Information Systems in Global Business Today

Dr. N. Abdolvand

Management Information System

1

Sources

◆ Management Information Systems, Ken Laudon & Jane Laudon, Prentice Hall

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2

Cases

◆ Case 1: UPS Global Operations with the DIAD IV

◆ Case 2: Google Data Center Efficiency Best Practices

◆ Instructional Video 1: Green Energy Efficiency in a Data Center Using Tivoli Architecture

◆ Instructional Video 2: Tour IBM's Raleigh Data Center

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3

Learning Objectives

◆ Understanding the effects of information systems on business and their relationship to globalization.

◆ Explain why information systems are so essential in business today.

◆ Define an information system and describe its management, organization, and technology components.

◆ Define complementary assets and explain how they ensure that information systems provide genuine value to an organization.

◆ Describe the different academic disciplines used to study information systems and explain how each contributes to our understanding of them.

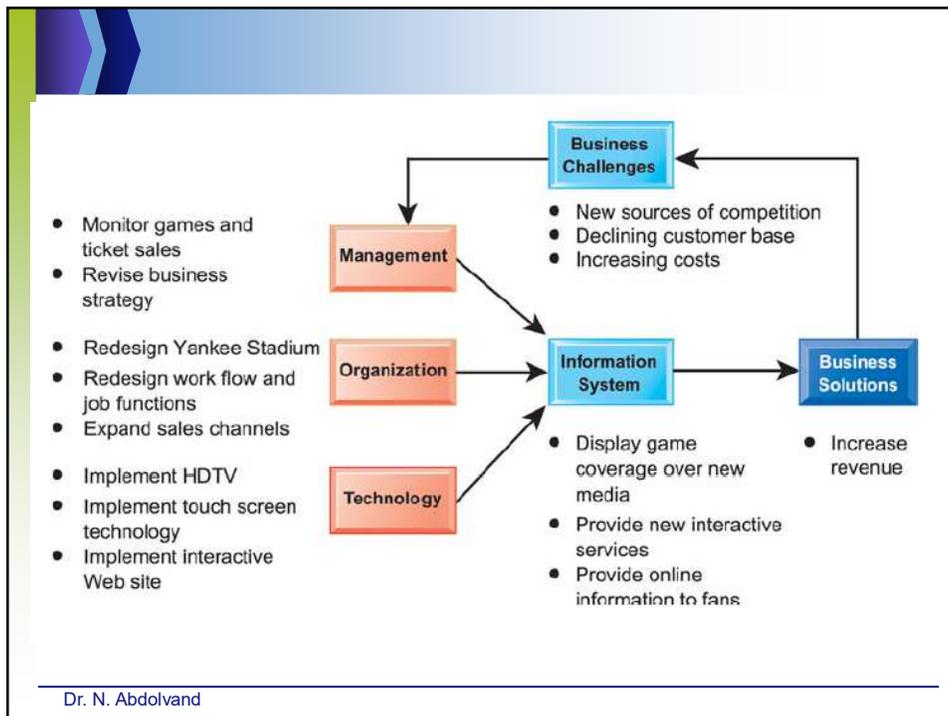◆ Explain what is meant by a sociotechnical systems perspective.
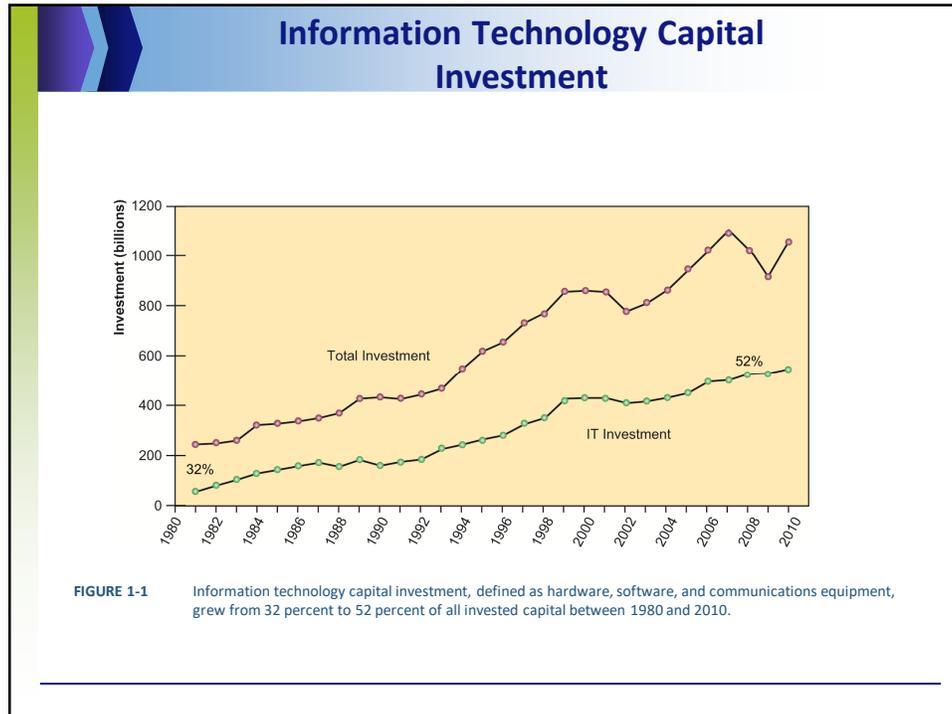
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The New Yankee Stadium Looks to the Future

