

MIS 215 221 Learning outcome



“Tell me and I will forget,

show me and I may remember;

involve me and I will understand.”



TALK TO ME AND I
WILL LISTEN



SHOW ME AND I
WILL OBSERVE

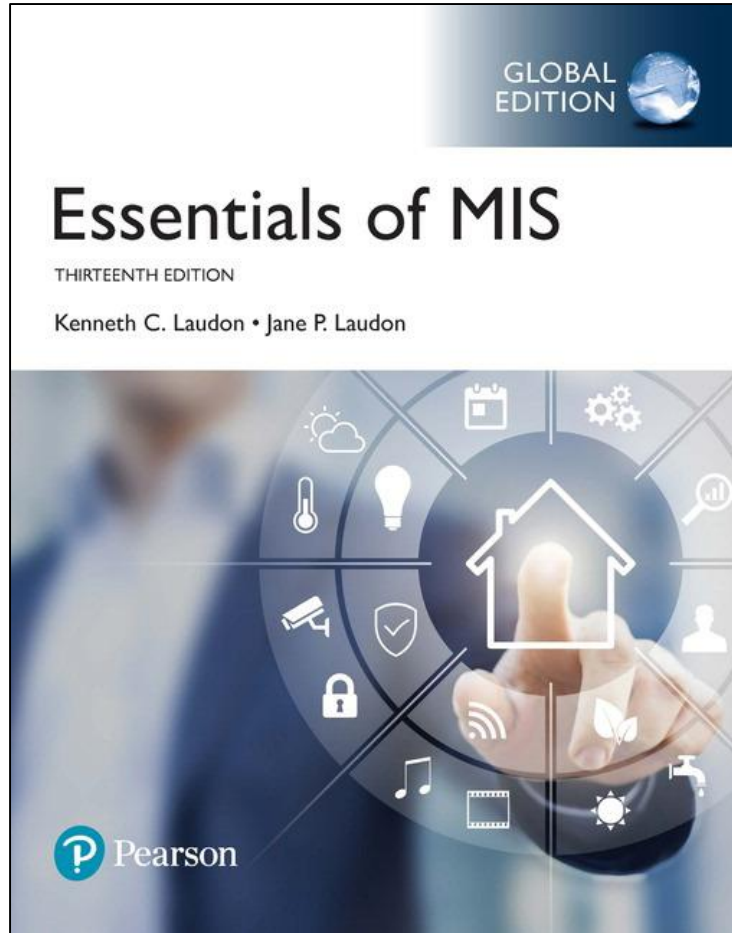


INVOLVE ME AND I
WILL LEARN



Essentials of Management Information Systems

Thirteenth Edition



Chapter 1

Business Information Systems in Your Career

Learning Objectives

- 1.1** Why are information systems so essential for running and managing a business today?
- 1.2** What exactly is an information system? How does it work? What are its people, organizational, and technology components?
- 1.3** How will a four-step method for business problem solving help you solve information system-related problems?
- 1.4** What information systems skills and knowledge are essential for business careers?
- 1.5** How will MIS help my career?

Premier League: The Power of IT Analytics

- Problem
 - Improving revenue and player training through Big Data.
- Solutions
 - The Football Manager game simulation as a database
 - A system of player-performance-enhancing IT analytics apps
- Use of networked sensors and powerful analytics to drive business operations and management decisions
- Demonstrates how technology can be used to improve consumer experience
- Illustrates why information systems are so essential today

How Information Systems are Transforming Business

- 12½ trillion hours spent online, a new milestone in internet adoption, and new records for social media use...
(<https://datareportal.com/reports/digital-2022-global-overview-report>)
- Internet Has 364.6 Million Domain Name Registrations at the End of the Third Quarter of 2021
(<https://www.businesswire.com/news/home/20211209006054/en/Internet-Has-364.6-Million-Domain-Name-Registrations-at-the-End-of-the-Third-Quarter-of-2021>)
- Digital Advertising Soared 35% to \$189 Billion in 2021 According to the IAB Internet Advertising Revenue Report
(<https://www.iab.com/news/digital-advertising-soared-35-to-189-billion-in-2021-according-to-the-iab-internet-advertising-revenue-report/>)
- New laws require businesses to store more data for longer periods.
- Changes in business result in changes in jobs and careers.

What's New in Management Information Systems?

