ISD100-Introduction to Systems & Informatics

Information Systems in Organizations

Dr. Riham Moharam

Faculty of Information Technology & Computer Science

Sinai University

North Sinai, Egypt

Outline

➢ Why Learn About IS in Organizations.

➢ Organizations and Information Systems.

➢ Reengineering and Continuous Improvement.

➢ Outsourcing, Offshoring, and Downsizing.

➢ Competitive Advantage.

➢ Careers in Information systems.

Why Learn About IS in Organizations

➢ **Information systems (ISs) can cut costs and increase profits.**

➢ **Students in most fields need to know ISs:**

- Management major might be hired to design a system to improve productivity.
- Biochemistry major might be hired to conduct drug research using computer techniques.

Organizations and Information Systems

➢ **Organization**: a formal collection of people and other resources established to accomplish a set of goals.

Organizations and Information Systems

➢ An organization is a system – has inputs, processing mechanisms, outputs, and feedback

- Inputs to the system: resources such as materials, people, and money.

- Outputs to the environment: goods or services.

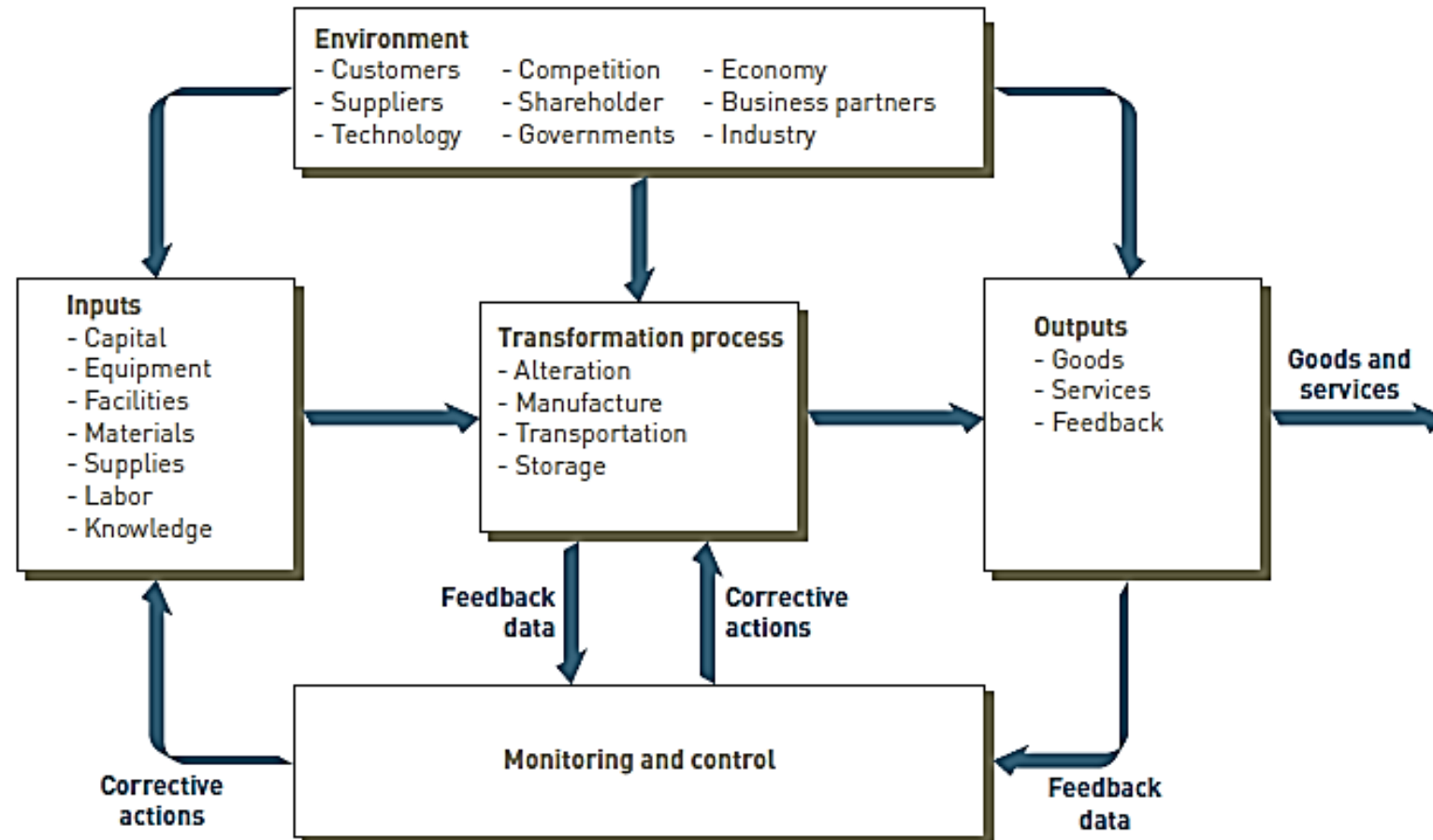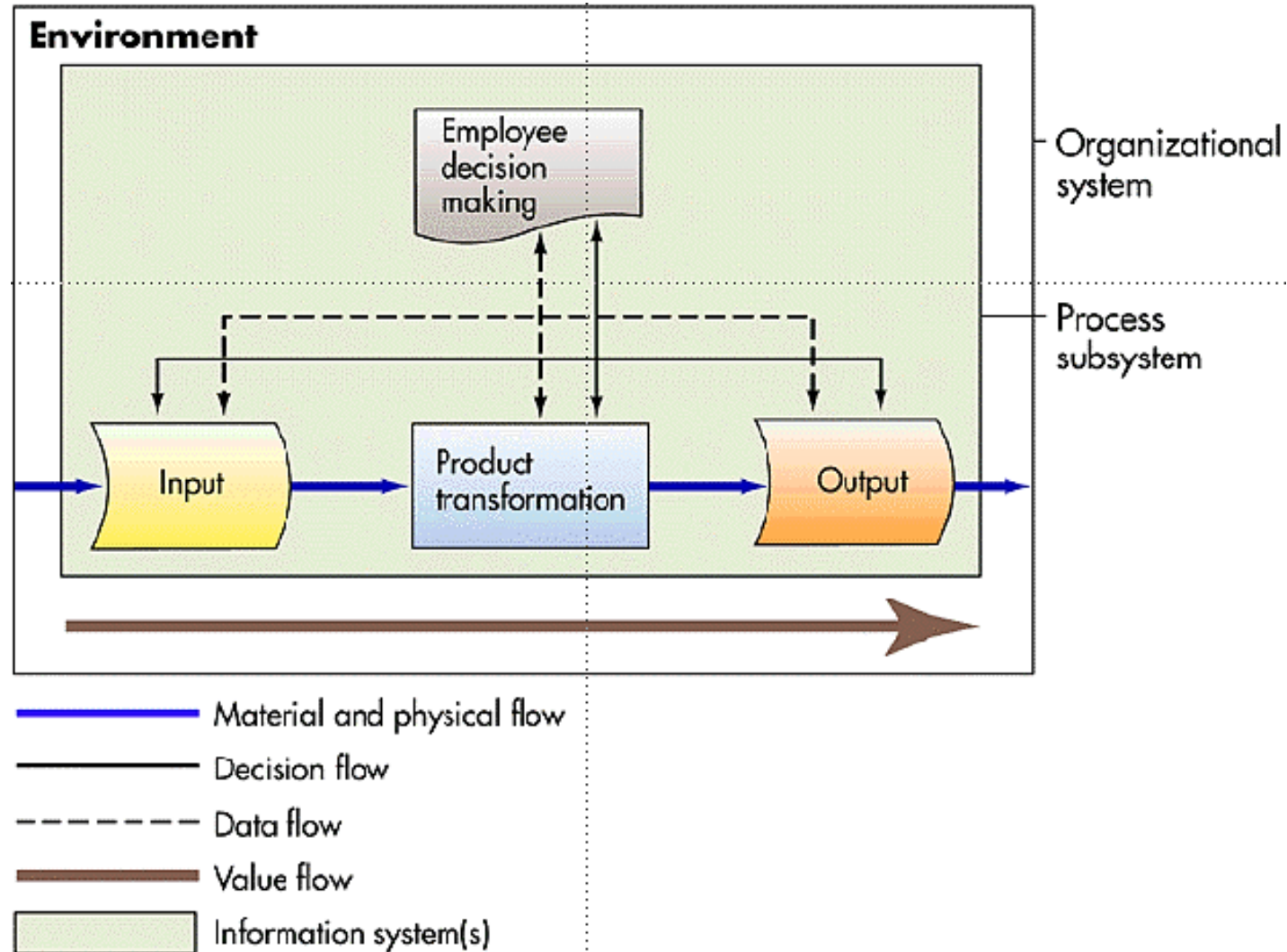# Organizations and Information Systems

FIGURE 2.1

General model of an organization

Information systems support and work within the automated portions of an organizational process.