◆ **Problem**: Yankee fans choosing to watch games on TV or choose other forms of entertainment

◆ **Solutions**: Use information systems to enhance experience. Game coverage, statistics, delivered via ubiquitous HDTV monitors, mobiles can order concessions, view replays

◆ **Cisco Systems provides technology** to make Yankee Stadium the most wired in all of baseball

◆ Demonstrates IT's role in providing new products and services.

◆ Illustrates the benefits of utilizing networks and mobile applications to enhance entertainment, information.

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- Monitor games and ticket sales
- Revise business strategy

- Redesign Yankee Stadium
- Redesign work flow and job functions
- Expand sales channels

- Implement HDTV
- Implement touch screen technology
- Implement interactive Web site

Management

Organization

Technology

Business Challenges
- New sources of competition
- Declining customer base
- Increasing costs

Information System

Business Solutions

- Display game coverage over new media
- Provide new interactive services
- Provide online information to fans

- Increase revenue

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6

3

Information Technology Capital Investment

FIGURE 1-1   Information technology capital investment, defined as hardware, software, and communications equipment, grew from 32 percent to 52 percent of all invested capital between 1980 and 2010.

7

What's New in MIS?

◆ New technologies
- Cloud computing
- Software as a service (SaaS)
- Mobile digital platform

◆ People and behavior changes
- Managers use social networks, collaboration.
- Business Intelligence
- Virtual meetings are accepted and used.

◆ Organizations
- Web 2.0 applications widely adopted
- Telework gains momentum
- Co-creation of value, collaboration across firms

8

The Role of Information Systems in Business Today

◆ How information systems are transforming business
  - Increase in wireless technology use, Web sites
  - Increased business use of Web 2.0 technologies
  - Growing business use of "big data"
  - Cloud computing, mobile digital platform allow more distributed work, decision-making, and collaboration

◆ Globalization opportunities
  - Internet has drastically reduced costs of operating on global scale
  - Presents both challenges and opportunities

