Chapter 1

Information System in Global Business Today

Management Information Systems:
Managing the Digital Firm,
15th edition
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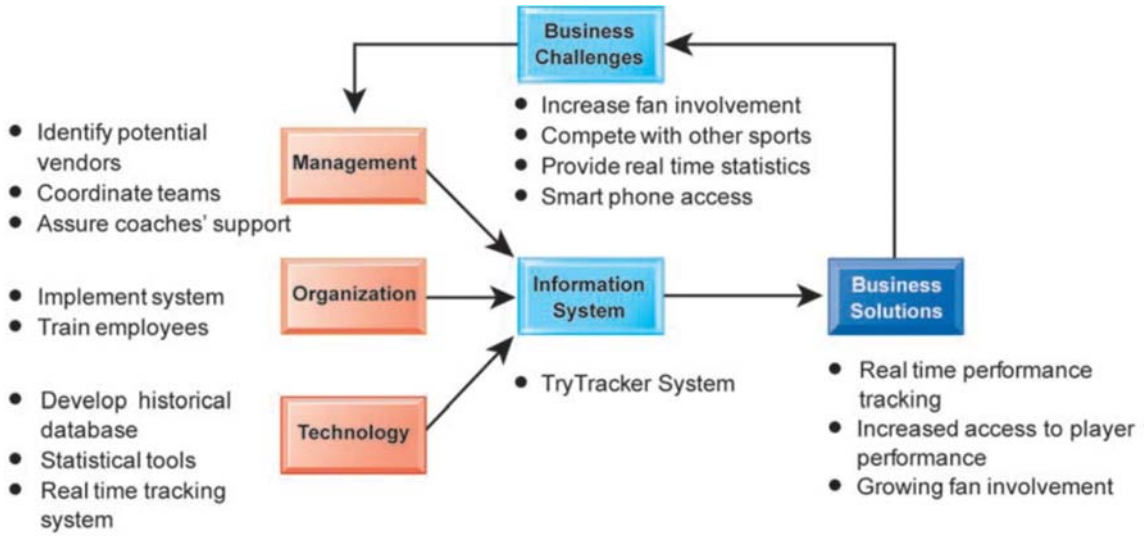
Learning Objectives

- **How** are Information Systems (IS) **transforming** business, and **why** are they so **essential** for running and managing a business today?
- **What** is an IS? **How** does it work? **What** are its management, organization, and technology components? **Why** are complementary assets **essential** for **ensuring** that IS **provide** genuine value for organizations?
- **What** academic disciplines are used to study IS, and **how** does each contribute to an understanding of IS?

Rugby Football Union Tries Big Data



The First Learning Objective

- How are information systems transforming business?
- Why are they so essential for running and managing a business today?

What Makes Management IS (MIS) the Most Exciting Topic in Business?

- Technology **changes** **continually**
- Management uses **technology** that **impacts** on **business success**.
- Successful firms are those learn how to **use** the **new technologies**.

What's New in MIS

- IT (Information Technology, i.e. hardware and software) Innovations
- New Business Models
- E-commerce Expanding
- Management Changes
- Changes in Firms and Organizations

New Technology in IS

CHANGE	BUSINESS IMPACT
TECHNOLOGY	
Cloud computing platform emerges as a major business area of innovation	A flexible collection of computers on the Internet begins to perform tasks traditionally performed on corporate computers. Major business applications are delivered online as an Internet service (Software as a Service, or SaaS).
Big data	Businesses look for insights from huge volumes of data from Web traffic, e-mail messages, social media content, and machines (sensors) that require new data management tools to capture, store, and analyze.
A mobile digital platform emerges to compete with the PC as a business system	The Apple iPhone and Android mobile devices are able to download hundreds of thousands of applications to support collaboration, location-based services, and communication with colleagues. Small tablet computers, including the iPad, Google Nexus, and Kindle Fire, challenge conventional laptops as platforms for consumer and corporate computing.

New Management in IS

MANAGEMENT	
Managers adopt online collaboration and social networking software to improve coordination, collaboration, and knowledge sharing	Google Apps, Google Sites, Microsoft Windows SharePoint Services, and IBM Lotus Connections are used by over 100 million business professionals worldwide to support blogs, project management, online meetings, personal profiles, social bookmarks, and online communities.
Business intelligence applications accelerate	More powerful data analytics and interactive dashboards provide real-time performance information to managers to enhance decision making.
Virtual meetings proliferate	Managers adopt telepresence videoconferencing and Web conferencing technologies to reduce travel time, and cost, while improving collaboration and decision making.

