

IS 3610

Management

Information Systems

Dr. Upeksha Ganegoda
Ms. Gayathri Kaushalya

Learning Outcomes

On successful completion of this module, students will be able to:

- Illustrate different information systems based on different functional business processes and management groups
- Analyze and design different types of enterprise applications
- Interpret and design e-commerce applications and models
- Distinguish different methods to manage knowledge within information systems
- Recommend new methods to enhance decision making in information systems

Outline Syllabus

- Foundations of information systems in business and organization
- Functional perspective on information systems
- Information systems, organizations & strategy
- Enterprise applications
- Electronic business & electronic commerce
- Managing knowledge
- Enhancing decision making

Evaluation and Reading

Evaluation of Performance:

- Continuous Assessments: 30% (individual + group assessments)
 - Individual: 2 assignments
 - Group: 1 assignment
- Final Evaluation: 70%

Recommended Reading:

Laudon, K. and Laudon, J., 2022, Management Information Systems: Managing the Digital Firm, Seventeenth Edition, Prentice Hall

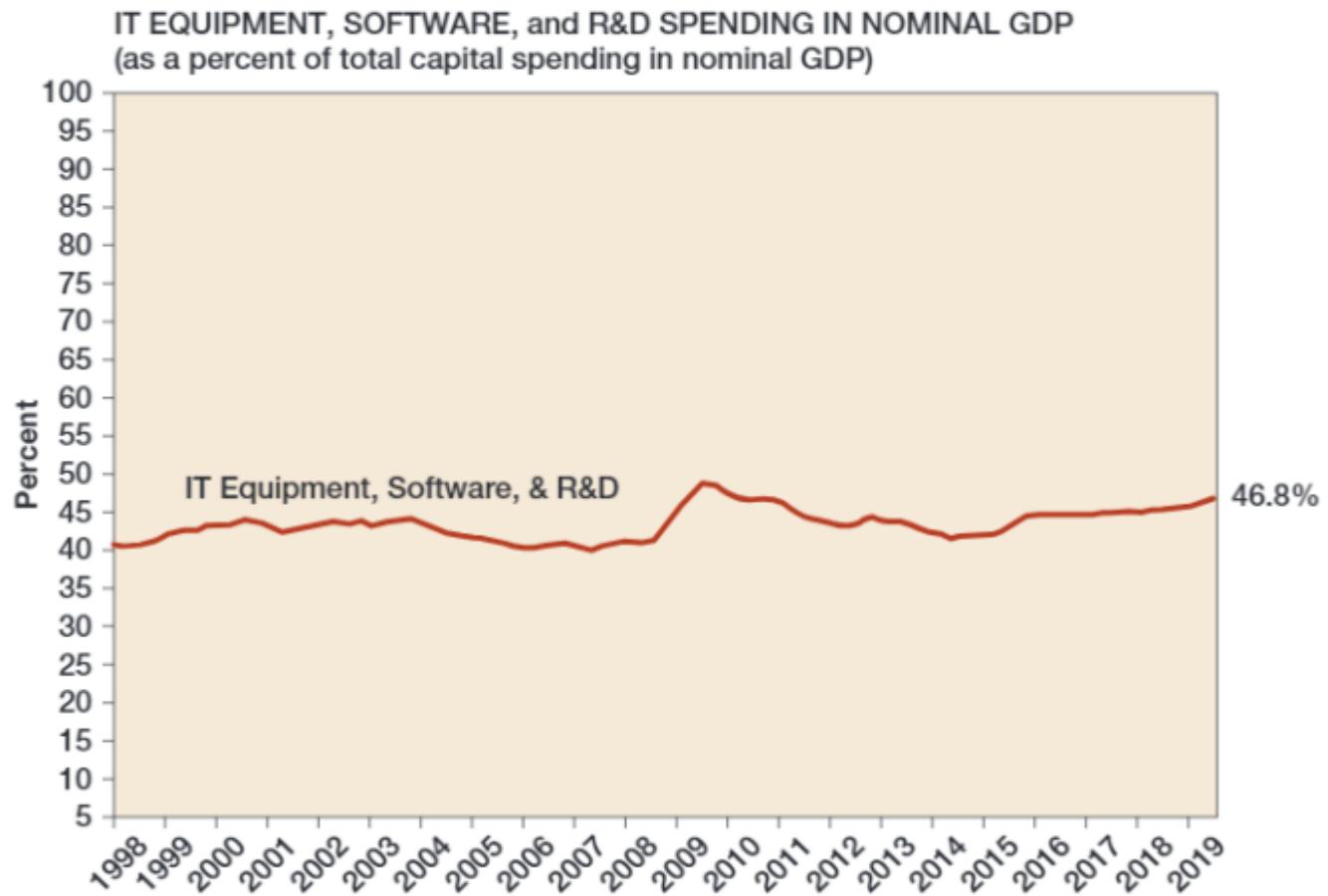
Foundations of information systems in business and organization

What's New in Management Information Systems?