- New technologies
 - Cloud computing, big data, Internet of Things
 - Mobile digital platform
- Management
 - Managers use social networks, collaboration
 - Business intelligence applications accelerate
 - Virtual meetings proliferate
- Organizations
 - Social business
 - Telework gains momentum
 - Co-creation of value, collaboration across firms

Globalization Challenges and Opportunities: A Flattened World

- Internet and global communications have greatly reduced economic and cultural advantages of developed countries.
 - Drastic reduction of costs of operating and transacting on global scale
 - Competition for jobs, markets, resources, ideas
 - Dependence on imports and exports
 - Requires new understandings of skills, markets, opportunities

Business Drivers of Information Systems

- Businesses invest in IT to achieve six important business objectives.
 1. Operational excellence
 2. New products, services, and business models
 3. Customer and supplier intimacy
 4. Improved decision making
 5. Competitive advantage
 6. Survival

Operational Excellence

- Improved efficiency results in higher profits.
- Information systems and technologies help improve efficiency and productivity.
- Example: Walmart
 - Power of combining information systems and best business practices to achieve operational efficiency—and over \$473 billion in sales in 2014
 - Most efficient retail store in world as result of digital links between suppliers and stores

New Products, Services, and Business Models

- Information systems and technologies enable firms to create new products, services, and business models.
- Business model: how a company produces, delivers, and sells its products and services
- Example: Apple
 - Transformed old model of music distribution with iTunes
 - Constant innovations—iPod, iPhone, iPad, etc.

Customer and Supplier Intimacy

- Customers who are served well become repeat customers who purchase more.
 - Mandarin Oriental hotel
 - Uses IT to foster an intimate relationship with its customers, keeping track of preferences, and so on
- Close relationships with suppliers result in lower costs.
 - JCPenney
 - IT to enhance relationship with supplier in Hong Kong

Improved Decision Making

- If managers rely on forecasts, best guesses, and luck, they will misallocate employees, services, and inventory.
- Real-time data improves ability of managers to make decisions.
- Verizon: Web-based digital dashboard to update managers with real-time data on customer complaints, network performance, and line outages

Competitive Advantage

- Often results from achieving previous business objectives
- Advantages over competitors:
 - Charging less for superior products, better performance, and better response to suppliers and customers
 - Examples: Apple, Walmart, UPS are industry leaders because they know how to use information systems for this purpose

Survival

- Businesses may need to invest in information systems out of necessity; simply the cost of doing business.

What is an Information System?)

- Information technology: the hardware and software a business uses to achieve objectives
- Information system: interrelated components that manage information to:
 - Support decision making and control
 - Help with analysis, visualization, and product creation
- Data: streams of raw facts
- Information: data shaped into meaningful, useful form
- Activities in an information system that produce information:
 - Input
 - Processing
 - Output
 - Feedback
- Sharp distinction between **computer** or **computer program** versus **information system**