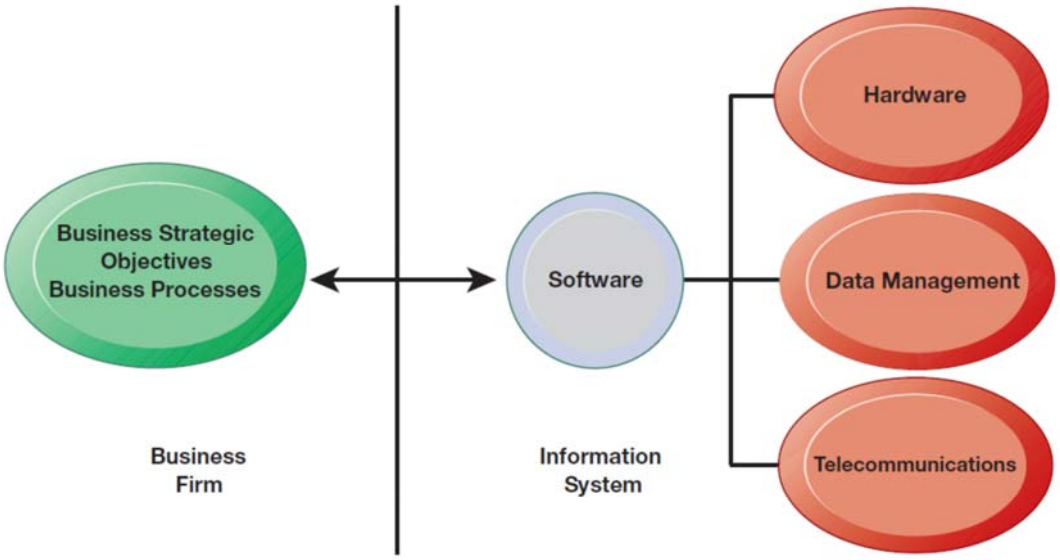
New Organization in IS

ORGANIZATIONS	
Social business	Businesses use social networking platforms, including Facebook, Twitter, and internal corporate social tools, to deepen interactions with employees, customers, and suppliers. Employees use blogs, wikis, e-mail texting, and messaging to interact in online communities.
Telework gains momentum in the workplace	The Internet, wireless laptops, smartphones, and tablet computers make it possible for growing numbers of people to work away from the traditional office. Fifty-five percent of U.S. businesses have some form of remote work program.
Co-creation of business value	Sources of business value shift from products to solutions and experiences, and from internal sources to networks of suppliers and collaboration with customers. Supply chains and product development become more global and collaborative; customer interactions help firms define new products and services.

The Emerging Digital Firm

- Mediated **relationships** digital firm among the organization's significant **business** with **customers**, **suppliers**, and **employees**.
- **Core business processes** are accomplished through digital networks.
- **Key corporate assets**: intellectual property, core competencies, and financial and human assets
- Digital firms offer greater **flexibility** organization and management in **time** and **space** shifting

The Interdependence between Organizations and IS



In contemporary systems, there is a growing interdependence between a firm's information systems and its business capabilities. Changes in strategy, rules, and business processes increasingly require changes in hardware, software, databases, and telecommunications. Often, what the organization would like to do depends on what its systems will permit it to do.

Strategic Business Objectives of IS

- Operational Excellence
- New Products, Services, and Business Models
- Customer and Supplier Intimacy
- Improved Decision Making
- Competitive Advantage
- Survival

Operational Excellence

- Improvement of efficiency to attain higher profitability
- Increasing employee productivity
- Information system and technology are important tools in achieving greater efficiency and productivity
- Walmart's Retail system link suppliers to stores for superior replenishment system

New Products, Services, and Business Models

- Business model describes how company produces, delivers, and sells product or service to create wealth
- IS and IT are a major enabling tool for new products, services, business model
  - Examples: Apple's iPod, iTunes, iPhone, iPad, Google's Android OS, and Netflix

Customer and Supplier Intimacy

- Serving customers well leads to customers returning, which raises revenues and profits
- Intimacy with suppliers allows them to provide vital input with the lowers costs

Improved Decision Making

- Without accurate information:
  - Managers must use forecasts, best guesses, luck
  - Lead to
    - overproduction, underproduction of goods and services
    - Misallocation of recourses
    - Poor response times
  - Poor outcomes raise costs, lose customers
- IS and IT have made them possible for managers to use **real-time** data from the marketplace when **making decisions**.