Important paramount 5 items that change:

- IT Innovations
- New Business Models
- E-commerce Expansion
- Management Changes
- Changes in Firms and Organizations

Information Technology Capital Investment



Increased globalization

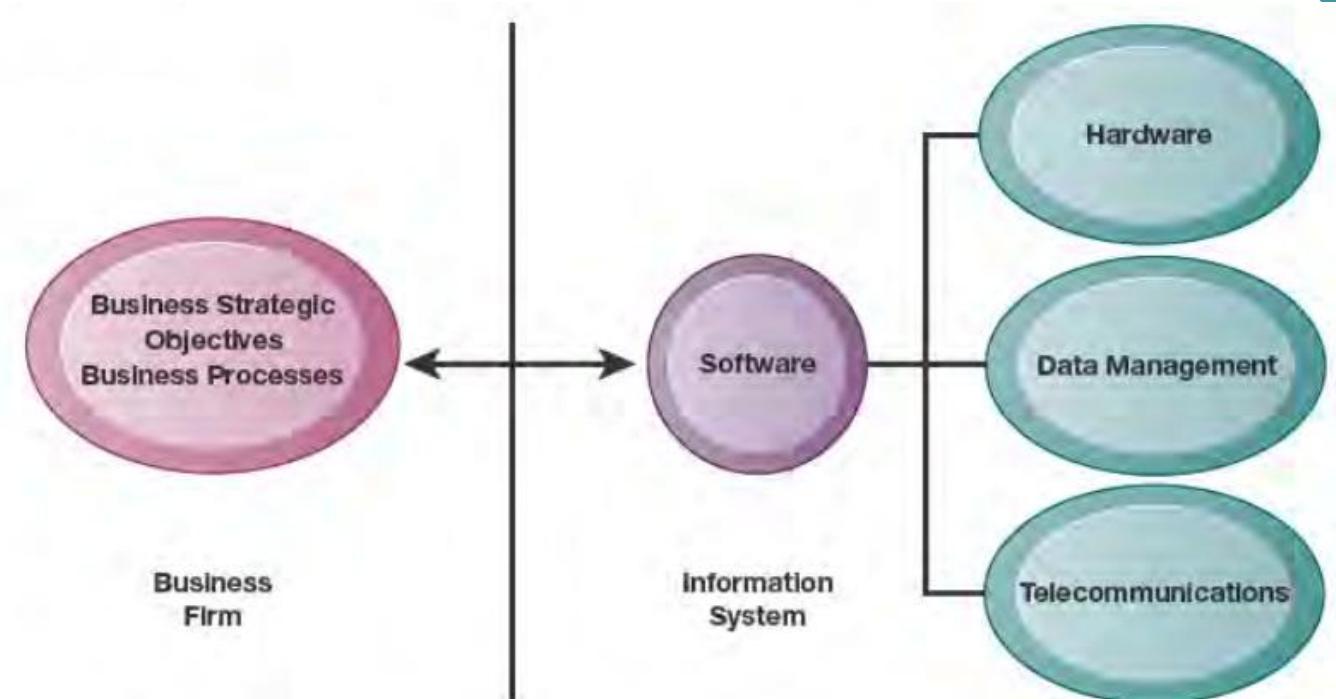
- Globalization: The development of an increasingly integrated global economy
- Internet has drastically reduced costs of operating on a global scale

The Emerging Digital Firm

- In a digital firm:
 - Significant business relationships are digitally enabled and mediated.
 - Core business processes are accomplished through digital networks.
 - Key corporate assets are managed digitally.
- Advantages of digital firms over traditional firms:
 - Rapid sensing of and response to environment
 - Greater flexibility in organization and management
 - “Time shifting” and “space shifting”

Interdependence between Organizations and Information 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 Information Systems

1. Operational excellence
2. New products, services, and business models
3. Customer and supplier intimacy
4. Improved decision making
5. Competitive advantage
6. Survival

1. Operational Excellence

- Improvement of efficiency to attain higher profitability
- Information systems and technologies are important tools in achieving greater efficiency and productivity
- Example: Walmart's Retail Link system links suppliers to stores for a superior replenishment system

2. New Products, Services, and Business Models

- **Business model:** describes how a company produces, delivers, and sells products or services to create wealth
- Information systems and technology are a major enabling tool for new products, services, business models
- Examples: Apple's iPad, Uber, and Netflix

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, which are used to monitor and customize the room environment

- Intimacy with suppliers allows them to provide vital inputs, which lowers costs.

