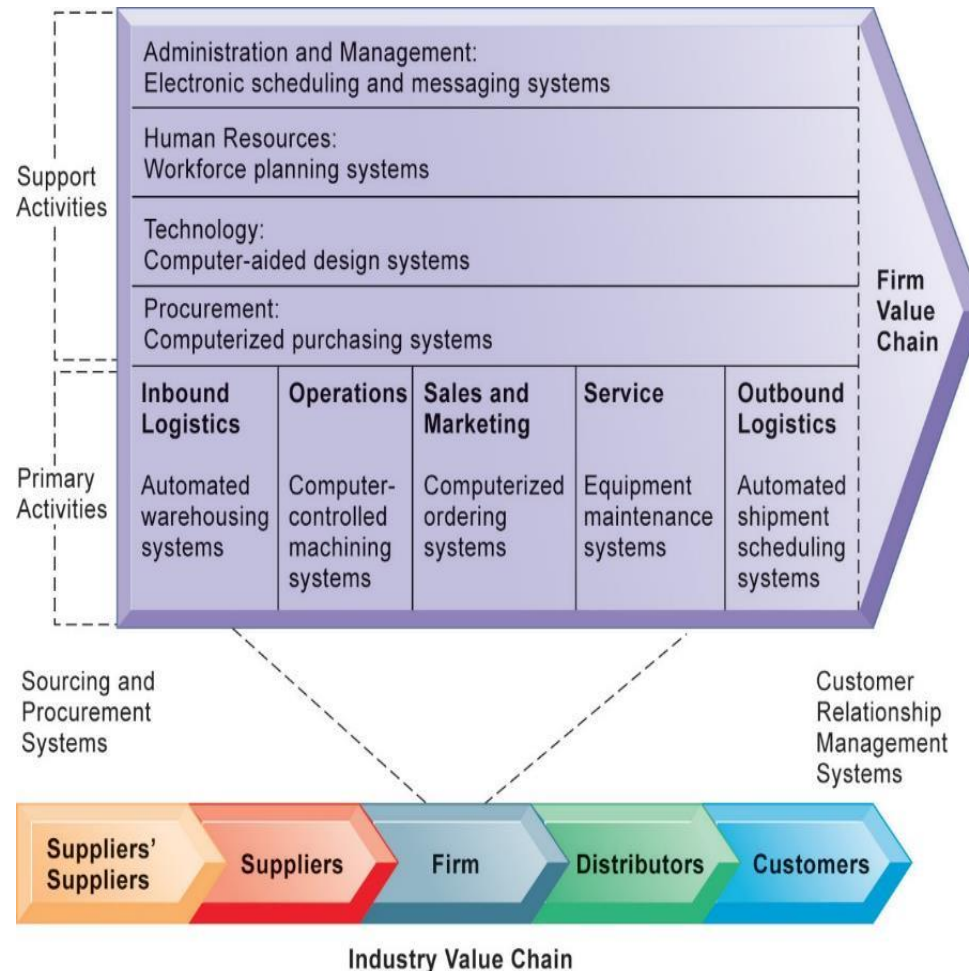
The Value Web

- A firm's value chain is linked to the value chains of its suppliers, distributors, and customers.