Competitive Advantage

- Better performance deliveries
- Charging less for superior products
- Responding to customers and suppliers in real time
  - Examples: Apple, Walmart, UPS

Survival

- IS and IT are the core to survival
- example:
  - Citibank was the first banking firm to introduce ATMs. They have a major competitive advantage over their competitors. In order to remain and survive in the retail banking industry, other banks have to provide ATM services to banking customers.
  - Governmental regulations requiring record-keeping

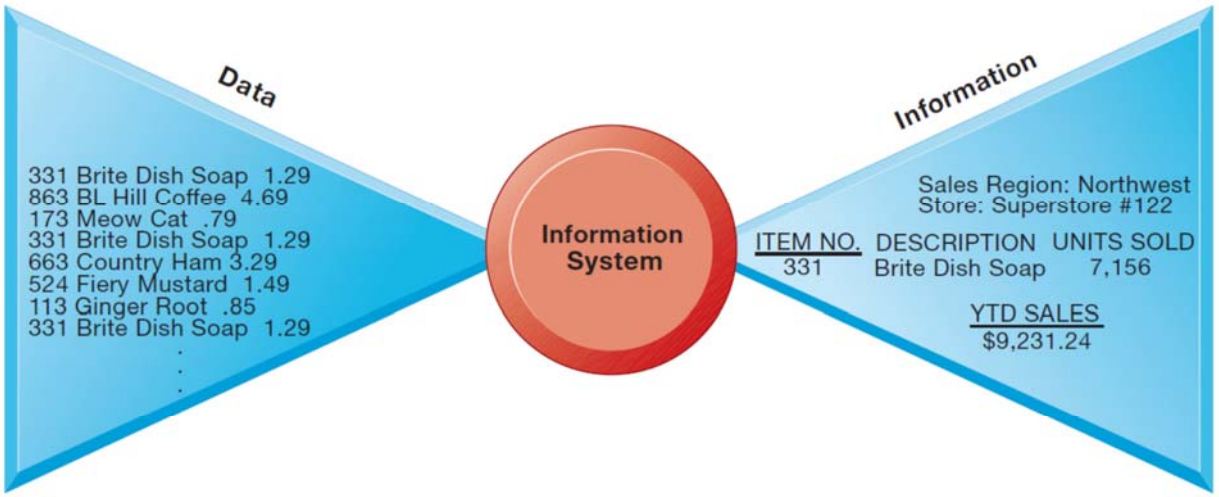
The Second Learning Objective

- What is an information system?
- How does it work?
- What are its management, organization, and technology components?
- Why are complementary assets essential for ensuring that information systems provide genuine value for organizations?

Perspectives on Information Systems

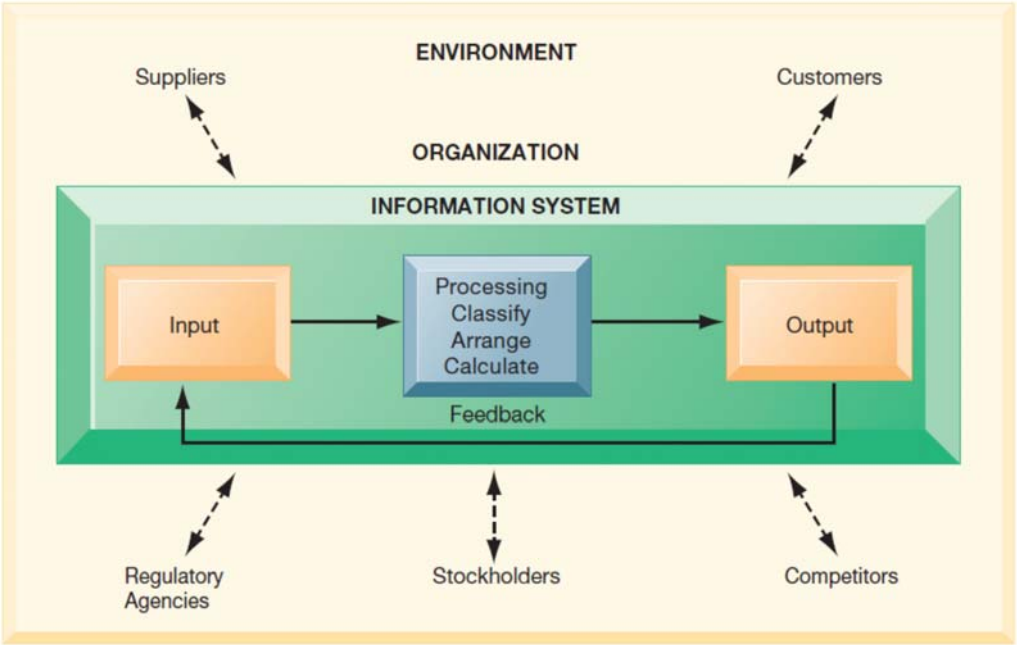
- Information system:
  - Set of interrelated components
  - Collect, process, store, and distribute information
  - Support decision making, coordination, and control
- Information vs. data
  - Data are streams of raw facts
  - Information is data shaped into meaningful and useful form