Example: The US department store chain JCPenney's information system which links sales records to their contract manufacturers

4. Improved Decision Making

Without accurate information:

- Managers must use forecasts, best guesses, luck
- Results in:
 - Overproduction, underproduction, misallocation of resources, poor response times
 - Poor outcomes raise costs, lose customers

Information systems help managers use real-time data from the marketplace when making decisions.

5. Competitive Advantage

- Competitive advantage: An advantage that a firm has over its competitors, allowing it to generate greater sales or margins and/or retain more customers than its competition.
- Competitive advantage can be achieved by:
 - Delivering better performance
 - Charging less for superior products
 - Responding to customers and suppliers in real time
- Examples: Apple, Walmart, Toyota

6. Survival

- Information technologies as a necessity of business
- Industry-level changes

Example: Citibank's introduction of ATMs

- Governmental regulations requiring record-keeping

Example: Sarbanes-Oxley Act in USA

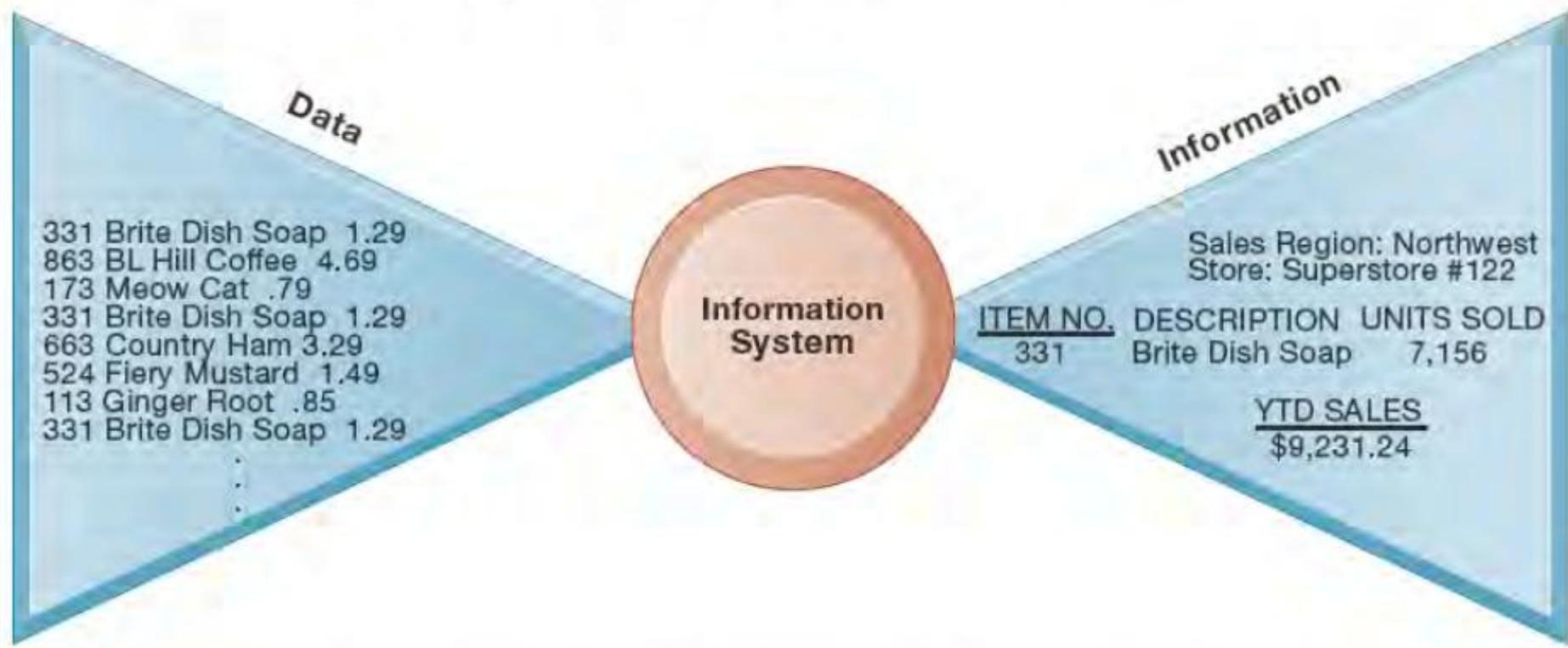
What is an Information System?

Information system:

- Set of interrelated components that collect, process, store, and distribute information to support decision making, coordination, and control.
- Information systems may also help managers and workers analyze problems, visualize complex subjects, and create new products

Data and Information

- Data are streams of raw facts.