◆ Digital firms offer greater flexibility in organization and management
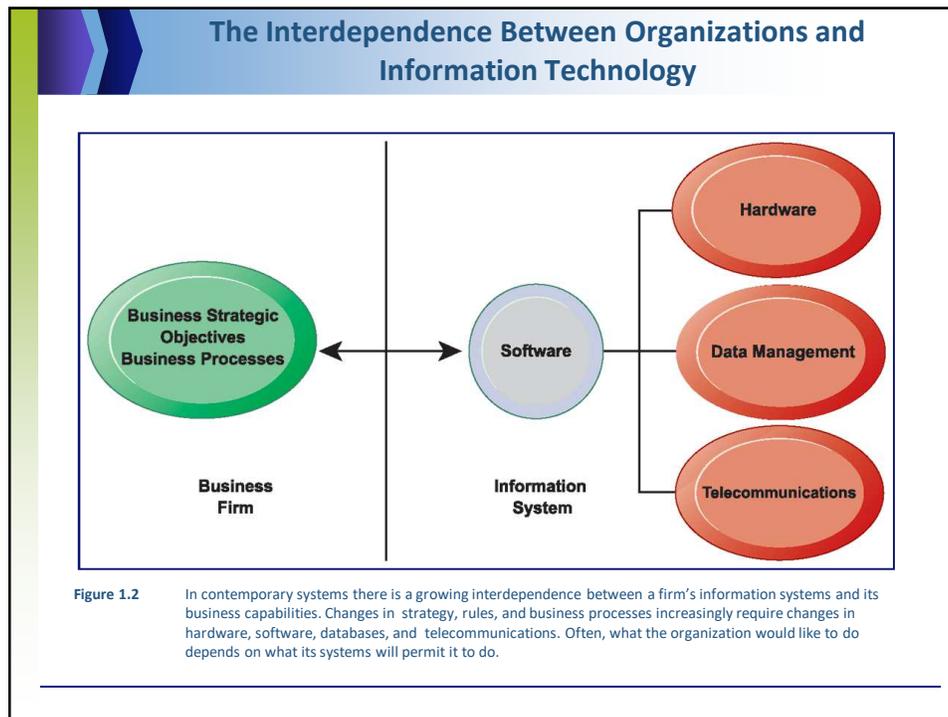 - Time shifting, space shifting

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The Role of Information Systems in Business Today

◆ Growing interdependence between ability to use information technology and ability to implement corporate strategies and achieve corporate goals

◆ Business firms invest heavily in information systems to achieve six strategic 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

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The Interdependence Between Organizations and Information Technology

Figure 1.2 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.

11

Business perspective on information systems:

◆ 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

12

6

1- Operational excellence

◆ Improvement of efficiency to attain higher profitability

◆ Information systems, technology an important tool in achieving greater efficiency and productivity

◆ Walmart's RetailLink system links suppliers to stores for superior replenishment system

13

2- New products, services, and business models

◆ Business model: describes how company produces, delivers, and sells product or service to create wealth

◆ Information systems and technology a major enabling tool for new products, services, business models

  ▪ Examples: Apple's iPod, iTunes, iPhone, iPad, Google's Android OS, and Netflix

14

3- Customer and supplier intimacy

◆ Serving customers well leads to customers returning, which raises revenues and profits
- Example: High-end hotels that use computers to track customer preferences and use to monitor and customize environment

◆ Intimacy with suppliers allows them to provide vital inputs, which lowers costs
- Example: J.C.Penney's information system which links sales records to contract manufacturer

15

4- Improved decision making

◆ Without accurate information:
- Managers must use forecasts, best guesses, luck
- Leads to:
  - Overproduction, underproduction of goods and services
  - Misallocation of resources
  - Poor response times
- Poor outcomes raise costs, lose customers

◆ Example: Verizon's Web-based digital dashboard to provide managers with real-time data on customer complaints, network performance, line outages, etc.

16

5- Competitive advantage

◆ Delivering better performance
◆ Charging less for superior products
◆ Responding to customers and suppliers in real time
◆ Examples: Apple, Walmart, UPS

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6- Survival

◆ Information technologies as necessity of business
◆ May be:
- Industry-level changes, e.g. Citibank's introduction of ATMs
- Governmental regulations requiring record-keeping
  - Examples: Toxic Substances Control Act, Sarbanes-Oxley Act

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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 form

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◆ **Perspectives on Information Systems**
Data and Information

Data

331 Brite Dish Soap 1.29
863 BL Hill Coffee 4.69
173 Meow Cat .79
331 Brite Dish Soap 1.29
663 Country Ham 3.29
524 Fiery Mustard 1.49
113 Ginger Root .85
331 Brite Dish Soap 1.29

Information System

Information

Sales Region: Northwest
Store: Superstore #122

ITEM NO.	DESCRIPTION	UNITS SOLD
331	Brite Dish Soap	7,156

YTD SALES
$9,231.24

Figure 1.3 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.

