Chapter 1

Managing the Digital Firm

OBJECTIVES

• Explain why information systems are so important today for business and management

• Evaluate the role of information systems in today’s competitive business environment

• Assess the impact of the Internet and Internet technology on business and government

OBJECTIVES (Continued)

• Define an information system from both a technical and business perspective and distinguish between computer literacy and information systems literacy

• Identify the major management challenges to building and using information systems
• Information Systems
  – What are some dominant names in the information system industry?
    - Dell
    - Microsoft
    - IBM

• What is the product/service?
• Computer information systems future
  – Augmented Reality movie

Why Information Systems Matter
There are four reasons why IT makes a difference to the success of a business:

1. Capital management
2. As a foundation of doing business
3. Productivity improvements (often via better communication of information)
4. Strategic opportunity and advantage via paradigm shifts
1. Capital Management:
   • IT is the largest single component of capital investment in the United States.
   • About $1.8 trillion is spent each year by American businesses.
   • Managers and business students need to know how to invest this capital wisely.
   • The success of your business in the future may well depend on how you make IT investment decisions.

2. Foundation of doing business:
   • Most businesses today could not operate without extensive use of information systems and technologies.
   • IT can increase market share.
   • IT can help a business become a high-quality, low-cost producer.
   • IT is vital to the development of new products.

The Interdependence between Organizations and Information Systems

Figure 1-2
• IT is one of the most important tools managers have to increase productivity and efficiency of businesses.

• According to the Federal Reserve Bank, IT has reduced the rate of inflation by 0.5 to 1% in the last decade.
  - IT is a major factor in reducing costs.

• It is estimated that IT has increased productivity in the economy by about 1% in the last decade.
  - IT is a major source of labor and capital efficiency.

3. Productivity:

4. Strategic Opportunity and Advantage:

  • Create competitive advantage: IT makes it possible to develop competitive advantages.

  • New Business Models: Dell Computer has built its competitive advantage on an IT enabled build-to-order business model that other firms have not been able to imitate.

  • Create new services: eBay has developed the largest auction trading platform for millions of individuals and businesses. Competitors have not been able to imitate its success.

  • Differentiate yourself from your competitors: Amazon has become the largest book retailer in the United States on the strength of its huge online inventory and recommender system. It has no rivals in size and scope.
### WHY INFORMATION SYSTEMS?

#### SUMMARY: Why Information Systems Matter

There are four reasons why IT makes a difference to the success of a business:

1. **Capital management**
2. **As a foundation of doing business**
3. **Productivity improvements (often via better communications)**
4. **Strategic opportunity and advantage via paradigm shifts**

#### How Much Does IT Matter?

- Carr has written that whatever advantages firms build using IT can be easily copied by competitors.
- **Blackboard** suing ** Desire2Learn**
- **News article**
- This view is not supported by the evidence: Amazon, eBay, Dell, Wal-Mart and Apple’s iTunes are just a few firms that have built and maintained technology-based advantages.

#### Why IT Now? Digital Convergence and the Changing Business Environment

Growing impact of IT in business firms can be assessed from the following five factors:

1. **Internet growth and technology convergence**
2. **Transformation of the business enterprise**
3. **Growth of a globally connected economy**
4. **Growth of knowledge and information-based economies**
5. **Emergence of the digital firm**
The Internet and Technology Convergence:

- Growth of the Internet: 120 million online in the United States, 500 million global users
- The Internet is bringing about a convergence of telecommunications and computing: VoIP telephones.
  - How does this affect legacy telephone companies such as the Bell telephones?
  - What other industries are converging?
- The Internet is making many traditional business models obsolete: the corner music store and video store.

Transformation of the Business Enterprise:

1. Flattening of the hierarchy
2. Decentralization of power
3. Flexibility of the enterprise/organization
4. Location independence
5. Lower transaction and coordination costs
6. Empowerment of the individual

Globalization:

- Management and control in a global marketplace
- Competition in world markets
- Global workgroups
- Global delivery systems
Rise of the Information Economy:

- Knowledge and information-based economies
- New products and services
- Knowledge as a central productive and strategic asset

The Growth of the Information Economy

Source: U.S. Department of Commerce, Bureau of the
U.S. Census, Statistical Abstract of the United States, 2003,
Table 615; and Historical Statistics of the United States,

Emergence of the Digital Firm:

- Digitally enabled relationships with customers, suppliers, and employees
- Core business processes accomplished using digital networks
- Digital management of key corporate assets
- Agile sensing and responding to environmental changes
- Seamless flow of information within the firm, and with strategic partners
Why IT Now? Digital Convergence and the Changing Business Environment

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What Is an Information System?

Technology perspective: A set of interrelated components that collect (or retrieve), process, store, and distribute information to support decision making and control in an organization

Business perspective: IS are a tool for creating value in an organization. (a superior investment, coping with regulations, staying competitive, productivity, etc.)
What is an Information System? (Continued)

- **Data**: Streams of raw facts representing events such as business transactions

- **Information**: Data shaped into a meaningful and useful form. The same data can be "shaped" in different ways:
  - POM, accounting, finance, marketing, human resources, research/engineering, ...  
  - Governments, military, administration, ...

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**Data and Information**

Data is transformed into information, that may be used for further processing (data mining, output for various functional areas, etc.). Knowledge is a correct application of information.
Functions of an Information System

Can students be viewed as Information systems processing data within an Educational Organization?

System Diagram
PERSPECTIVES ON INFORMATION SYSTEMS

Computer-Based Information System (CBIS)
- Rely on computer hardware and software for processing and disseminating information using fixed definitions of data and procedures for collecting, storing, distributing, using information.

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A Business Perspective on Information Systems
Information systems are more than just technology. Businesses invest in IS in order to create value and increase profitability.
- Information systems are an organizational and management solution to business challenges that arise from the business environment.
  - Based on information technology but also require significant investment in organizational and management changes and innovations.
  - IS create value primarily by changing business processes and management decision making.
Information systems literacy: Broad-based understanding of information systems that includes behavioral knowledge about organizations, management and individuals using information systems as well as technical knowledge about computers

Computer literacy: Knowledge about information technology, focusing on understanding how computer technologies work

Three Important Dimensions of Information Systems
- Organizations
- Managers
- Technology

You will need to understand and balance these dimensions of information systems in order to create business value.
Dimensions of IS

- Complementary Assets & Organizational Capital
  - Technology alone does not increase value
    • Different firms realize different returns on technology – why?
  - Creating value with IS also requires supportive values, structures, and behavior within the organization
    • New business processes, culture, management style, training, etc.

Management Information Systems
Chapter 1 Managing the Digital Firm

PERSPECTIVES ON INFORMATION SYSTEMS

Information Systems Are More than Computers

Socio-technical Systems

Managers Optimize systems performance between:

- **Technology and Organization** mutually adjusting to one another until fit is satisfactory (or a politically acceptable compromise is reached, e.g. union jobs lost via technology)
A Sociotechnical Perspective on Information Systems

Training

Make technology easier to use

Major Business Functions Rely on Information Systems

- Sales and marketing
- Manufacturing
- Finance
- Accounting
- Human resources

IS Management Challenges

1. Obtaining business value from IS investment
2. Complementary assets needed to meet strategic goals
3. Globalization
4. Infrastructure development/maintenance in rapidly changing business & technical environments
5. Ethical & security challenges
### Summary

- IS are a foundation for conducting business & are largest components of capital investment.
- IS plays key role in global competition & knowledge-based assets (products/services)
- Internet provides flexible, stable platform for global connectivity, e-commerce, digital firms
- Socio-technical perspectives of IS
- Major management challenges posed by IS