Figure 1.1 Data and Information

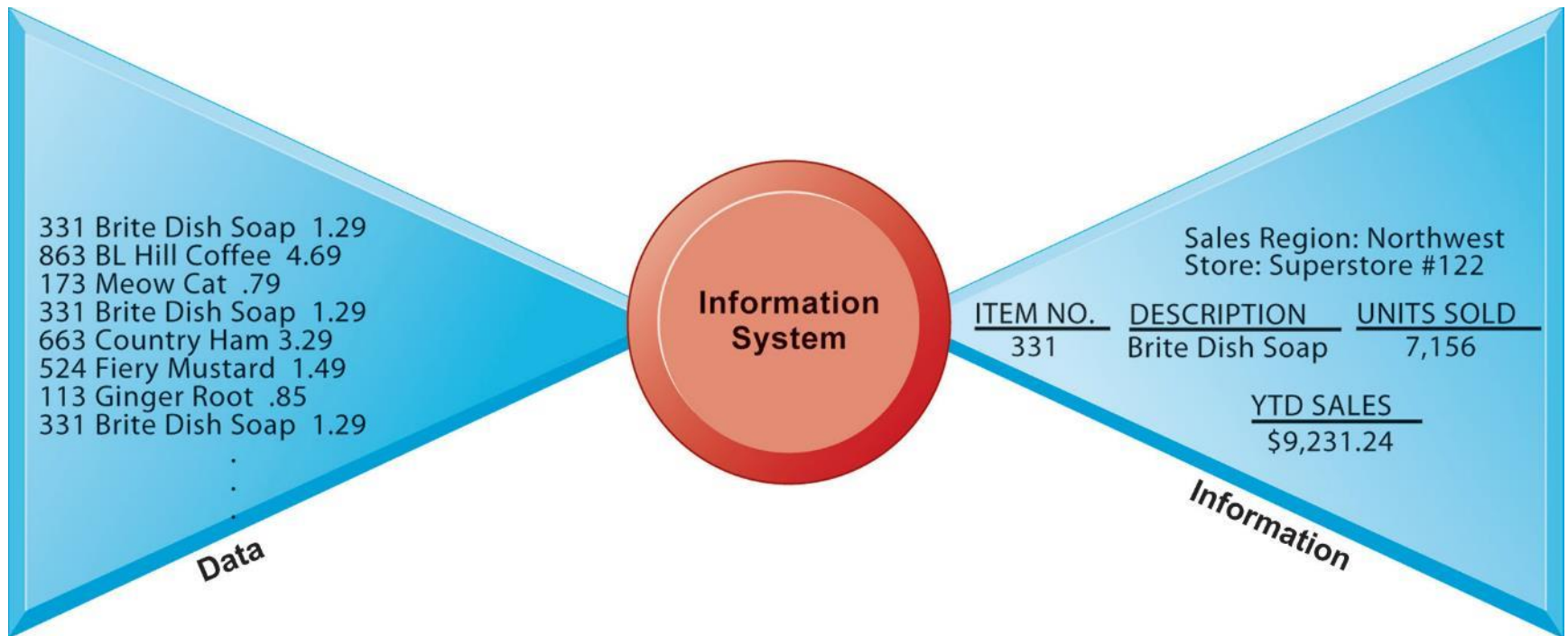
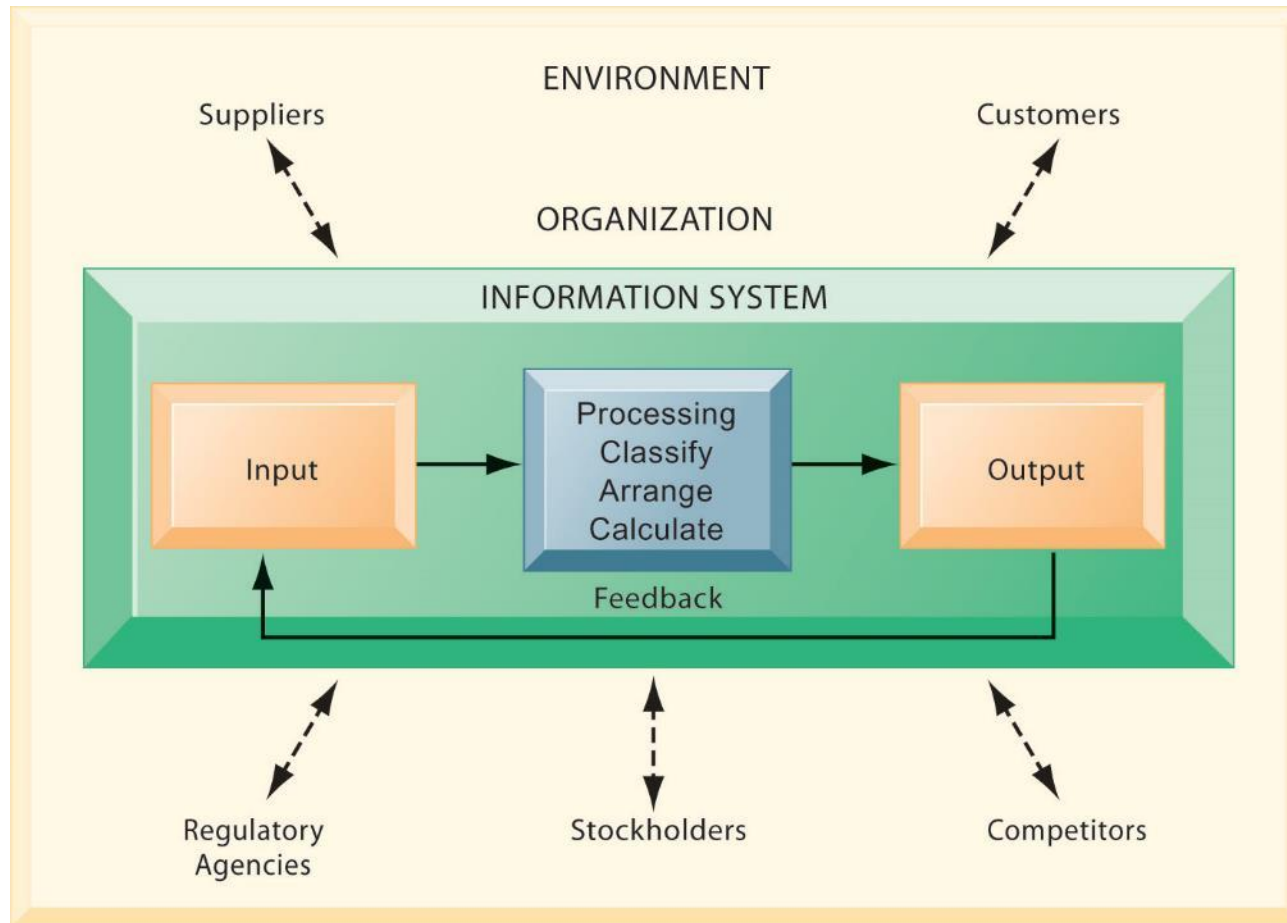