Functions of an Information System

- **Input:**

Captures raw data from organization or external environment

- **Processing:**

Converts raw data into meaningful form

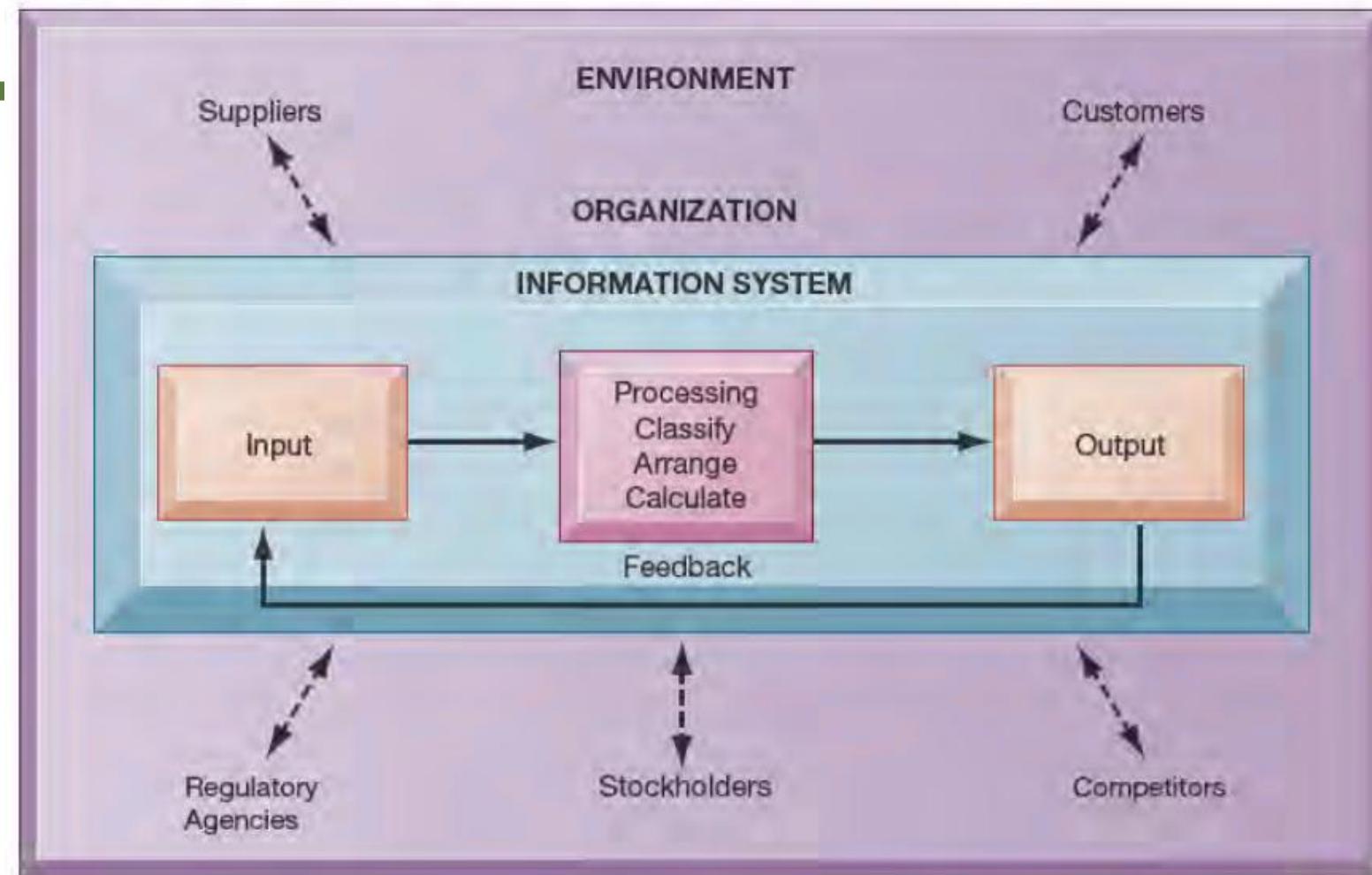
- **Output:**

Transfers processed information to people or activities that use it

- **Feedback:**

Output that is returned to appropriate members of the organization to help evaluate or correct the input stage.

Functions of an Information System



Hardware + Software = Information System ?

- Do you have an information system if you have computer hardware and software?
- Computer hardware and software are the technical foundation and tools, similar to the material and tools used to build a house
- Systems need to be designed to fit the firms and the humans who work with the systems.

