

Strategic Information **MANAGEMENT**



Ivan Monich, Ph.D.
www.Monich.pro

GLOBAL
EDITION



Management Information Systems

Managing the Digital Firm

THIRTEENTH EDITION

Kenneth C. Laudon • Jane P. Laudon



ALWAYS LEARNING

PEARSON

Our main textbook is
**Management
Information
Systems**
**THIRTEENTH
EDITION** Kenneth C.
Laudon • Jane P. Laudon



The course content



Part 1. Organizations,
Management, and the
Networked Enterprise



PART 2. Information
Technology
Infrastructure



PART 3. Key System
Applications for the
Digital Age



PART 4. Building and
Managing Systems



Lecture 01

Information systems in the digital world (Information Systems in Global Business)

Learning objectives.

After studying this lecture, you will be able to answer the following questions:

- How are information systems transforming business, and what is their relationship to globalization?
- Why are information systems so essential for running and managing a business today?
- What exactly is an information system? How does it work? What are its management, organization, and technology components?
- What are complementary assets? Why are complementary assets essential for ensuring that information systems provide genuine value for an organization?
- What academic disciplines are used to study information systems? How does each contribute to an understanding of information systems? What is a sociotechnical systems perspective?



Indicative content, part 01

1 THE ROLE OF INFORMATION SYSTEMS IN BUSINESS TODAY

- How Information Systems Are Transforming Business
- What's New in Management Information Systems? Globalization Challenges and Opportunities: A Flattened World
- The Emerging Digital Firm Strategic Business Objectives of Information Systems



Indicative content, part 02

2 PERSPECTIVES ON INFORMATION SYSTEMS

- What Is an Information System?
- Dimensions of Information Systems
- It isn't Just Technology: A Business Perspective on Information Systems
- Complementary Assets: Organizational Capital and the Right Business Model



Indicative content, part 03

3 CONTEMPORARY APPROACHES TO INFORMATION SYSTEMS

- Technical Approach
- Behavioral Approach
- Approach of This Text: Sociotechnical Systems



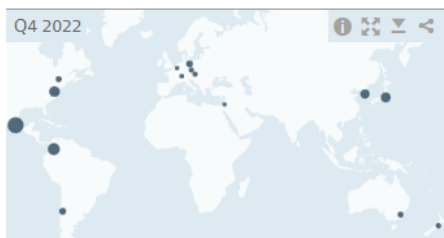
<u>Lecture</u>	<u>Lesson</u>	<u>Teaching Contents</u> <u>Chapter/Topic/</u>	<u>Task/Work</u>
No.01	Topic title and General Information	<p>1. Information systems in the digital world (Information Systems in Global Business Today) Learning objectives. After studying this lecture, you will be able to answer the following questions:</p> <ol style="list-style-type: none"> 1. How are information systems transforming business, and what is their relationship to globalization? 2. Why are information systems so essential for running and managing a business today? 3. What exactly is an information system? How does it work? What are its management, organization, and technology components? 4. What are complementary assets? Why are complementary assets essential for ensuring that information systems provide genuine value for an organization? 5. What academic disciplines are used to study information systems? How does each contribute to an understanding of information systems? <u>What is a sociotechnical systems perspective?</u> 	<p>Discussion Questions during the class</p> <ol style="list-style-type: none"> 1. Information systems are too important to be left to computer specialists. Do you agree? Why or why not? 2. If you were setting up the Web site for Disney World visitors, what management, organization, and technology issues might you encounter? 3. What are some of the organizational, managerial, and social complementary assets that help make UPS's information systems so successful? <p>Task. Please, select one of the given questions and provide your answer.</p> <ol style="list-style-type: none"> 1. How are information systems transforming business, and what is their relationship to globalization? • Describe how information systems have changed the way businesses operate and their products and services. • Identify three major new information system trends. • Describe the characteristics of a digital firm. • Describe the challenges and opportunities of globalization in a "flattened" world. 2. Why are information systems so essential for running and managing a business today? • List and describe six reasons why information systems are so important for business today. 3. What exactly is an information system? How does it work? What are its management, organization, and technology components? • Define an information system and describe the activities it performs. • List and describe the organizational, management, and technology dimensions of information systems. • Distinguish between data and information and between information systems literacy and computer literacy. • Explain how the Internet and the World Wide Web are related to the other technology components of information systems. 4. What are complementary assets? Why are complementary assets essential for ensuring that information systems provide genuine value for an organization? • Define complementary assets and describe their relationship to information technology. • Describe the complementary social, managerial, and organizational assets required to optimize returns from information technology investments. 5. What academic disciplines are used to study information systems? How does each contribute to an understanding of information systems? What is a sociotechnical systems perspective? • List and describe each discipline that contributes to a technical approach to information systems. • List and describe each discipline that contributes to a <u>behavioral approach to information systems.</u> • <u>Describe the sociotechnical perspective on information systems.</u>
	1	<p>1 THE ROLE OF INFORMATION SYSTEMS IN BUSINESS TODAY</p> <ul style="list-style-type: none"> • How Information Systems Are Transforming Business • What's New in Management Information Systems? Globalization Challenges and Opportunities: A Flattened World • The Emerging Digital Firm Strategic Business Objectives of Information Systems 	
	2	<p>2 PERSPECTIVES ON INFORMATION SYSTEMS</p> <ul style="list-style-type: none"> • What Is an Information System? • Dimensions of Information Systems • It isn't Just Technology: A Business Perspective on Information Systems • Complementary Assets: Organizational Capital and the Right Business Model 	
	3	<p>3 CONTEMPORARY APPROACHES TO INFORMATION SYSTEMS</p> <ul style="list-style-type: none"> • Technical Approach • <u>Behavioral Approach</u> • Approach of This Text: Sociotechnical Systems 	

Part 1

10-minute break

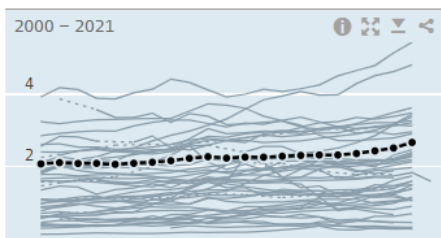
<https://data.oecd.org/ict/ict-investment.htm>

Further indicators related to Information and communication technology (ICT)



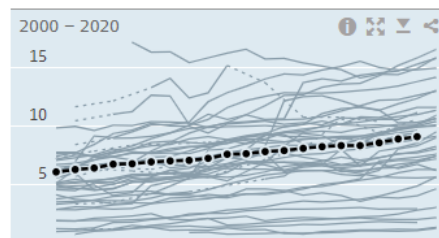
↔ Employment by activity

INDICATOR



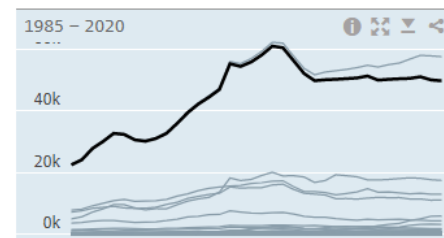
↔ Gross domestic spending on R&D

INDICATOR



↔ Researchers

INDICATOR



↔ Triadic patent families

INDICATOR

Further publications related to Information and communication technology (ICT)



■ Information Technology Outlook

PUBLICATION (2010)



■ OECD Science, Technology and Industry Scoreboard

PUBLICATION (2017)



🔗 OECD Digital Economy Papers

<http://dx.doi.org/10.1787/20716826>

HOW INFORMATION SYSTEMS ARE TRANSFORMING BUSINESS

- You can see the results of this massive spending around you every day by observing how people conduct business. More wireless cell phone accounts are opened every year than telephone landlines installed. Smartphones, texting, e-mail, and online conferencing have all become essential tools of business.



FedEx

- Annually, FedEx moves over 9 million packages daily worldwide (6 million in the United States), mostly overnight, and the United Parcel Service (UPS) moves over 15 million packages daily worldwide. Businesses sought to sense and respond to rapidly changing customer demand, reduce inventories to the lowest possible levels, and achieve higher levels of operational efficiency. Supply chains have become more fast-paced, with companies of all sizes depending on just-in-time inventory to reduce their overhead costs and get to market faster



News papers and social networks.