20

Perspectives on Information Systems

◆ Three activities of information systems produce information organizations need
  - Input: Captures raw data from organization or external environment
  - Processing: Converts raw data into meaningful form
  - Output: Transfers processed information to people or activities that use it

◆ Feedback:
  - Output returned to appropriate members of organization to help evaluate or correct input stage

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21

◆ **Perspectives on Information Systems**

Functions of an Information System

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.

Figure 1.4

22

11

DIMENSIONS OF INFORMATION SYSTEMS

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.
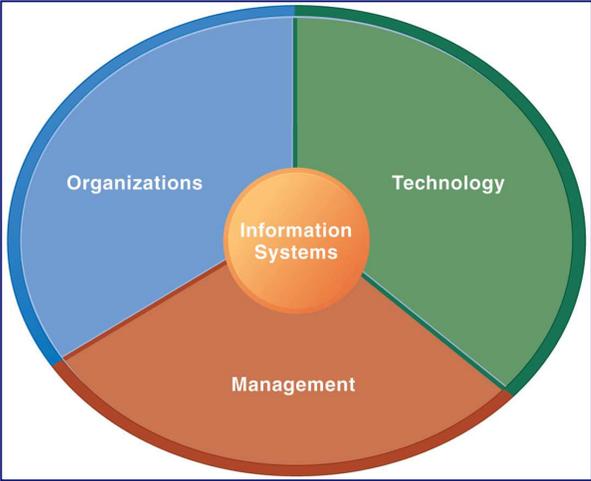
Organizations   Technology

Information Systems

Management

Figure 1.5

23

Organizational dimension of information systems

◆ Hierarchy of authority, responsibility
- Senior management
- Middle management
- Operational management
- Knowledge workers
- Data workers
- Production or service worker

Senior Management

Middle Management
Scientists and knowledge workers

Operational Management
Production and service workers
Data workers
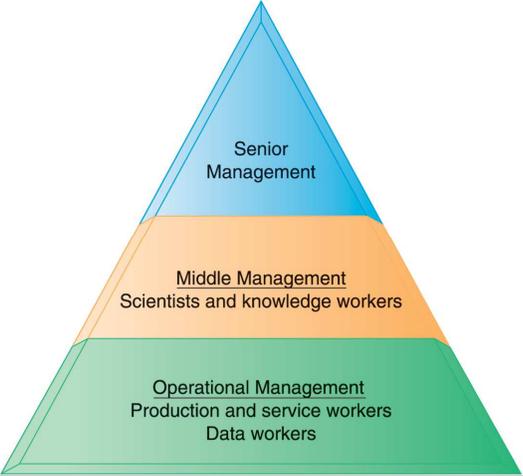
24

Organizational dimension of information systems (cont.)

◆ Separation of business functions
- Sales and marketing
- Human resources
- Finance and accounting
- Manufacturing and production

◆ Unique business processes

◆ Unique business culture

◆ Organizational politics

25

Management dimension of information systems

◆ Managers set organizational strategy for responding to business challenges

◆ In addition, managers must act creatively:
- Creation of new products and services
- Occasionally re-creating the organization