Data and Information



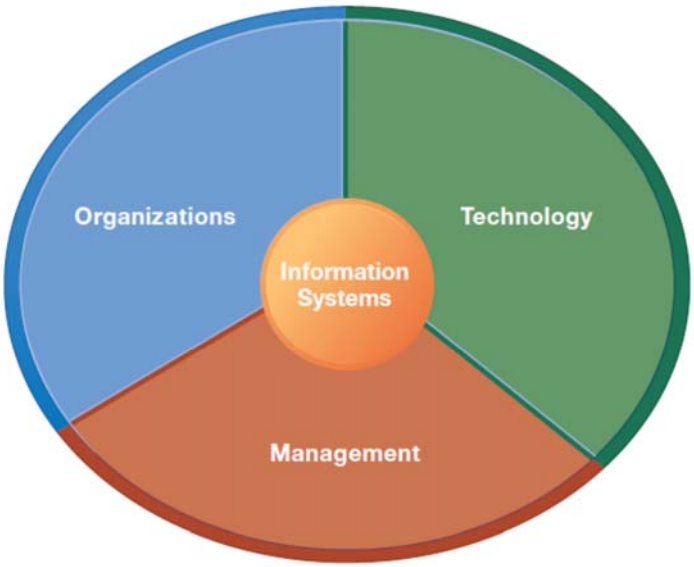
Raw data from a supermarket checkout counter can be processed and organized to produce meaningful information, such as the total unit sales of dish detergent or the total sales revenue from dish detergent for a specific store or sales territory.

Functions of an IS



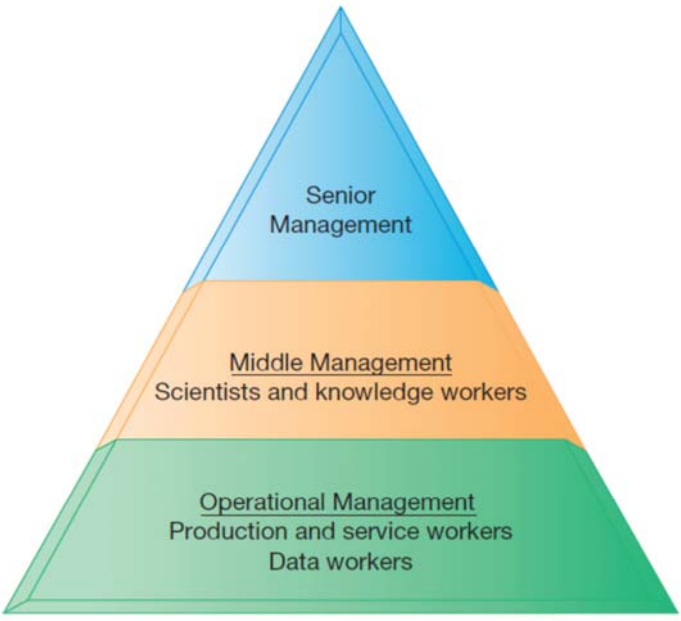
An information system contains information about an organization and its surrounding environment. Three basic activities—input, processing, and output—produce the information organizations need. Feedback is output returned to appropriate people or activities in the organization to evaluate and refine the input. Environmental actors, such as customers, suppliers, competitors, stockholders, and regulatory agencies, interact with the organization and its information systems.