- As newspaper readership continues to decline, more than 150 million people read a newspaper online, and millions more read other news sites. About 67 million people watch a video online every day, 76 million read a blog, and 26 million post to blogs, creating an explosion of new writers and new forms of customer feedback that did not exist five years ago (2019)
- With over 2.6 billion monthly active **users** (MAU) as of the first quarter of 2020, **Facebook** is the biggest social network worldwide. In the third quarter of 2012, the **number** of active **Facebook users** surpassed one billion, making it the first social network ever to do so. Google +



Security and accounting laws

- New federal security and accounting laws, requiring many businesses to keep e-mail messages for five years, coupled with existing occupational and health laws requiring firms to store employee chemical exposure data for up to 60 years, are spurring the annual growth of digital information at the estimated rate of 5 exabytes annually.



WHAT'S NEW IN MANAGEMENT INFORMATION SYSTEMS?

- What makes management information systems the most exciting topic in business is the continual change in technology, management use of the technology, and the impact on business success. New businesses and industries appear, old ones decline, and successful firms are those that learn how to use the new technologies.
- Table 1.1 summarizes the major new themes in business uses of information systems.



TABLE 1.1 WHAT'S NEW IN MIS

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.
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.

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.



<https://openai.com/product/gpt-4>

GPT-4 can solve difficult problems with greater accuracy, thanks to its broader general knowledge and problem solving abilities.

Creativity Visual Input Longer context

GPT-4 is more creative and collaborative than ever before. It can generate, edit, and iterate with users on creative and technical writing tasks, such as composing songs, writing screenplays, or learning a user's writing style.

Input

Explain the plot of Cinderella in a sentence where each word has to begin with the next letter in the alphabet from A to Z, without repeating any letters.

Output

A beautiful Cinderella, dwelling eagerly, finally gains happiness; Inspiring jealous kin, love magically nurtures opulent prince; quietly rescues, slipper triumphs, uniting very wondrously, xenial youth zealously.

GPT-4 surpasses ChatGPT in its advanced reasoning capabilities.

ChatGPT

Input

Andrew is free from 11 am to 3 pm, Joanne is free from noon to 2 pm and then 3:30 pm to 5 pm. Hannah is available at noon for half an hour, and then 4 pm to 6 pm. What are some options for start times for a 30 minute meeting for Andrew, Hannah, and Joanne?

Output

Here is a list of their availability:

- Andrew: 11 am to 3 pm
- Joanne: noon to 2 pm, and 3:30 pm to 5 pm
- Hannah: noon to 12:30 pm, and 4 pm to 6 pm

Based on their availability, there is a 30-minute window where all three of them are available, which is from 4 pm to 4:30 pm. So, the meeting can be scheduled at 4 pm.

GPT-4

Input

Andrew is free from 11 am to 3 pm, Joanne is free from noon to 2 pm and then 3:30 pm to 5 pm. Hannah is available at noon for half an hour, and then 4 pm to 6 pm. What are some options for start times for a 30 minute meeting for Andrew, Hannah, and Joanne?

Output

Andrew: 11 am - 3 pm

Joanne: 12 pm - 2 pm, 3:30 pm - 5 pm

Hannah: 12 pm - 12:30 pm, 4 pm - 6 pm

Common availability for a 30-minute meeting: 12 pm - 12:30 pm

Mobile digital platform

- Managers routinely use online collaboration and social technologies in order to make better, faster decisions. As management behavior changes, how work gets organized, coordinated, and measured also changes. By connecting employees working on teams and projects, the social network is where works gets done, where plans are executed, and where managers manage.



Cloud computing

The strength of cloud computing and the growth of the mobile digital platform allow organizations to rely more on telework, remote work, and distributed decision making. This same platform means firms can outsource more work, and rely on markets (rather than employees) to build value.



GLOBALIZATION CHALLENGES AND OPPORTUNITIES: A FLATTENED WORLD

- In 1492, Columbus reaffirmed what astronomers were long saying: the world was round and the seas could be safely sailed. As it turned out, the world was populated by peoples and languages living in isolation from one another, with great disparities in economic and scientific development.



A FLATTENED WORLD, part 2

- In 2005, journalist Thomas Friedman wrote an influential book declaring the world was now “flat,” by which he meant that the Internet and global communications had greatly reduced the economic and cultural advantages of developed countries.
- This “globalization” presents both challenges and opportunities for business firms



A FLATTENED WORLD, part 3

- Many Fortune 500 U.S. firms derive half their revenues from foreign operations. For instance, 85 percent of Intel's revenues in 2011 came from overseas sales of its microprocessors. Eighty percent of the toys sold in the United States are manufactured in China, while about 90 percent of the PCs manufactured in China use American-made Intel or Advanced Micro Design (AMD) chips.



The challenge

- The challenge for you as a business student is to develop high-level skills through education and on-the-job experience that cannot be outsourced. The challenge for your business is to avoid markets for goods and services that can be produced offshore much less expensively. The opportunities are equally immense.



Globalization and management information systems

- What does globalization have to do with management information systems? That's simple: everything. The emergence of the Internet into a full-blown international communications system has drastically reduced the costs of operating and transacting on a global scale. Communication between a factory floor in Shanghai and a distribution center in Rapid Falls, South Dakota, is now instant and virtually free. Customers can now shop in a worldwide marketplace, obtaining price and quality information reliably 24 hours a day.



THE EMERGING DIGITAL FIRM

- All of the changes we have just described, coupled with equally significant organizational redesign, have created the conditions for a fully digital firm. A digital firm can be defined along several dimensions. A digital firm is one in which nearly all of the organization's significant business relationships with customers, suppliers, and employees are digitally enabled and mediated.



Business processes

- Business processes refer to the set of logically related tasks and behaviors that organizations develop over time to produce specific business results and the unique manner in which these activities are organized and coordinated.



Key corporate assets

Key corporate assets—intellectual property, financial and human assets—are managed through digital means. In a digital firm, any piece of information required to support key business decisions is available at any time and anywhere in the firm. Digital firms sense and respond to their environments far more rapidly than traditional firms, giving them more flexibility to survive in turbulent times. Digital firms offer extraordinary opportunities for more flexible global organization and management. In digital firms, both time shifting and space shifting are the norm.



“Virtual” meetings as a new normality

- Many firms, such as Cisco Systems, 3M, and IBM, are close to becoming digital firms, using the Internet to drive every aspect of their business. Most other companies are not fully digital, but they are moving toward close digital integration with suppliers, customers, and employees.



Strategic Information **MANAGEMENT**



Ivan Monich, Ph.D.

STRATEGIC BUSINESS OBJECTIVES OF INFORMATION SYSTEMS

- What makes information systems so essential today? Why are businesses investing so much in information systems and technologies?
- Entire sectors of the economy are nearly inconceivable without substantial investments in information systems. E-commerce firms such as Amazon, eBay, Google, simply would not exist.