- Value web
  - Collection of independent firms that use information technology to coordinate their value chains to produce a product collectively.
  - Value webs are flexible and adapt to changes in supply and demand.
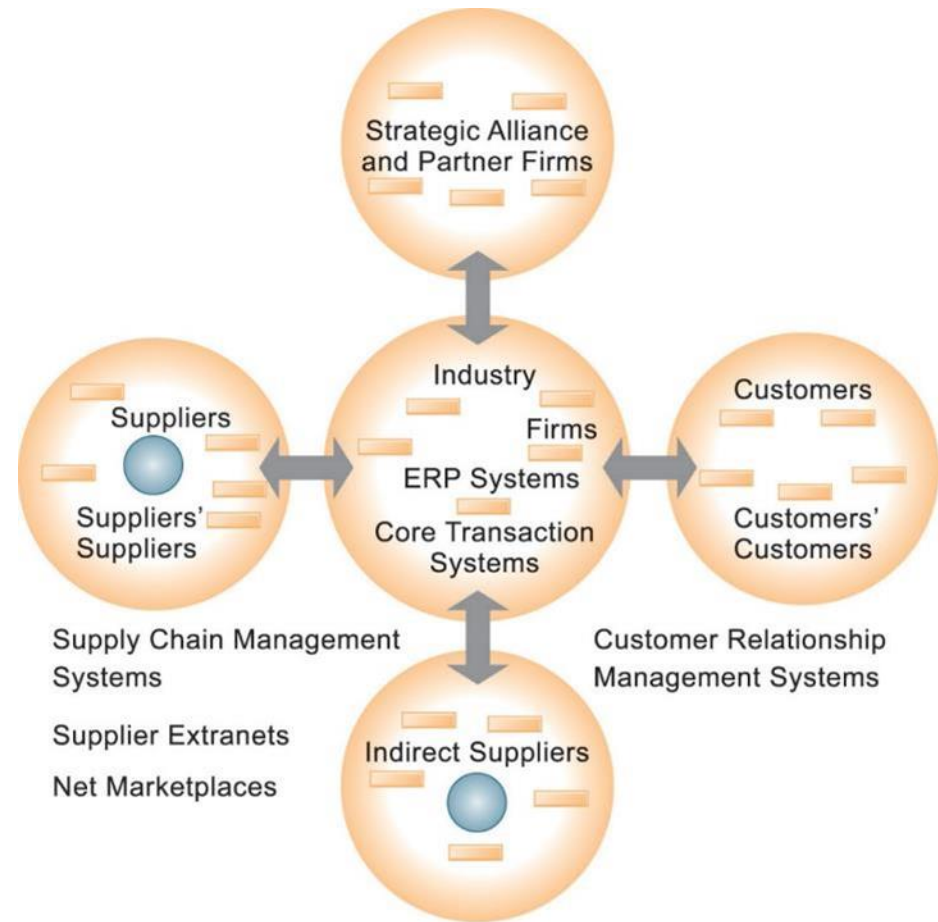
Synergies, Core Competencies, and Network-Based Strategies

- Large corporations comprised of business units
  - Financial returns overall are tied to performance of business units

- Information systems improve performance of business units by promoting
  - Communication
  - Synergies
  - Core competencies

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

Core Competency

- Activities for which firm is world-class leader
  - E.g., world's best miniature parts designer, best package delivery service, etc

- Relies on knowledge gained over 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.

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

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)

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

Apple iPhone's Global Supply Chain
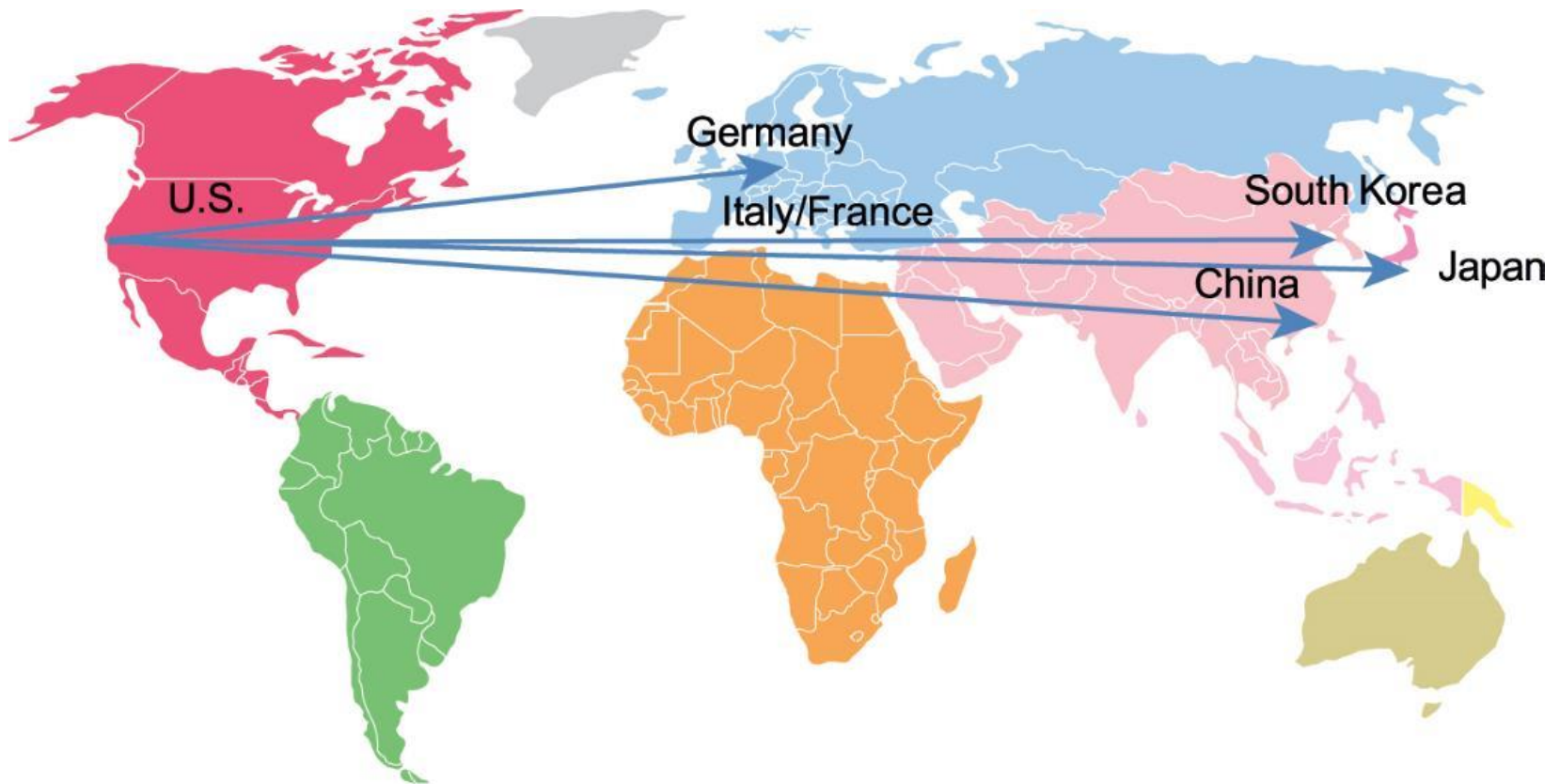
Global Business and System Strategies