26

Technology dimension of information systems

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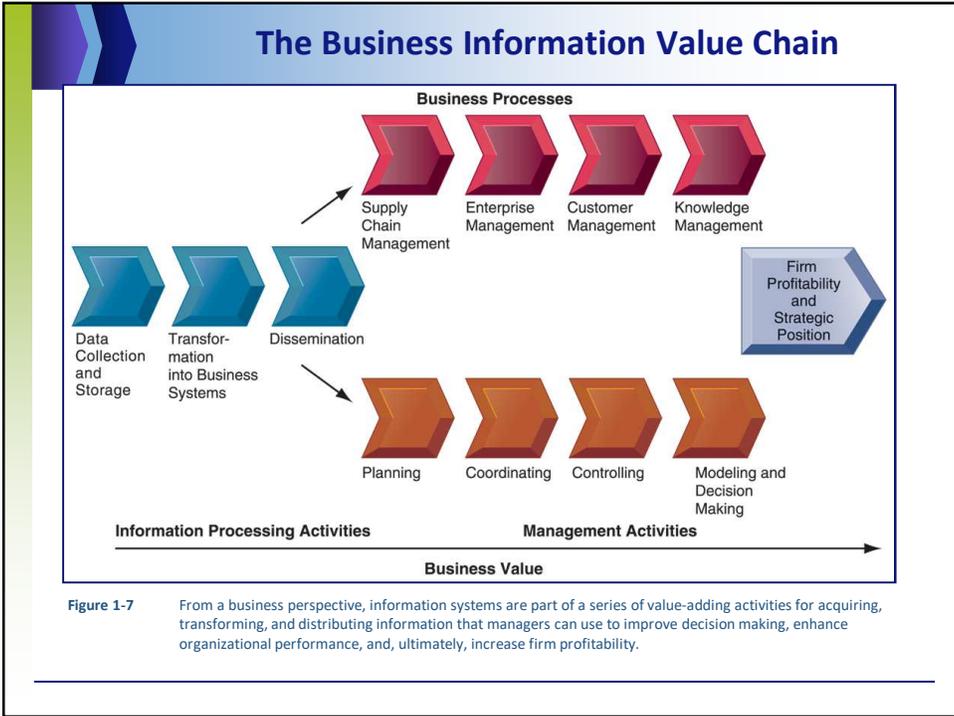◆ IT infrastructure: provides platform that system is built on

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Dimensions of UPS tracking system

◆ Organizational:
- Procedures for tracking packages and managing inventory and provide information
◆ Management:
- Monitor service levels and costs
◆ Technology:
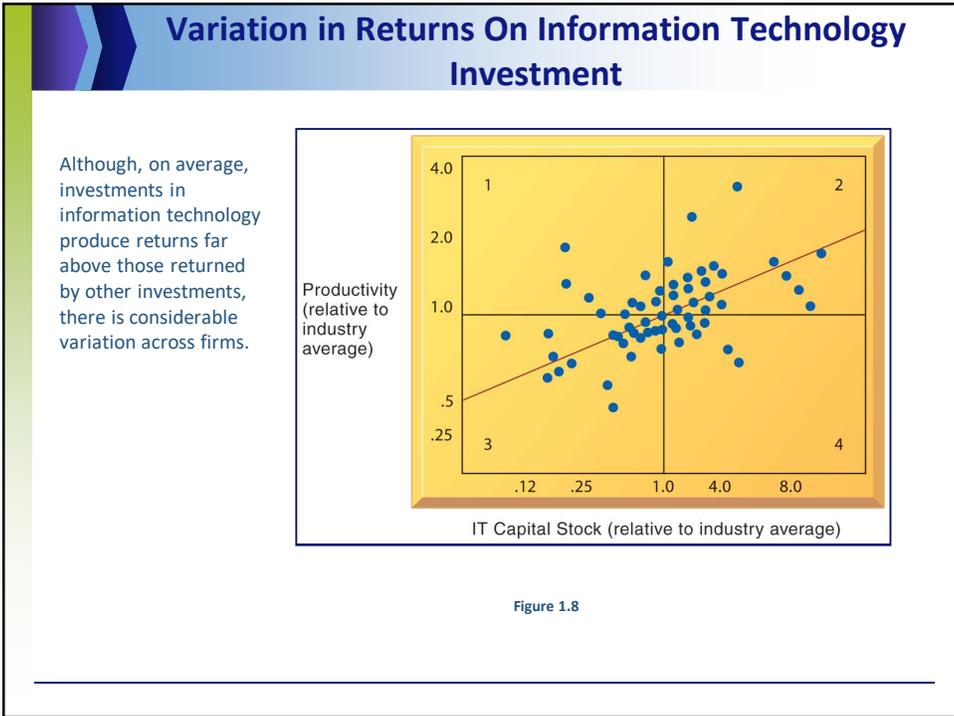- Handheld computers, bar-code scanners, networks, desktop computers, etc.

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The Business Information Value Chain

Figure 1-7 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.

29

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.

Figure 1.8

30

15

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35

Questions?

36