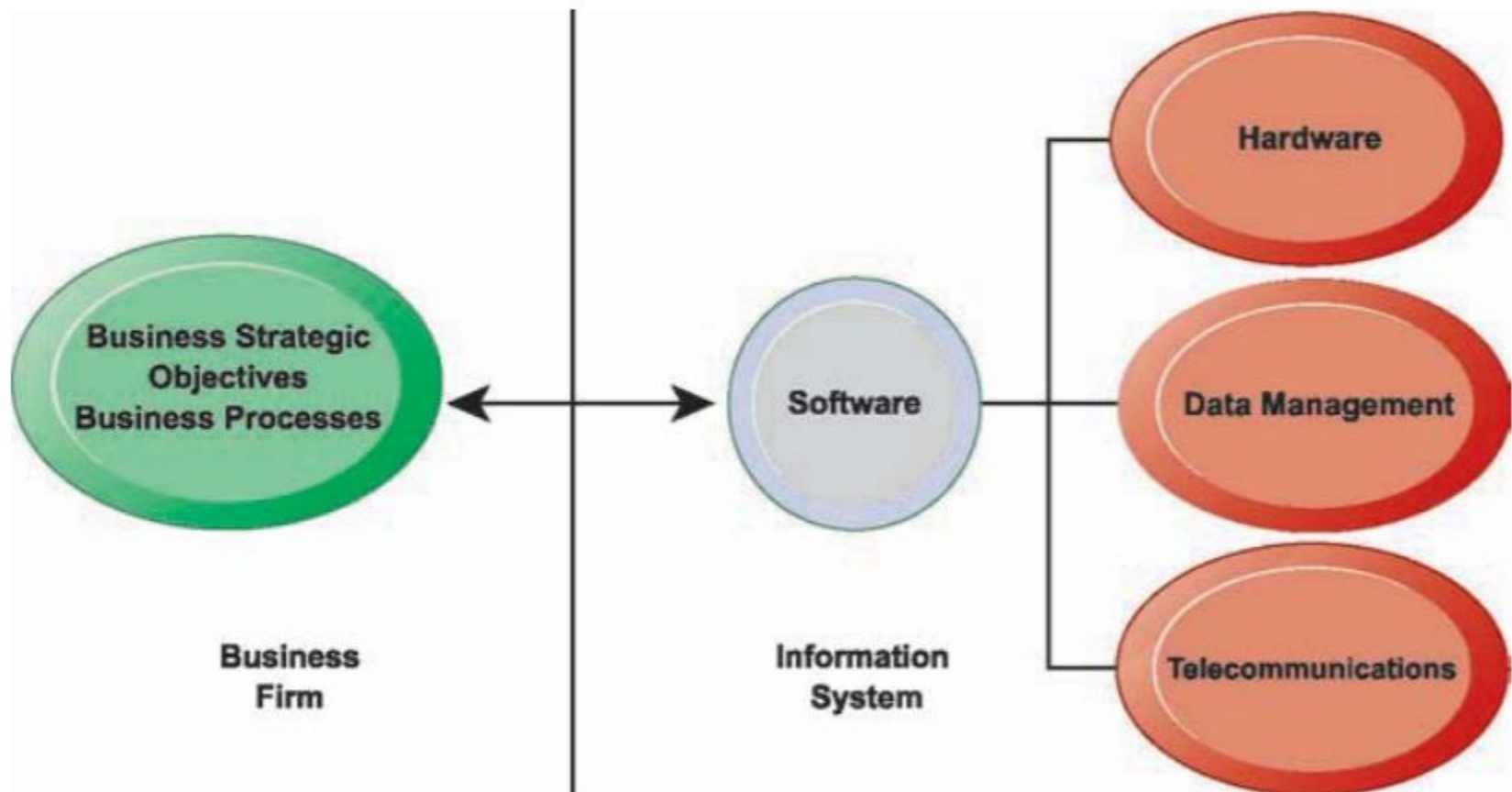


Information technology and its ability to implement corporate strategies

There is a growing interdependence between a firm's ability to use information technology and its ability to implement corporate strategies and achieve corporate goals (see Figure 1.2). What a business would like to do in five years often depends on what its systems will be able to do. Increasing market share, becoming the high-quality or low-cost producer, developing new products, and increasing employee productivity depend more and more on the kinds and quality of information systems in the organization. The more you understand about this relationship, the more valuable you will be as a manager



FIGURE 1.2 THE INTERDEPENDENCE BETWEEN ORGANIZATIONS AND INFORMATION SYSTEMS

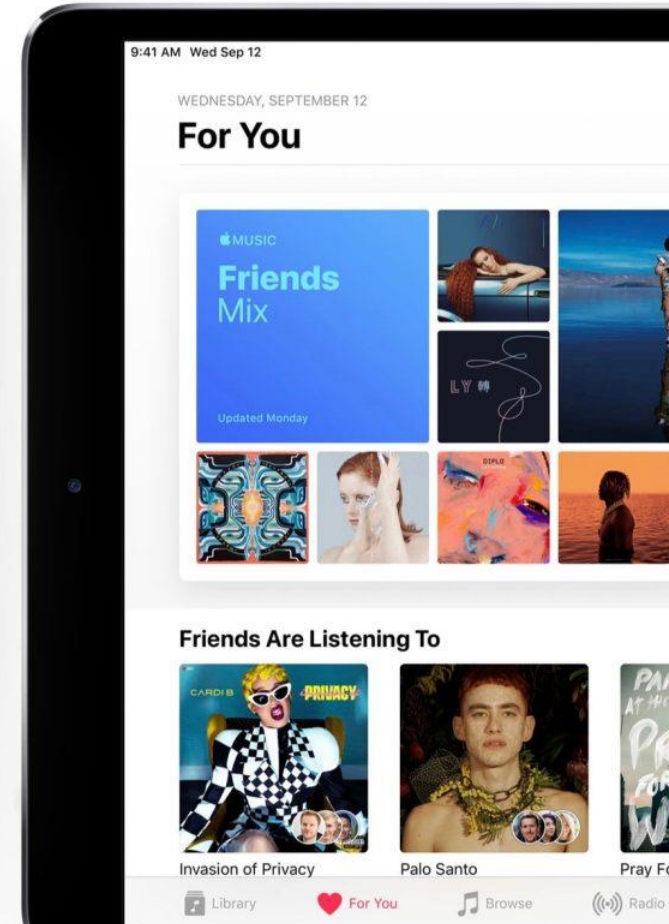
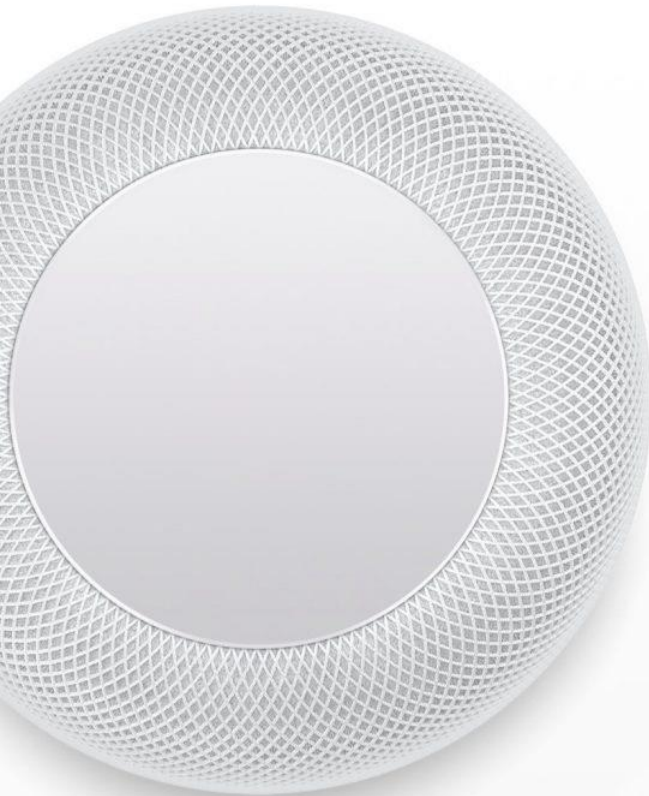


Operational Excellence

- Businesses continuously seek to improve the efficiency of their operations in order to achieve higher profitability. Information systems and technologies are some of the most important tools available to managers for achieving higher levels of efficiency and productivity in business operations, especially when coupled with changes in business practices and management behavior.



New Products, Services, and Business Models



CRM

Customer and Supplier Intimacy

- The Mandarin Oriental in Manhattan and other high-end hotels exemplify the use of information systems and technologies to achieve customer intimacy. These hotels use computers to keep track of guests' preferences, such as their preferred room temperature, check-in time, frequently dialed telephone numbers, and television programs, and store these data in a large data repository. Individual rooms in the hotels are networked to a central network server computer so that they can be remotely monitored or controlled.



Improved Decision Making

- Many business managers operate in an information fog bank, never really having the right information at the right time to make an informed decision. Instead, managers rely on forecasts, best guesses, and luck. The result is overor underproduction of goods and services, misallocation of resources, and poor response times. These poor outcomes raise costs and lose customers. In the past decade, information systems and technologies have made it possible for managers to use real-time data from the marketplace when making decisions.



Competitive Advantage

- When firms achieve one or more of these business objectives—operational excellence; new products, services, and business models; customer/supplier intimacy; and improved decision making—chances are they have already achieved a competitive advantage.



Survival

- Business firms also invest in information systems and technologies because they are core items of doing business. Sometimes these “items” are driven by industry-level changes. For instance, after Citibank introduced the first automated teller machines (ATMs) in the New York region in 1977 to attract customers through higher service levels, its competitors rushed to provide ATMs to their customers to keep up with Citibank.