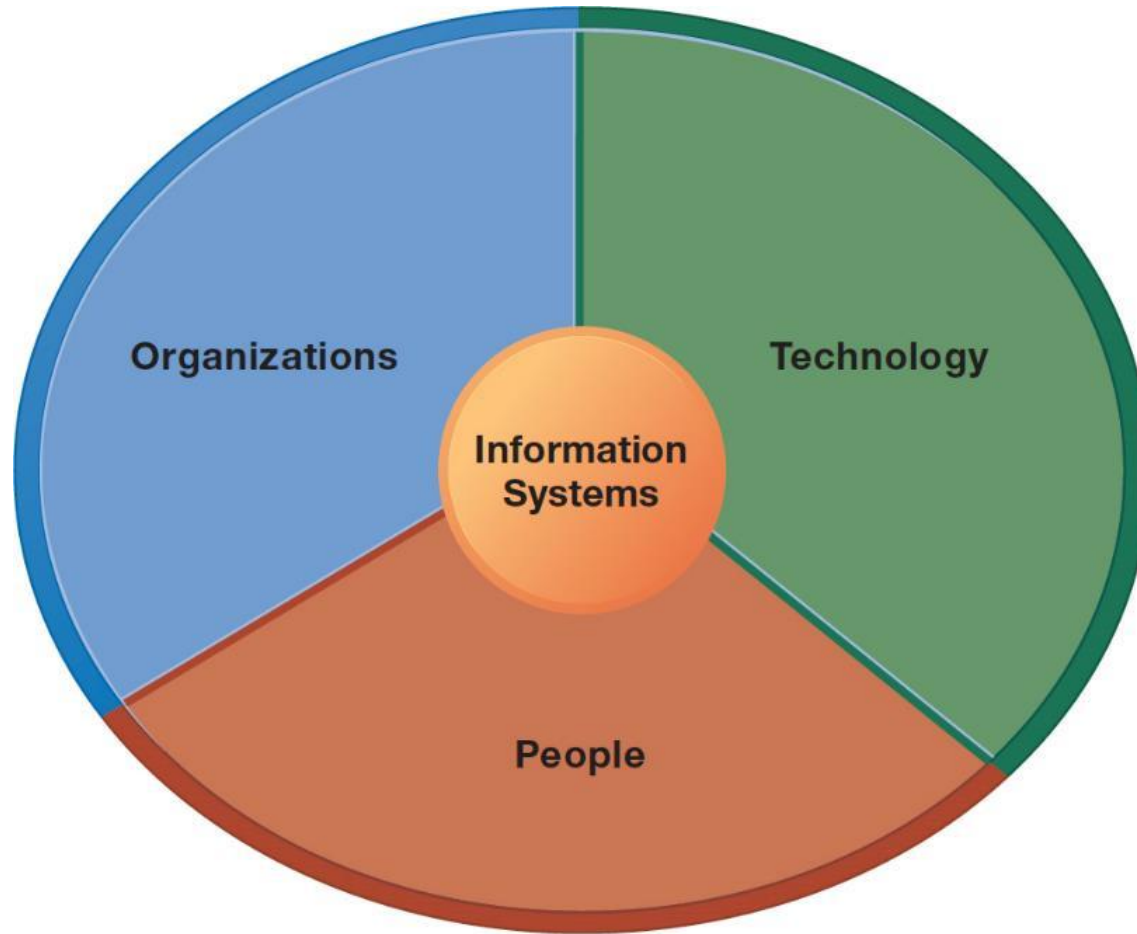
Figure 1.2 Functions of an Information System