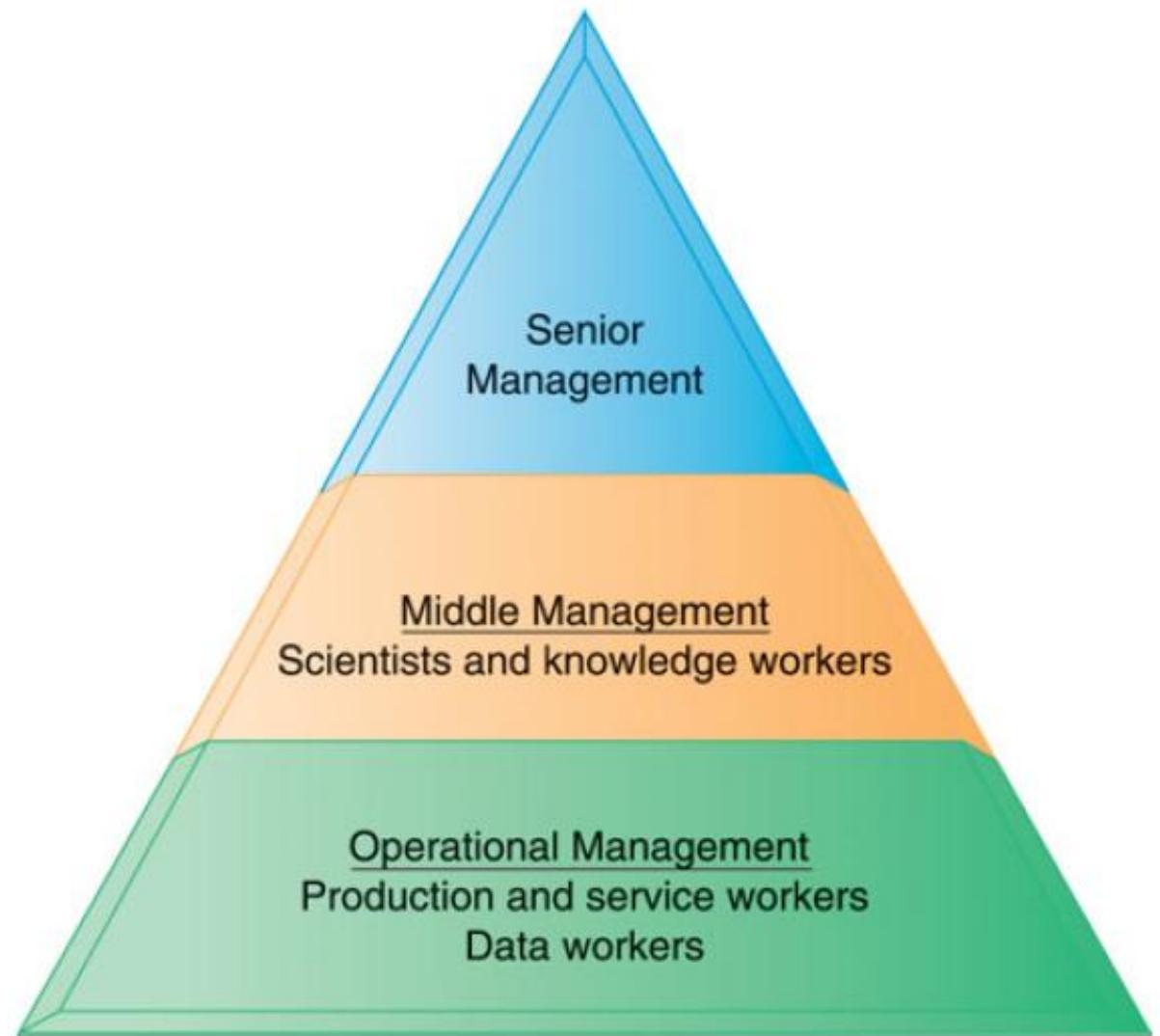
Information Systems Are More Than Computers

- An information system creates value for the firm as an organizational and management solution to challenges posed by the environment.
- The field of MIS tries to achieve the information systems literacy.



Organizational Dimension of Information Systems

- An organization coordinates work through its hierarchy and through its business processes.



Hierarchy of authority and responsibility in a business firm

Organizational Dimension of Information Systems (contd.)

- Major business functions
 - Sales and marketing
 - Human resources
 - Finance and accounting
 - Manufacturing and production
 - Procurement and distribution
- Unique business processes
- Unique business culture
- Organizational politics

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
- Information technology can play a powerful role in helping managers design and deliver new products and services and redirecting and redesigning their organizations.