Part 2



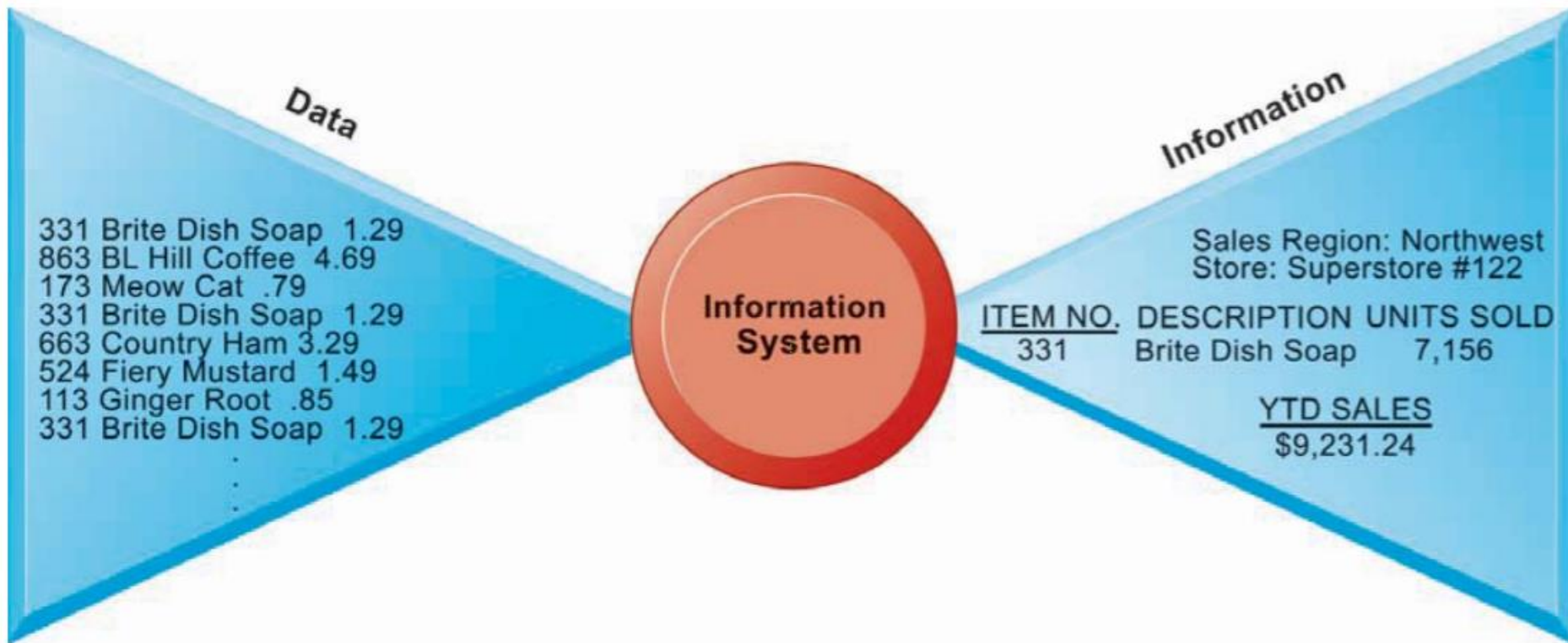
1.2 PERSPECTIVES ON INFORMATION SYSTEMS

So far we've used information systems and technologies informally without defining the terms. Information technology (IT) consists of all the hardware and software that a firm needs to use in order to achieve its business objectives



WHAT IS AN INFORMATION SYSTEM?

FIGURE 1.3 DATA AND INFORMATION

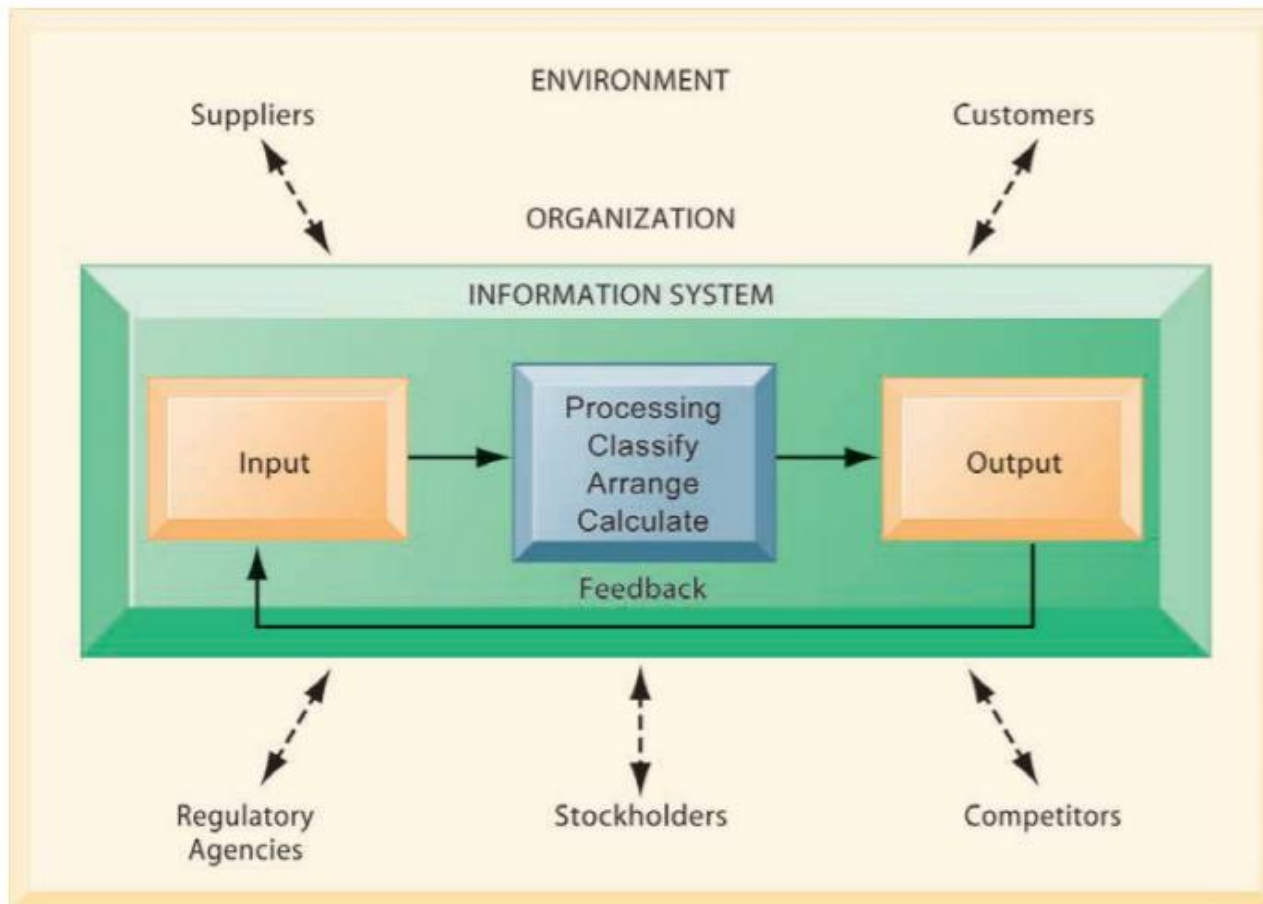


Raw data from a supermarket checkout counter can be processed and organized to produce meaningful information, such as the total unit sales of dish detergent or the total sales revenue from dish detergent for a specific store or sales territory.

Three activities in an information system produce the information that organizations need to make decisions, control operations, analyze problems, and create new products or services.

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FIGURE 1.4 FUNCTIONS OF AN INFORMATION SYSTEM



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Computer-based information systems

Although computer-based information systems use computer technology to process raw data into meaningful information, there is a sharp distinction between a computer and a computer program on the one hand, and an information system on the other. Electronic computers and related software programs are the technical foundation, the tools and materials, of modern information systems. Computers provide the equipment for storing and processing information. Computer programs, or software, are sets of operating instructions that direct and control computer processing. Knowing how computers and computer programs work is important in designing solutions to organizational problems, but computers are only part of an information system.

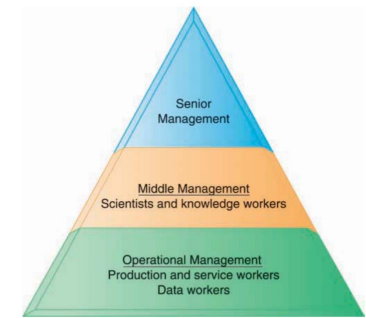


FIGURE 1.5 INFORMATION SYSTEMS ARE MORE THAN COMPUTERS



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.