Organizations and Information Systems

Organizations and Information Systems

➢ Value chain

– Series (chain) of activities that include inbound logistics and warehouse and storage.
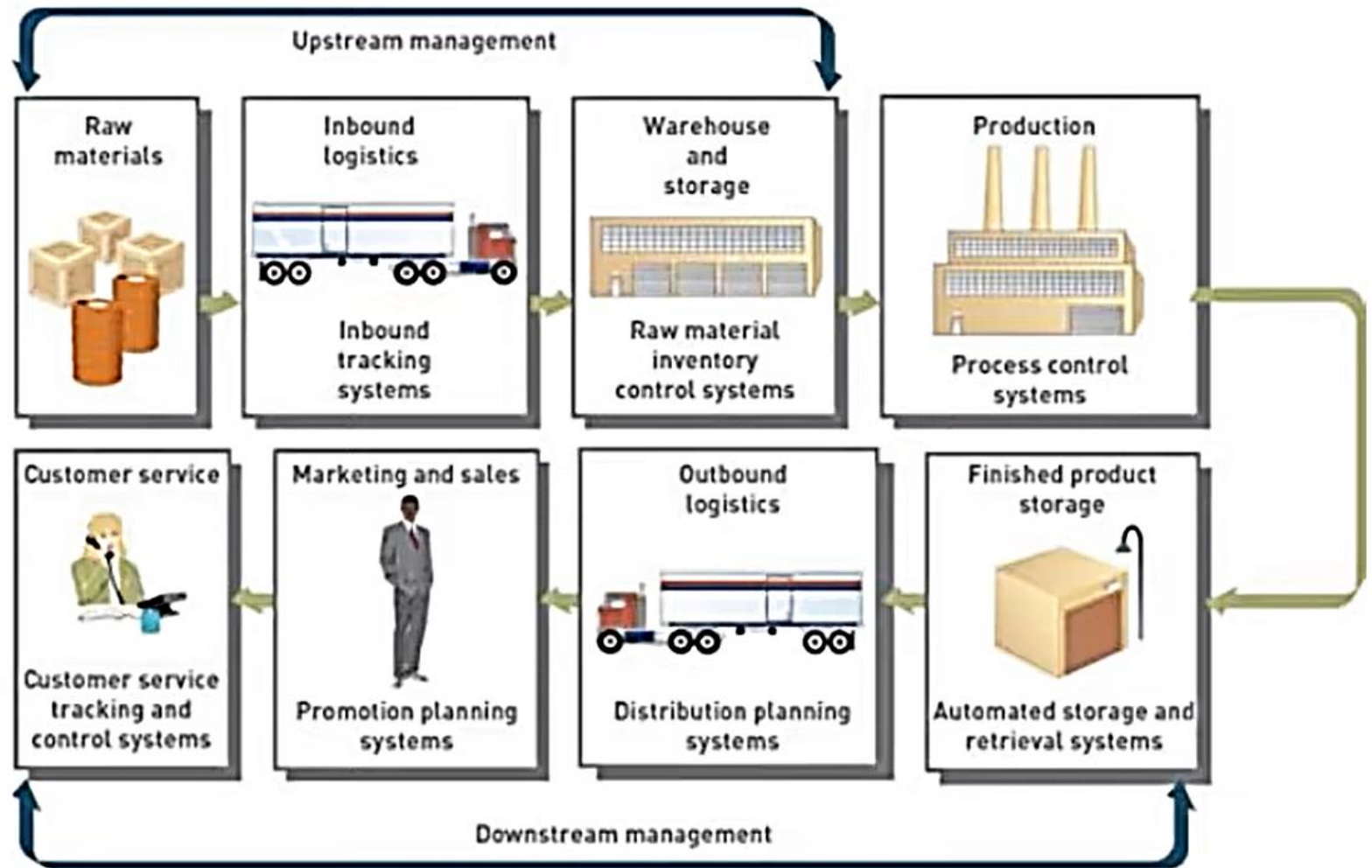
➢ Supply chain management (SCM):

– Determines:

- What supplies are required for the value chain.

- What quantities are needed to meet customer demand.

- How supplies should be processed into finished goods and services.

- How shipment of supplies and products to customers should be scheduled, monitored, and controlled.

Organizations and Information Systems

Figure 2.2

The Value Chain of a Manufacturing Company

Managing raw materials, inbound logistics, and warehouse and storage facilities is called *upstream management*. Managing finished product storage, outbound logistics, marketing and sales, and customer service is called *downstream management*.