The Role of People and Organizations

- Information systems literacy
 - Includes behavioral and technical approach
- Computer literacy
 - Focuses mostly on knowledge of IT
- Management information systems (MIS)
 - Focuses on broader information systems literacy
 - Issues surrounding development, use, impact of information systems used by managers and employees

Figure 1.3 Information Systems are More Than Computers



Dimensions of Information Systems (1 of 3)

Organizations

- Coordinate work through structured hierarchy and business processes
- Business processes: related tasks and behaviors for accomplishing work
- Examples: fulfilling an order, hiring an employee
- May be informal or include formal rules
- Culture embedded in information systems
- Example: U P S's concern with placing service to customer first

• People

- Information systems require skilled people to build, maintain, and use them.
- Employee attitudes affect ability to use systems productively.
- Role of managers:
 - Perceive business challenges
 - Set organizational strategy
 - Allocate human and financial resources
 - Creative work: new products, services

Technology

I T Infrastructure: Foundation or platform that information systems are built on

Computer hardware

Computer software

Data management technology

Networking and telecommunications technology

Internet and Web, extranets, intranets

Voice, video communications

The Problem-Solving Approach

- Few business problems are simple or straightforward.
- Most business problems involve a number of major factors that can fall into three main categories:
 - Organization
 - Technology
 - People

A Model of the Problem-Solving Approach (1 of 4)

- Problem solving: four-step process

1. Problem identification
2. Solution design
3. Choice
4. Implementation

A Model of the Problem-Solving Approach (2 of 4)

- Problem identification includes:
 - Agreement that problem exists
 - Definition of problem
 - Causes of problem
 - What can be done given resources of firm

A Model of the Problem-Solving Approach (3 of 4)

Typical organizational problems

Outdated business processes
Unsupportive culture and attitudes
Political in-fighting
Turbulent business environment, change
Complexity of task
Inadequate resources

• Typical technology problems

- Insufficient or aging hardware
- Outdated software
- Inadequate database capacity
- Insufficient telecommunications capacity
- Incompatibility of old systems with new technology
- Rapid technological change

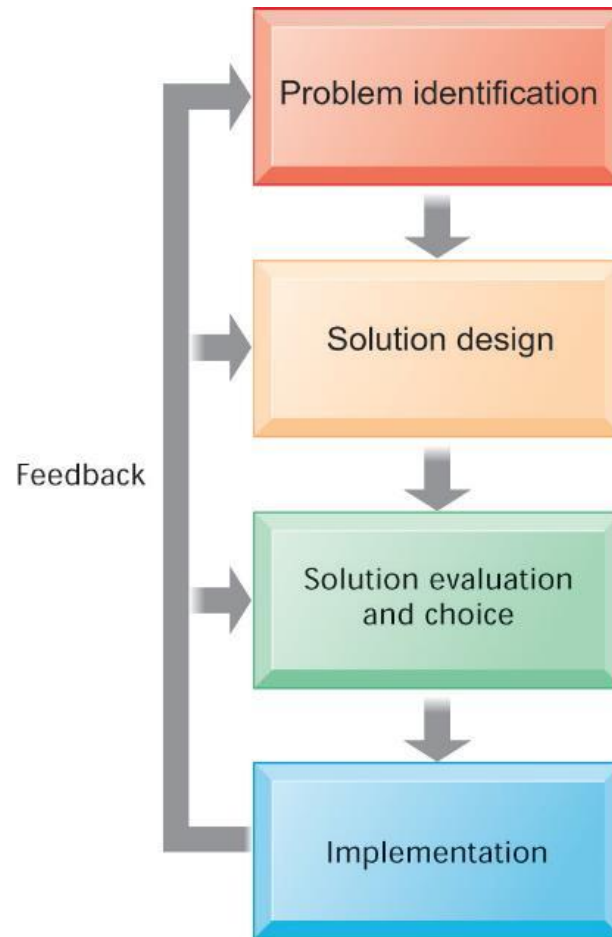
Typical people problems

Lack of employee training
Difficulties of evaluating performance
Legal and regulatory compliance
Work environment, ergonomics
Poor or indecisive management
Lack of employee support and participation

A Model of the Problem-Solving Approach (4 of 4)