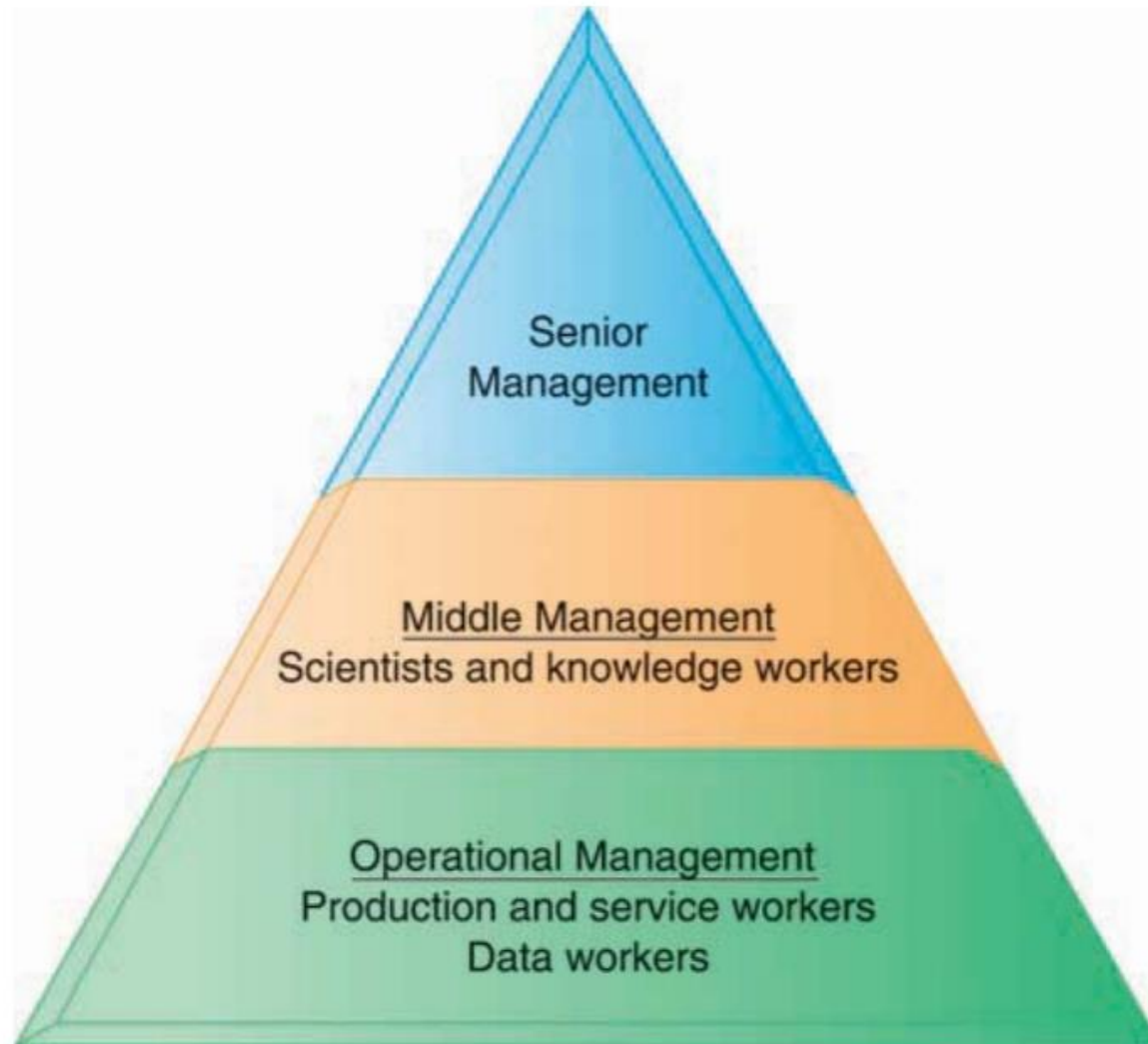
Business organizations are hierarchies consisting of three principal levels: senior management, middle management, and operational management. Information systems serve each of these levels. Scientists and knowledge workers often work with middle management.

Organizations

- Information systems are an integral part of organizations. Indeed, for some companies, such as credit reporting firms, there would be no business without an information system. The key elements of an organization are its people, structure, business processes, politics, and culture. We introduce these components of organizations here and describe them in greater detail in lecture 02 and 03.



FIGURE 1.6 **LEVELS IN A FIRM**



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 unique culture

- Each organization has a unique culture, or fundamental set of assumptions, values, and ways of doing things, that has been accepted by most of its members. You can see organizational culture at work by looking around your university.



values

The guidelines and beliefs that a person uses when confronted with a situation in which a choice must be made.

Introduction to organization culture

To succeed in an increasingly global economy, managers need to understand that culture has a profound effect on behavior within organizations. A country's culture affects how organizational transactions are conducted (e.g., marketing, hiring practices, reward programs, supervisor–employee interactions, and use of technology).

Knowledge of and flexibility regarding how to work productively with individuals from different backgrounds have become important factors for managers to consider as part of their daily work activities. Learning to operate in a world influenced by cultural differences is a mandatory requirement for effective management in today's global business environment



National Culture and Values Influence Workplace Behavior

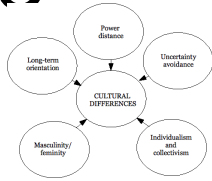
Organizations are able to operate efficiently only when shared values exist among the employees. **Values** are the conscious, affective desires or wants of people that guide behavior. An individual's personal values guide behavior on and off the job. If a person's set of values is important, it will guide the person and also enable the person to behave consistently across situations.



<https://pixabay.com/photos/ethics-right-wrong-ethical-moral-2991600/>



National Culture and Values Influence Workplace Behavior, part 2



One useful framework for understanding the importance of values in organizational behavior is provided by Hofstede. The result of his research on 116,000 people in 50 countries has been a **four-value dimension framework**. From this initial research, Hofstede identified four value dimensions by which cultures can differ:

- power distance,
 - uncertainty avoidance,
 - individualism, and
 - masculinity.
- A fifth dimension, long-term orientation, was added as a result of subsequent research.



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National Culture and Values Influence Workplace Behavior, part 2

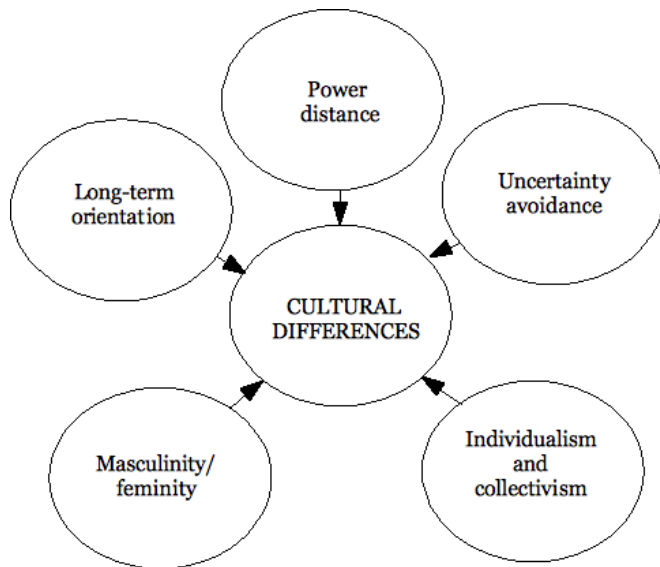


EXHIBIT 2.1 Sample of Hofstede's Research on Cultural Values

Sources: Adapted from "Cultural Tools," www.geert-hofstede.com, accessed February 25, 2016; Geert Hofstede and Michael Harris Bond, "The Confucius Connection: From Cultural Roots to Economic Growth," *Organizational Dynamics* 16, no. 4 (1988), pp. 4–21.