Upstream management

Raw materials	Inbound logistics	Warehouse and storage	Production
	Inbound tracking systems	Raw material inventory control systems	Process control systems

Customer service	Marketing and sales	Outbound logistics	Finished product storage
Customer service tracking and control systems	Promotion planning systems	Distribution planning systems	Automated storage and retrieval systems

Downstream management

Organizations and Information Systems

➢ Customer relationship management (CRM) programs:

- Help companies manage all aspects of customer encounters.
- Can help a company collect customer data, contact customers, and educate them about new products.

Organizational Structures

➢ Organizational structure:

  – Organizational subunits and the way they relate to the overall organization.

➢ Categories of organizational structure:

  – Traditional

  – Project

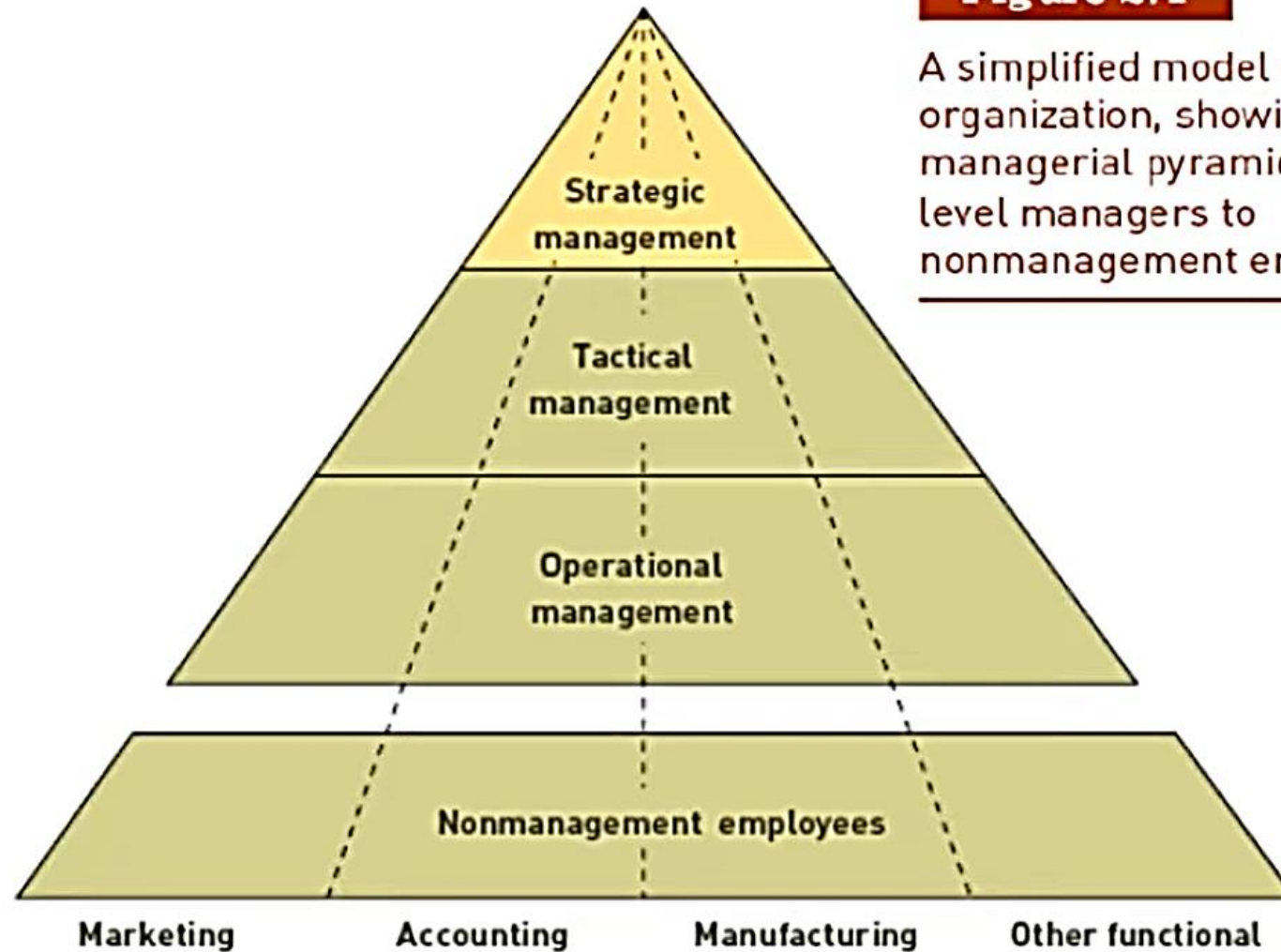 – Team

  – Virtual
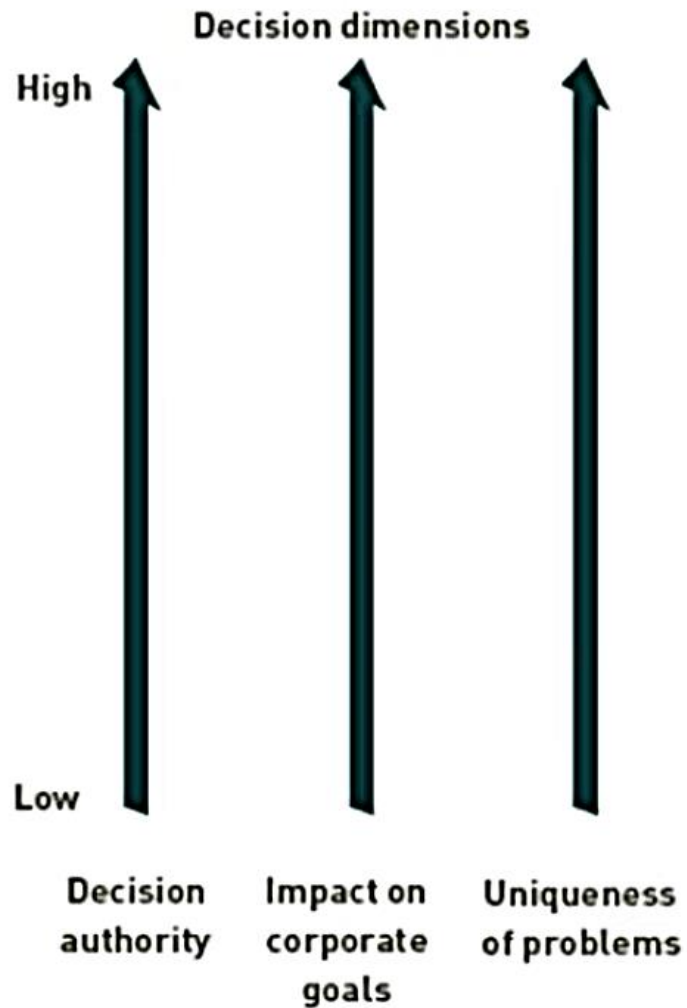
Organizational Structures

Figure 2.4

A simplified model of the organization, showing the managerial pyramid from top-level managers to nonmanagement employees.

Traditional Organizational Structures

➢ Hierarchical structure.

➢ Major department heads report to a president or top-level manager.

➢ Flat organizational structure:

   – Empowers employees at lower levels.

➢ Empowerment:

   – Gives employees and their managers more responsibility and authority to make decisions.

Project and Team Organizational Structures

➤ Project organizational structure:

  – Centered on major products or services.

  – Many project teams are temporary.

➤ Team organizational structure:

  – Centered on work teams or groups.

  – Team can be temporary or permanent, depending on tasks.