IS are more than Computers



Using information systems effectively requires an understanding of the organization, management, and information technology shaping the systems. An information system creates value for the firm as an organizational and management solution to challenges posed by the environment.

Organization Dimension Based on Levels Management



Business organizations are hierarchies consisting of three principal levels: senior management, middle management, and operational management. Information systems serve each of these levels. Scientists and knowledge workers often work with middle management.

Organization Dimension Based on Business Functions

FUNCTION	PURPOSE
Sales and marketing	Selling the organization's products and services
Manufacturing and production	Producing and delivering products and services
Finance and accounting	Managing the organization's financial assets and maintaining the organization's financial records
Human resources	Attracting, developing, and maintaining the organization's labor force; maintaining employee records

Management Dimension

- Managers set organizational strategy for responding to business challenges
  - Managers perceive business challenges in the environment
  - They set the organizational strategy for responding to those challenges
  - They allocate the human and financial resources to coordinate the work and achieve success
- In addition, managers must act creatively:
  - Creation of new products and services
  - Occasionally re-creating the organization

Technology Dimension

- Computer hardware and software
- Data management technology
- Networking and telecommunications technology
  - Networks, the Internet, intranets and extranets, World Wide Web
- IT infrastructure: provides platform that system is built on

Business Perspective on IS

- Information system is instrument for creating value
- Investments in information technology will result in superior returns:
  - Productivity increases
  - Revenue increases
  - Superior long-term strategic positioning
  - Decrease the cost.

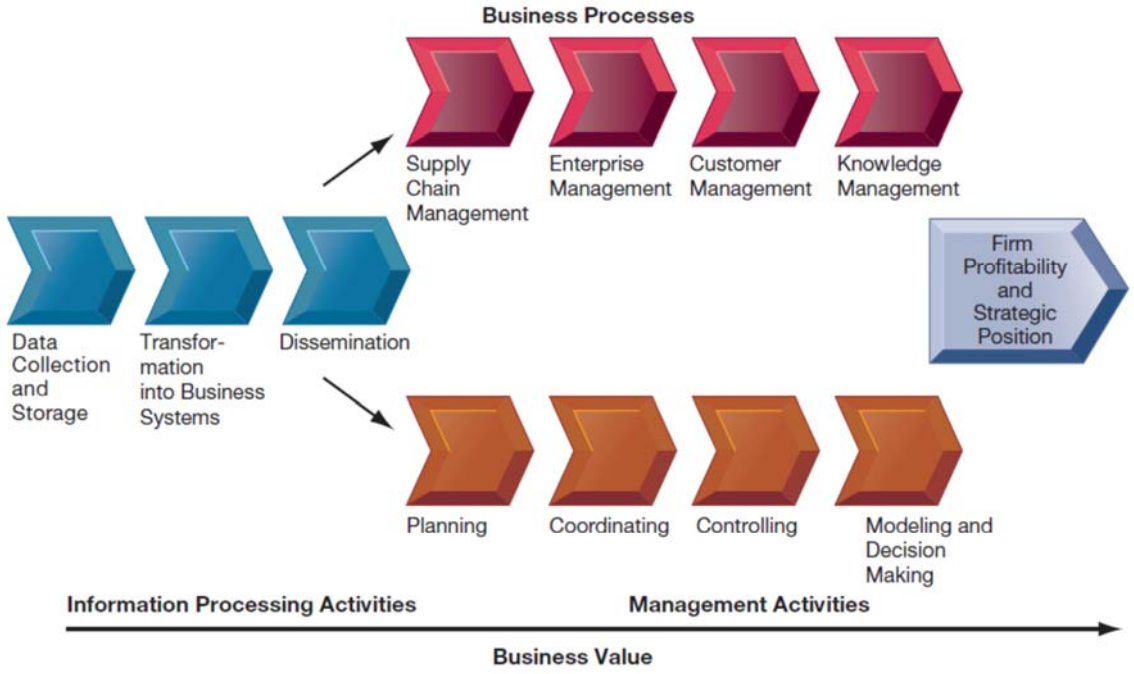
Business Perspective on IS (cont.)

- Business information value chain
  - Raw data acquired and transformed through stages that add value to that information
  - Value of information system determined in part by extent to which it leads to better decisions, greater efficiency, and higher profits
- Business perspective:
  - Calls attention to organizational and managerial nature of information systems

Business Perspective on IS (cont.)