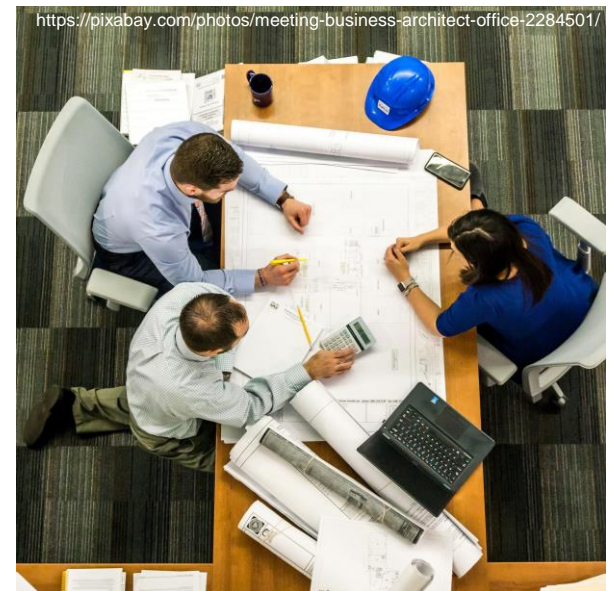
Hofstede Dimension	High	Medium	Low
Individualism	United States	Austria	Indonesia
Power distance	Malaysia	Italy	Israel
Uncertainty avoidance	Argentina	Australia	
Masculinity	Japan	Brazil	Sweden
Long-term orientation	China	Netherlands	Philippines



Organizational culture

Organizational culture is what the employees perceive and how this perception creates a pattern of beliefs, values, and expectations. Edgar Schein defined organization culture as:

“A pattern of basic assumptions—invented, discovered, or developed by a given group as it learns to cope with the problems of external adaptation and internal integration—that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems”



Management

- Management's job is to make sense out of the many situations faced by organizations, make decisions, and formulate action plans to solve organizational problems. Managers perceive business challenges in the environment; they set the organizational strategy for responding to those challenges; and they allocate the human and financial resources to coordinate the work and achieve success.



Information Technology

- Information technology is one of many tools managers use to cope with change. Computer hardware is the physical equipment used for input, processing, and output activities in an information system. It consists of the following: computers of various sizes and shapes (including mobile handheld devices); various input, output, and storage devices; and telecommunications devices that link computers together.



IT ISN'T JUST TECHNOLOGY: A BUSINESS PERSPECTIVE ON INFORMATION SYSTEMS

- Managers and business firms invest in information technology and systems because they provide real economic value to the business. The decision to build or maintain an information system assumes that the returns on this investment will be superior to other investments in buildings, machines, or other assets. These superior returns will be expressed as increases in productivity, as increases in revenues (which will increase the firm's stock market value), or perhaps as superior long-term strategic positioning of the firm in certain markets (which produce superior revenues in the future).



FIGURE 1.7 THE BUSINESS INFORMATION VALUE CHAIN

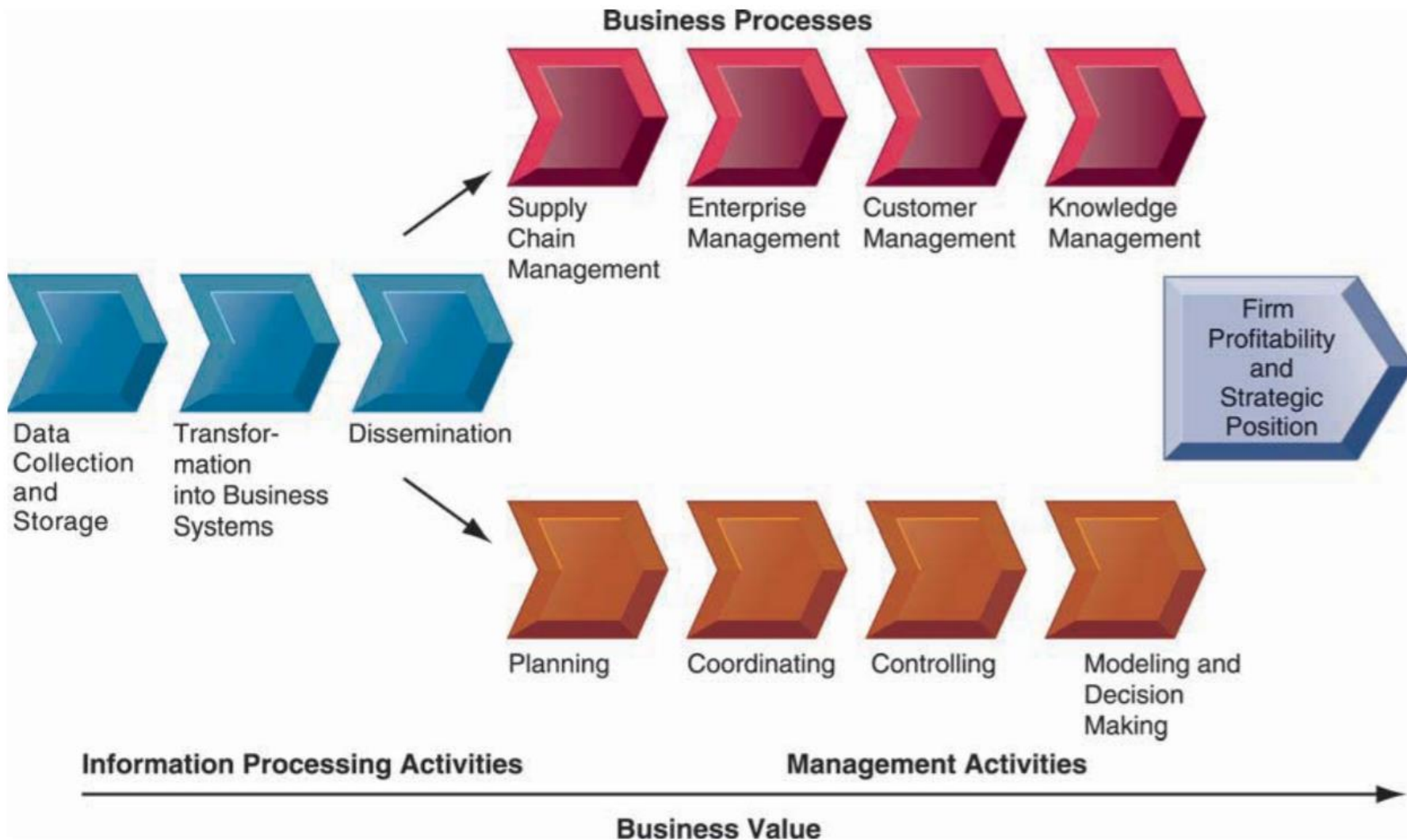
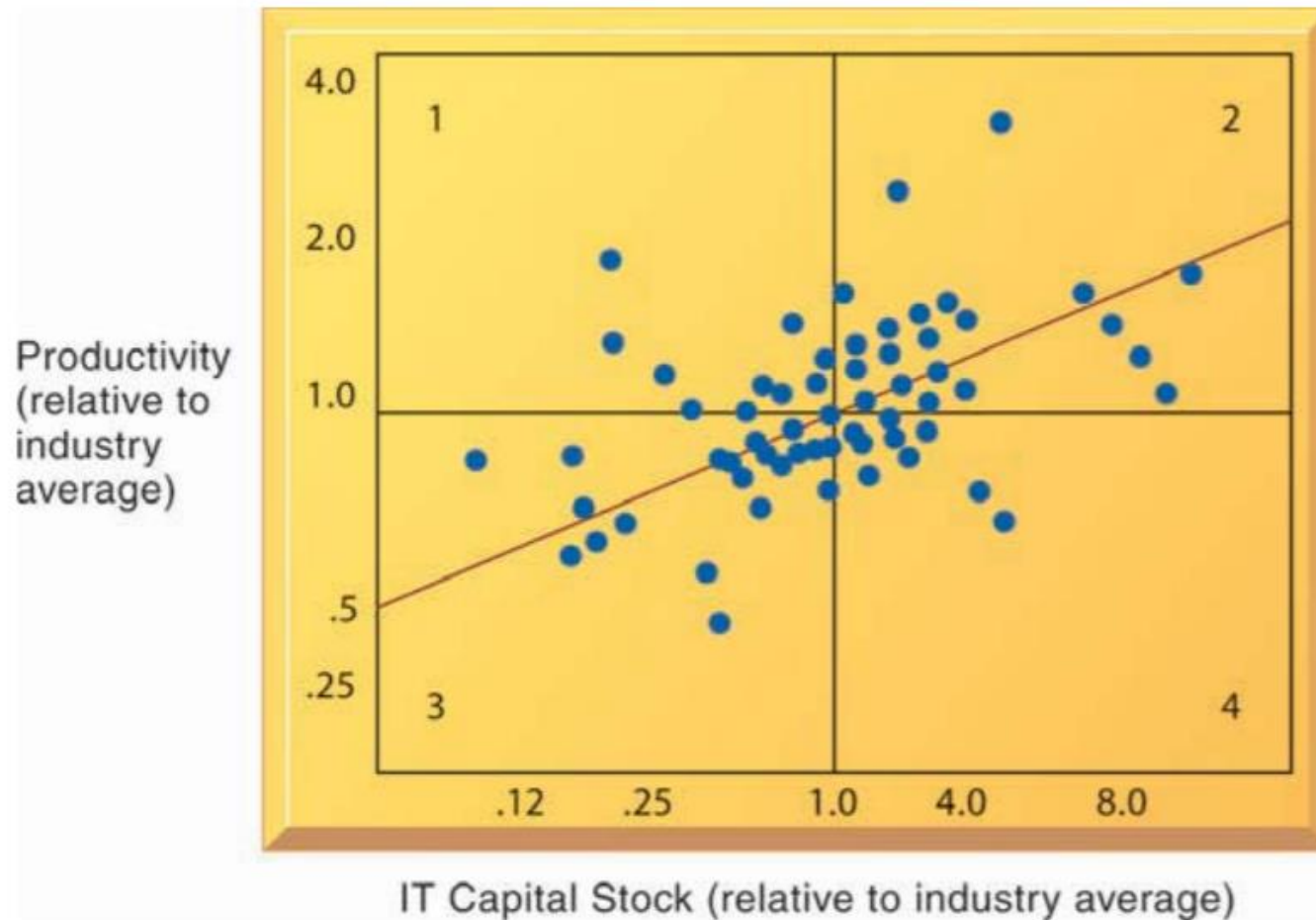