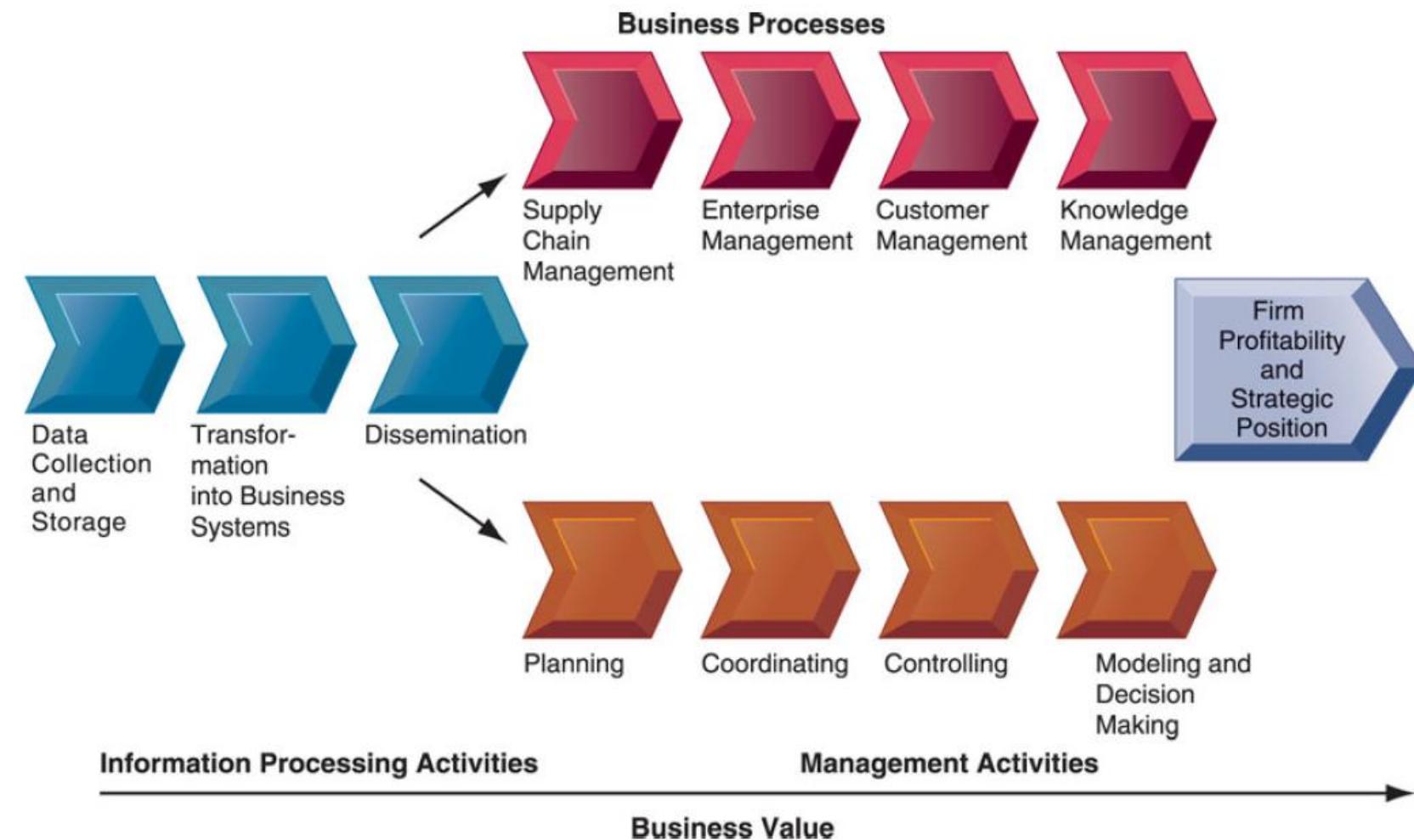
Technology Dimension of Information Systems

- Computer hardware and software
- Data management technology
- Networking and telecommunications technology
- IT infrastructure: provides the platform that systems are built on.

Business Perspective on Information Systems

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

Business Information Value Chain



- Raw data is acquired and transformed through stages that add value to that information.

Discussion

- What are the companies (or products) that have failed or nearly failed?
- What are the reasons for the failure?