- Investing in information technology does not guarantee good returns
- Considerable variation in the returns firms receive from systems investments
- Factors:
  - Adopting the right business model
  - Investing in complementary assets (organizational and management capital)

The Business Information Value Chain



From a business perspective, information systems are part of a series of value-adding activities for acquiring, transforming, and distributing information that managers can use to improve decision making, enhance organizational performance, and, ultimately, increase firm profitability.

Complementary Assets

- Assets required to derive value from a primary investment
- Firms supporting technology investments with investment in complementary assets receive superior returns
  - E.g.: invest in technology and the people to make it work properly

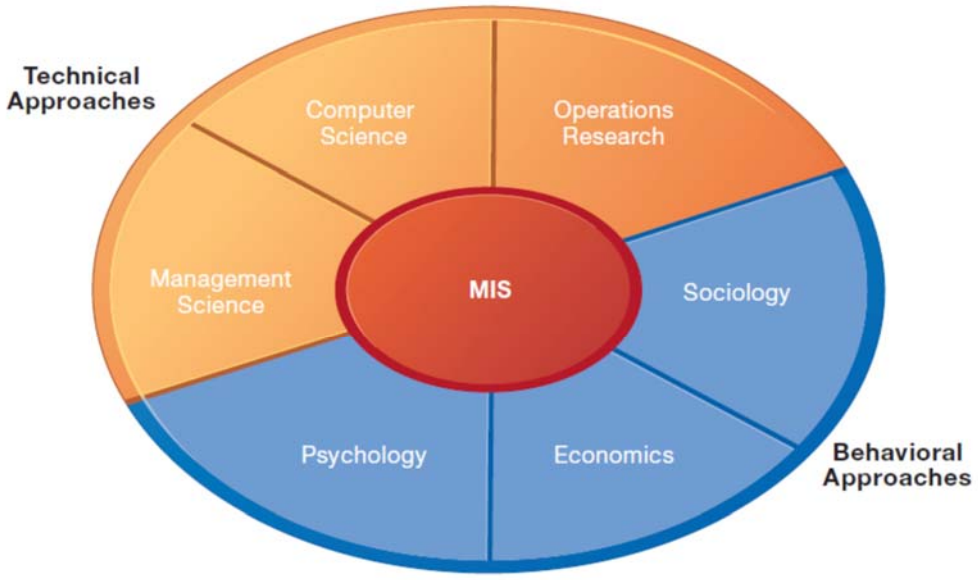
Complementary Social, Managerial, and Organizational Assets Required to Optimize Returns from IT Investments

Organizational assets	Supportive organizational culture that values efficiency and effectiveness Appropriate business model Efficient business processes Decentralized authority Distributed decision-making rights Strong IS development team
Managerial assets	Strong senior management support for technology investment and change Incentives for management innovation Teamwork and collaborative work environments Training programs to enhance management decision skills Management culture that values flexibility and knowledge-based decision making.
Social assets	The Internet and telecommunications infrastructure IT-enriched educational programs raising labor force computer literacy Standards (both government and private sector) Laws and regulations creating fair, stable market environments Technology and service firms in adjacent markets to assist implementation

The Third Learning Objective

- What academic disciplines are used to study information systems?
- How does each contribute to an understanding of information systems?

Contemporary Approaches to IS



The study of information systems deals with issues and insights contributed from technical and behavioral disciplines.

Contemporary Approaches to IS (cont.)

- **Technical approach**
  - Emphasizes mathematically based models
  - Computer science, management science, operations research
- **Behavioral approach**
  - Behavioral issues (strategic business integration, implementation, etc.)
  - Psychology, economics, sociology concentrate on changing attitudes, management and organizational policy, and behavior

Behavioral Approach

- **Sociologists**: how an organizations shape the development of systems, how systems affect individuals, groups, and organizations.
- **Psychologists**: how human decision makers perceive and use formal information.
- **Economists**: understanding the production of digital goods, the dynamics of digital markets, and how new information systems change the control and cost structures within the firm.

Approach of This Book: Sociotechnical View

- Optimal organizational performance achieved by jointly optimizing both **social** and **technical systems** used in production
- Helps avoid **purely technological approach**
- Both the technical and behavioral components need attention. This means that **technology** must be **changed** and **designed** in such a way as to **fit organizational** and **individual needs**.