FIGURE 1.8 VARIATION IN RETURNS ON INFORMATION TECHNOLOGY INVESTMENT



Although, on average, investments in information technology produce returns far above those returned by other investments, there is considerable variation across firms.

Source: Based on Brynjolfsson and Hitt (2000).

Complementary assets

- Complementary assets are those assets required to derive value from a primary investment (Teece, 1988). For instance, to realize value from automobiles requires substantial complementary investments in highways, roads, gasoline stations, repair facilities, and a legal regulatory structure to set standards and control drivers.



TABLE 1.3 COMPLEMENTARY SOCIAL, MANAGERIAL, AND ORGANIZATIONAL ASSETS REQUIRED TO OPTIMIZE RETURNS FROM INFORMATION TECHNOLOGY INVESTMENTS

5-minute break

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



Part 3

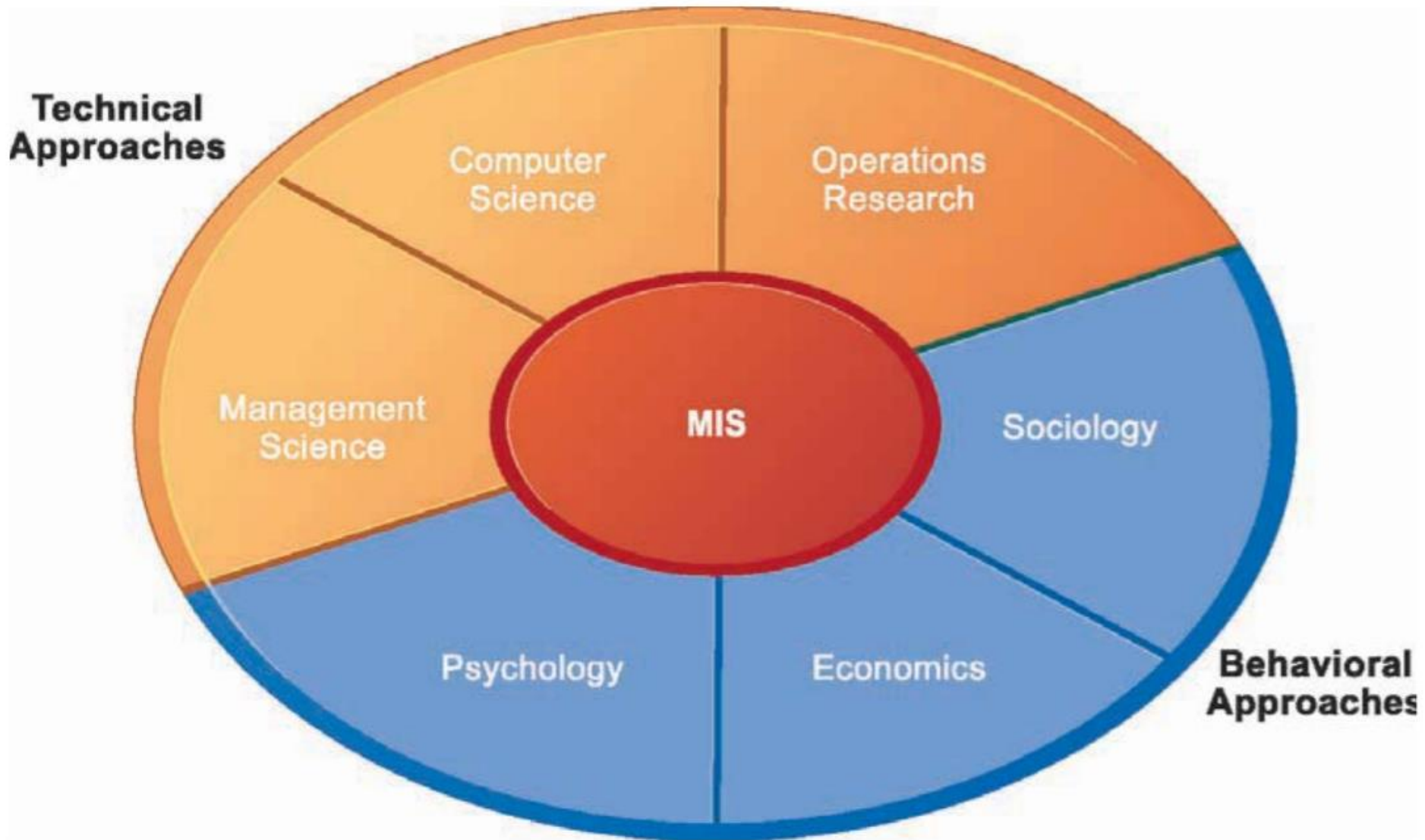


1.3 CONTEMPORARY APPROACHES TO INFORMATION SYSTEMS

- The study of information systems is a multidisciplinary field. No single theory or perspective dominates. Figure 1.9 illustrates the major disciplines that contribute problems, issues, and solutions in the study of information systems. In general, the field can be divided into technical and behavioral approaches. Information systems are sociotechnical systems. Though they are composed of machines, devices, and “hard” physical technology, they require substantial social, organizational, and intellectual investments to make them work properly.



FIGURE 1.9 CONTEMPORARY APPROACHES TO INFORMATION SYSTEMS



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

TECHNICAL APPROACH

- The technical approach to information systems emphasizes mathematically based models to study information systems, as well as the physical technology and formal capabilities of these systems. The disciplines that contribute to the technical approach are computer science, management science, and operations research.



BEHAVIORAL APPROACH

- An important part of the information systems field is concerned with behavioral issues that arise in the development and long-term maintenance of information systems. Issues such as strategic business integration, design, implementation, utilization, and management cannot be explored usefully with the models used in the technical approach. Other behavioral disciplines contribute important concepts and methods.



BEHAVIORAL APPROACH, part 2

The behavioral approach does not ignore technology. Indeed, information systems technology is often the stimulus for a behavioral problem or issue. But the focus of this approach is generally not on technical solutions. Instead, it concentrates on changes in attitudes, management and organizational policy, and behavior.



NEW APPROACH: SOCIOTECHNICAL SYSTEMS

Throughout this couple of lectures you will find a rich story with four main actors:

- suppliers of hardware and software (the technologists);
- business firms making investments and seeking to obtain value from the technology;
- managers and employees seeking to achieve business value (and other goals);
- and the contemporary legal, social, and cultural context (the firm's environment).

Together these actors produce what we call management information systems.



Sociotechnical view of systems.

The view we adopt in our course is best characterized as the sociotechnical view of systems. In this view, optimal organizational performance is achieved by jointly optimizing both the social and technical systems used in production.