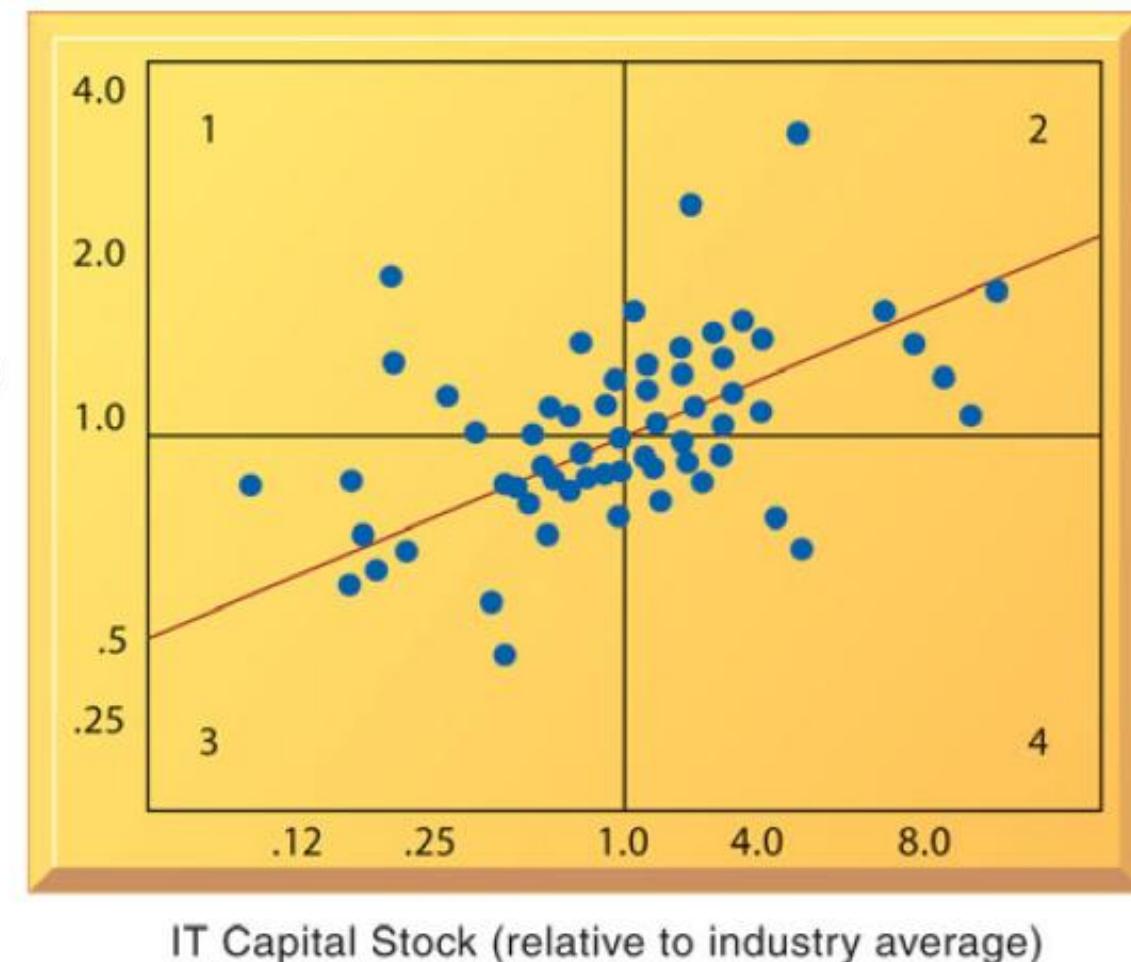
Discussion

Company	Product	Reason for failure
Google - 2011	Google+ (social network)	Difficulty in compete with Facebook
Microsoft – 1999	Office assistant clippy	Did not able to match with customer requirement
Compaq (1982 – 2002)	Larges sellers of PCs	Lack of innovation (took by hp)
General Motors (1908 – 2002)	Car manufacturer	Failure to innovate and blatantly ignoring competition (took by “new GM”)
Nokia (1996 – 2013)	Mobile phone company	Lack of innovation, lack of leadership (took by Microsoft)

Variation in Returns on Information Technology Investment

- Investing in information technology does not guarantee good returns.

Productivity
(relative to
industry
average)



Variation in Returns on Information Technology Investment (contd.)

- There is considerable variation in the returns firms receive from systems investments.
- Factors:
 - Adopting the right business model
 - Investing in complementary assets (organizational and management capital)

Complementary Assets

- Assets required to derive value from a primary investment.
- Firms supporting technology investments with investment in complementary assets receive superior returns.

Example: new business models, new business processes, management behavior, organizational culture, training

- Complementary assets include organizational, managerial and social assets.

Complementary Assets (contd.)

- Organizational assets:
 - Supportive organizational culture that values efficiency and effectiveness
 - Efficient business processes
 - Decentralized authority
 - Distributed decision-making rights
 - Strong IS development team

Complementary Assets (contd.)