- Domestic exporters

- Multinationals

- Franchisers

- Transnationals

Global System Configuration

- Centralized systems

- Duplicated systems

- Decentralized systems

- Networked systems

Global Business Organization Systems Configurations

System Configuration	Strategy			
	Domestic Exporter	Multinational	Franchiser	Transnational
Centralized	X			
Duplicated			X	
Decentralized	x	X	x	
Networked		x		X

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

How Information Systems Improve Quality

- Reduce cycle time and simplify production

- Benchmark

- 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

# What is Business Process Management (BPM)?

- Technology alone is often not enough to improve business

- Organizational changes often necessary
    - Minor changes in work habits
    - Redesigning entire business processes

- Aims to continuously improve processes

- Uses variety of tools and methodologies to
    - Understand existing processes
   - Design and optimize new processes

Steps in BPM

- Business Process Management: A methodology used by organizations to continuously improve end-to-end business processes

  - Internal and cross-organizational processes

  - Benefits include:
    - Enhanced process agility
    - Process alignment with industry "best practices"
    - Increased process efficiencies

1. Identify processes for change
2. Analyze existing processes
3. Design new process
4. Implement new process
5. Continuous measurement

As-Is Business Process for Purchasing a Book from a Physical Bookstore
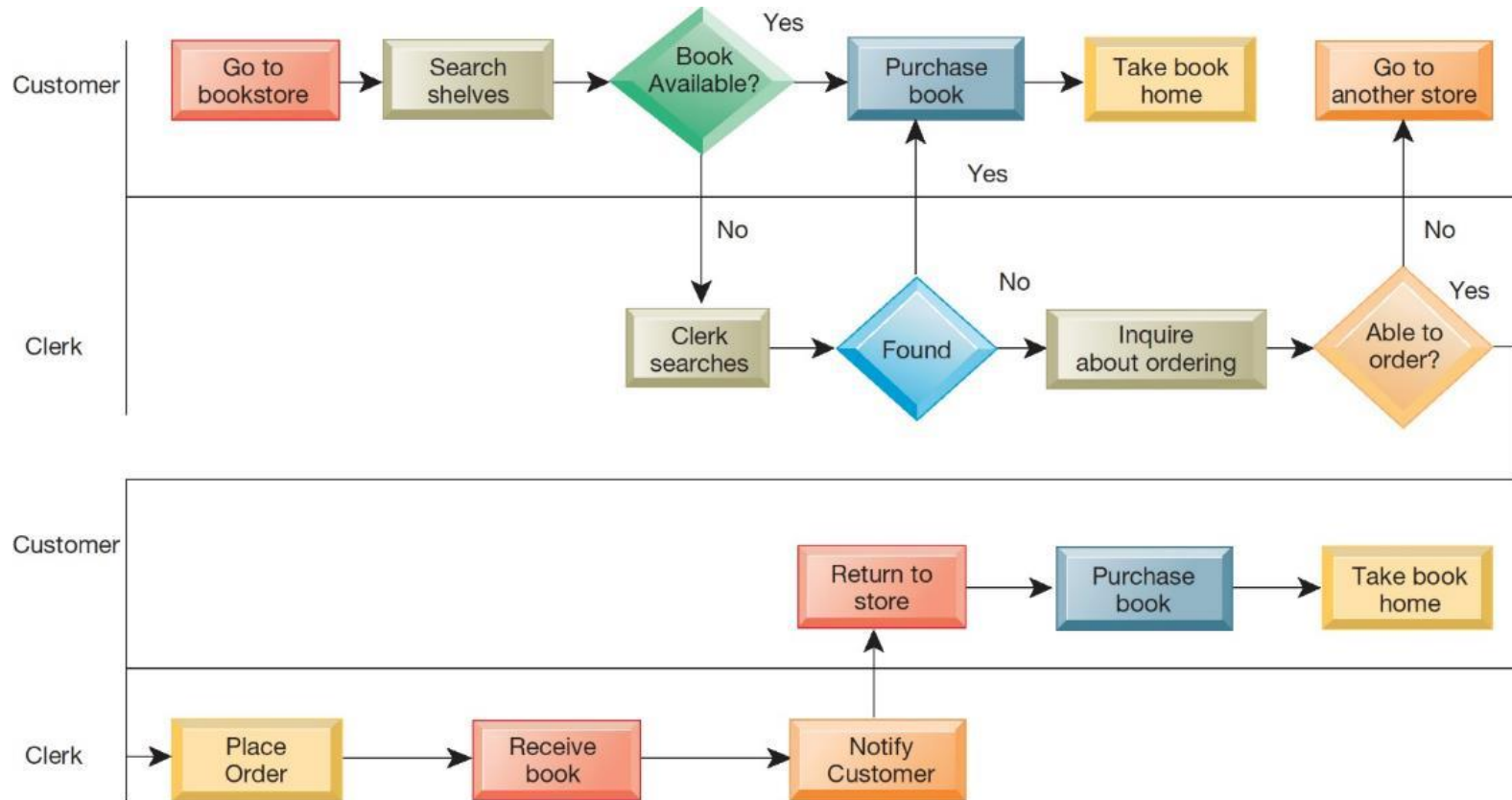
Redesigned Process for Purchasing a Book Online
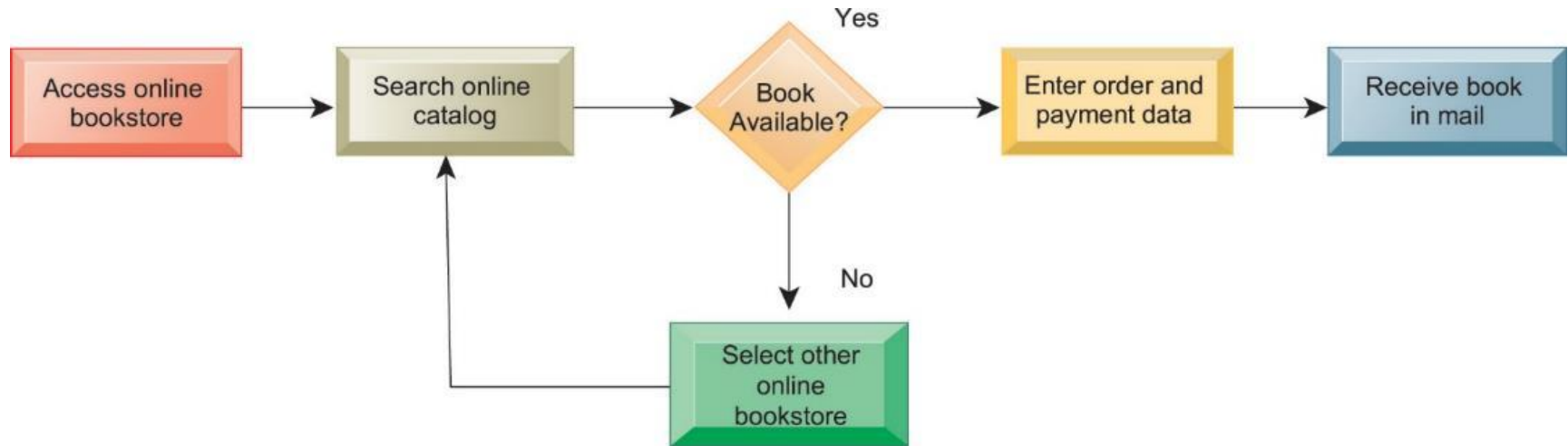
Business Process Reengineering

- 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

- Can produce more organizational resistance to change

How Will MIS Help My Career?

- The Company: A+ Superior Data Quality

- Position Description

- Job Requirements

- Interview Questions

Video Cases

- Case 1: GE Becomes a Digital Firm: The Emerging Industrial Internet