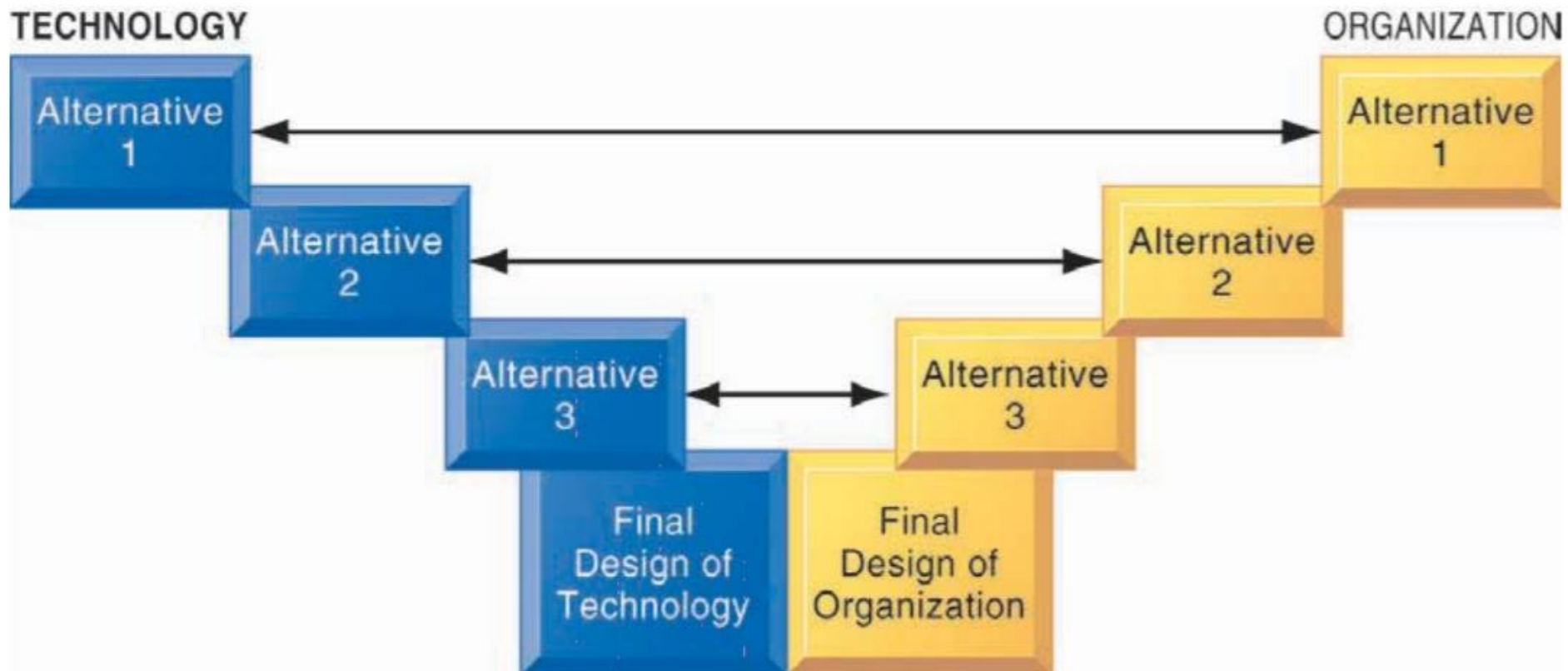


A SOCIOTECHNICAL PERSPECTIVE ON INFORMATION SYSTEMS

- In this course, we stress the need to optimize the firm's performance as a whole. 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. Sometimes, the technology may have to be “de-optimized” to accomplish this fit. For instance, mobile phone users adapt this technology to their personal needs, and as a result manufacturers quickly seek to adjust the technology to conform with user expectations. Organizations and individuals must also be changed through training, learning, and planned organizational change to allow the technology to operate and prosper. Figure 1.10 illustrates this process of mutual adjustment in a sociotechnical system.



FIGURE 1.10 A SOCIOTECHNICAL PERSPECTIVE ON INFORMATION SYSTEMS



Review Summary

How are information systems transforming business, and what is their relationship to globalization?

E-mail, online conferencing, smartphones, and tablet computers have become essential tools for conducting business. Information systems are the foundation of fast-paced supply chains. The Internet allows many businesses to buy, sell, advertise, and solicit customer feedback online. Organizations are trying to become more competitive and efficient by digitally enabling their core business processes and evolving into digital firms.



Why are information systems so essential for running and managing a business today?

- Information systems are a foundation for conducting business today. In many industries, survival and the ability to achieve strategic business goals are difficult without extensive use of information technology.



What exactly is an information system? How does it work? What are its management, organization, and technology components?

- From a technical perspective, an information system collects, stores, and disseminates information from an organization's environment and internal operations to support organizational functions and decision making, communication, coordination, control, analysis, and visualization. Information systems transform raw data into useful information through three basic activities: input, processing, and output.



What are complementary assets? Why are complementary assets essential for ensuring that information systems provide genuine value for an organization?

- In order to obtain meaningful value from information systems, organizations must support their technology investments with appropriate complementary investments in organizations and management. These complementary assets include new business models and business processes, supportive organizational culture and management behavior, appropriate technology standards, regulations, and laws.



What academic disciplines are used to study information systems? How does each contribute to an understanding of information systems? What is a sociotechnical systems perspective?

The study of information systems deals with issues and insights contributed from technical and behavioral disciplines. The disciplines that contribute to the technical approach focusing on formal models and capabilities of systems are computer science, management science, and operations research.



Discussion questions during the class

1. Information systems are too important to be left to computer specialists. Do you agree? Why or why not?
2. If you were setting up the Web site for Disney World visitors, what management, organization, and technology issues might you encounter?



Task. Please, select one of the given questions and provide your answer.

Lecture	Lesson	Teaching Contents Chapter/Topic/	Task/Work
No.01	Topic title and General Information	1. Information systems in the digital world (Information Systems in Global Business Today) Learning objectives. After studying this lecture, you will be able to answer the following questions: 1. How are information systems transforming business, and what is their relationship to globalization? 2. Why are information systems so essential for running and managing a business today? 3. What exactly is an information system? How does it work? What are its management, organization, and technology components? 4. What are complementary assets? Why are complementary assets essential for ensuring that information systems provide genuine value for an organization? 5. What academic disciplines are used to study information systems? How does each contribute to an understanding of information systems? <u>What is a sociotechnical systems perspective?</u>	Discussion Questions during the class 1. Information systems are too important to be left to computer specialists. Do you agree? Why or why not? 2. If you were setting up the Web site for Disney World visitors, what management, organization, and technology issues might you encounter? 3. What are some of the organizational, managerial, and social complementary assets that help make UPS's information systems so successful? Task. Please, select one of the given questions and provide your answer. 1. How are information systems transforming business, and what is their relationship to globalization? • Describe how information systems have changed the way businesses operate and their products and services. • Identify three major new information system trends. • Describe the characteristics of a digital firm. • Describe the challenges and opportunities of globalization in a "flattened" world. 2. Why are information systems so essential for running and managing a business today? • List and describe six reasons why information systems are so important for business today. 3. What exactly is an information system? How does it work? What are its management, organization, and technology components? • Define an information system and describe the activities it performs. • List and describe the organizational, management, and technology dimensions of information systems. • Distinguish between data and information and between information systems literacy and computer literacy. • Explain how the Internet and the World Wide Web are related to the other technology components of information systems. 4. What are complementary assets? Why are complementary assets essential for ensuring that information systems provide genuine value for an organization? • Define complementary assets and describe their relationship to information technology. • Describe the complementary social, managerial, and organizational assets required to optimize returns from information technology investments. 5. What academic disciplines are used to study information systems? How does each contribute to an understanding of information systems? What is a sociotechnical systems perspective? • List and describe each discipline that contributes to a technical approach to information systems. • List and describe each discipline that contributes to a behavioral approach to information systems. • Describe the sociotechnical perspective on information systems.
	1	1 THE ROLE OF INFORMATION SYSTEMS IN BUSINESS TODAY <ul style="list-style-type: none"> How Information Systems Are Transforming Business What's New in Management Information Systems? Globalization Challenges and Opportunities: A Flattened World The Emerging Digital Firm Strategic Business Objectives of Information Systems 	
	2	2 PERSPECTIVES ON INFORMATION SYSTEMS <ul style="list-style-type: none"> What Is an Information System? Dimensions of Information Systems It isn't Just Technology: A Business Perspective on Information Systems Complementary Assets: Organizational Capital and the Right Business Model 	
	3	3 CONTEMPORARY APPROACHES TO INFORMATION SYSTEMS <ul style="list-style-type: none"> Technical Approach Behavioral Approach Approach of This Text: Sociotechnical Systems 	



Case-study video from Google

Google Data Center Efficiency Best Practices

Data Center Efficiency Best Practices



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Case-study video from Google

Google Data Center Efficiency Best Practices



Thank you