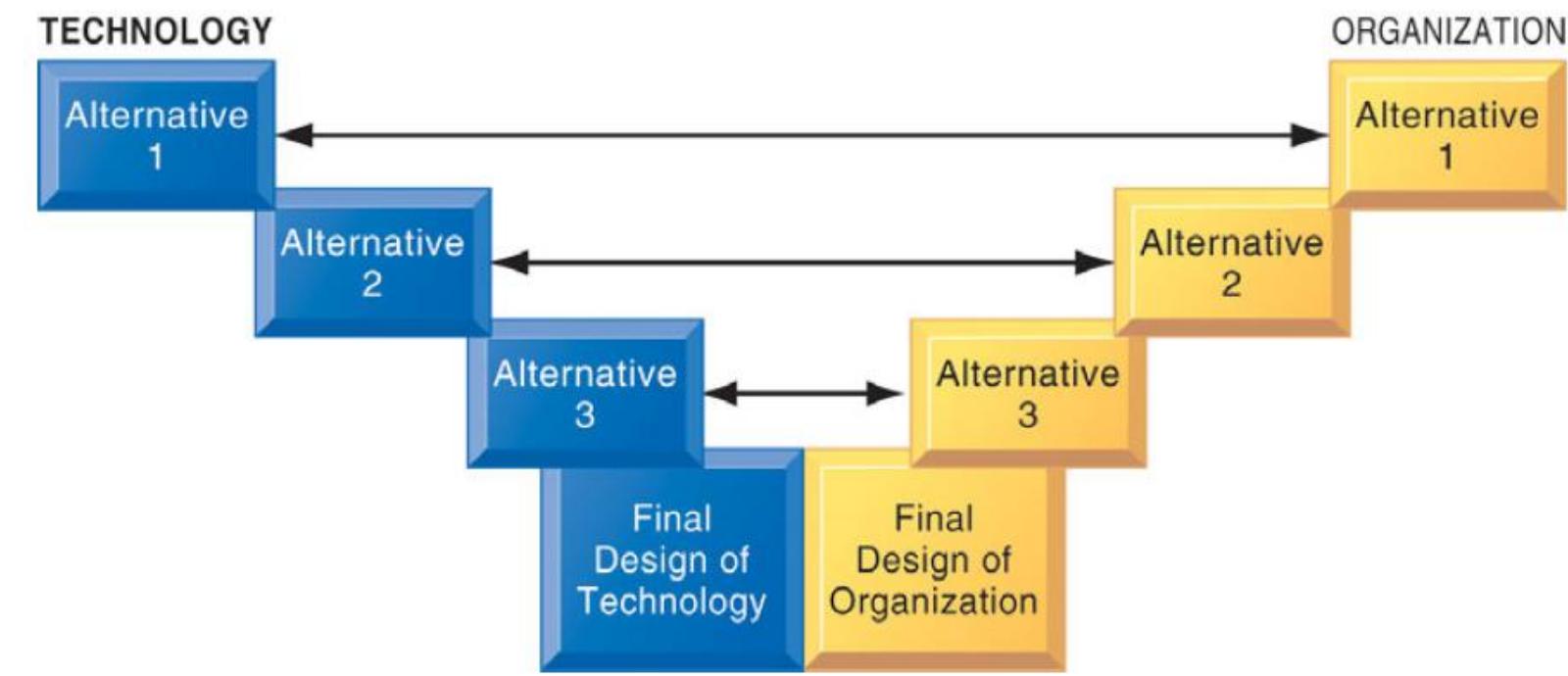
- Managerial assets:
 - Strong senior management support for technology investment and change
 - Incentives for management innovation
 - Teamwork and collaborative work environments
 - Training programs to enhance management decision skills
 - Management culture that values flexibility and knowledge-based decision making

Complementary Assets (contd.)

- Social assets (Investments made by the society at large, other firms, governments, and other key market actors):
 - The Internet and telecommunications infrastructure
 - IT-enriched educational programs raising labour force computer literacy
 - Technology standards
 - Laws and regulations creating fair, stable market environments
 - Technology and service firms in adjacent markets to assist implementation

A Sociotechnical Perspective on Information Systems

- In a sociotechnical perspective, the performance of a system is optimized when both the technology and the organization mutually adjust to each other until a satisfactory fit is obtained.



Summary

- Organizations are evolving into digital firms by digitally enabling their core business processes.
- Globalization has increased due to reduced costs of producing, buying and selling goods on a global scale.
- Survival and strategic goal achievement of firms in many industries is difficult without the use of information technology.

Summary (contd.)

- Information systems collect, process, store and distribute information to support organizational functions, decision making, communication, control, etc.
- An information system provides a solution to a problem or challenge facing a firm, and represents a combination of management, organization and technology elements.
- Organizations must invest in complementary assets to obtain meaningful value from information systems.

Thank you