- Solution design
 - Often many possible solutions
 - Consider as many as possible to understand range of solutions
- Solution Evaluation and Choice
 - Factors include
 - Cost
 - Feasibility given resources and skills
 - Length of time needed to implement solution
- Implementation
 - Building or purchasing solution
 - Testing solution, employee training
 - Change management
 - Measurement of outcomes
 - Feedback, evaluation of solution
- Problem solving is a continuous process, not a single event
 - Sometimes chosen solution doesn't work or needs adjustment

Figure 1.4 Problem Solving is a Continuous Four-Step Process



The Role of Critical Thinking in Problem Solving (1 of 2)

- Without critical thinking, easy to jump to conclusions, misjudge a problem, and waste resources
- Critical thinking:
 - Sustained suspension of judgment with an awareness of multiple perspectives and alternatives
 - Ability to collect and analyze data that might help understand the nature of the problem; a “data driven” approach

The Role of Critical Thinking in Problem Solving (2 of 2)

- Four elements of critical thinking:
 1. Maintaining doubt and suspending judgment
 2. Being aware of different perspectives
 - Including technology, organization, and people perspectives
 3. Testing alternatives and letting experience guide
 4. Being aware of organizational and personal limitations

The Connections Among Business Objectives, Problems, and Solutions

- When firms cannot achieve business objectives these objectives become challenges.
- Information systems often present solutions, partially or fully, to these challenges.

How Information Systems Will Affect Business Careers (1 of 9)

- Success in today's job market requires a broad set of skills.
- Job candidates must have problem-solving skills as well as technical skills so that they can complete specific tasks.
- The service sector will account for 95 percent of the new jobs that are created or open up by 2022.

How Information Systems Will Affect Business Careers (1 of 5)

- **Accounting:**

- Accountants increasingly rely on information systems to summarize transactions, create financial records, organize data, and perform financial analysis.
- Skills:
 - Knowledge of databases and networks
 - Online financial transactions and reporting systems
 - How systems are used to achieve accounting functions

- **Finance:**

Relationship between information systems and financial management and services is so strong that many advise finance majors to co-major in information systems.

Skills:

Use systems for financial reporting, direct investment activities, implementation of cash management strategies

Plan, organize, implement information systems strategies for the firm

How Information Systems Will Affect Business Careers (2 of 5)

- **Marketing:**

- No field has undergone more technology-driven change in the past five years than marketing and advertising.
- Skills:
 - Work with databases for tracking and reporting on customer behavior, product performance, customer feedback, product development
 - Enterprise systems for product management, sales force management, customer relationship management

Management:

The job of management has been transformed by information systems. Impossible to manage business today without information systems

Skills:

Use of information systems for each function of job, from desktop productivity tools to applications coordinating the entire enterprise

How Information Systems Will Affect Business Careers (3 of 5)

Operations management in services and manufacturing:

Production managers, administrative service managers, and operations analysts

Skills:

Hardware and software platforms for operations management

Use database and analytical software for coordinating and optimizing resources required for producing goods and services

• Information systems:

- Fast changing and dynamic profession because information technologies are among most important tools for achieving business firms' key objectives
- Domestic and offshore outsourcing
- Skills:
 - Uses of new and emerging hardware and software to achieve six business objectives
 - An ability to take a leadership role in the design and implementation of new information systems

How Information Systems Will Affect Business Careers (4 of 5)

- Outsourcing and offshoring:
 - Two types: outsourcing to domestic U.S. firms and outsourcing to low-wage countries such as India, China
 - Production programming, system maintenance, call centers
 - Benefits:
 - Lower cost of building and maintaining systems within U.S.
 - Increased need for managerial positions

How Information Systems Will Affect Business Careers (5 of 5)

- Common requirements for all majors
 - How IT helps achieve six business objectives
 - Central role of databases
 - Business analytics and intelligence systems
 - Working with specialists and systems designers
 - Ethical, social, legal environment and issues
 - Use of IT to meet legal requirements

How Will MIS Help My Career?

- The Company: Power Financial Analytics Data Services Inc.
- Position Description
- Job Requirements
- Interview Questions

In-Class Active Learning Assignments

Video Cases

- Case 1: Business in the Cloud: Facebook, Google,
 1. Why does Facebook's data center specialist argue that "The Internet is not a cloud?"
 2. What are some of the techniques Facebook uses to cool its data centers?
 3. Describe the five methods recommended by Google for reducing power consumption.
 4. Based on the Google video, how much of the world's global greenhouse gases are the result of computing?