Virtual Organizational Structures and Collaborative Work

➢ Virtual organizational structure:

  – Employs business units in geographically dispersed areas.

  – People may never meet face to face.

  – Allows collaborative work:

    • Managers and employees can effectively work in groups, even those composed of members from around the world.

Organizational Culture and Change

- Organizational culture:
  - Major understandings and assumptions.
  - Influences information systems.
- Organizational change:
  - How organizations plan for, implement, and handle change.
- Change model:
  - Represents change theories by identifying phases of change and the best way to implement them.

Reengineering and Continuous Improvement

➢ Reengineering:

  – Also called **process redesign** and business process reengineering (BPR).

  – Involves the radical redesign of business processes, organizational structures, information systems, and values of the organization to achieve a breakthrough in business results.

➢ Continuous improvement:

  – Constantly seeking ways to improve business processes and add value to products and services.

Quality

➢ Ability of a product or service to meet or exceed customer expectations.

➢ Techniques used to ensure quality:

   – Ex: Total quality management.

Outsourcing, On-Demand Computing, and Downsizing

- Outsourcing:
  - Contacting with outside professional services.
- On-demand computing:
  - Contracting for computer resources to rapidly respond to an organization's varying workflow.
  - Also called on-demand business or utility computing.
- Downsizing:
  - Reducing the number of employees to cut costs.

Competitive Advantage

➢ Significant and (ideally) long-term benefit to a company over its competition.

➢ Ability to establish and maintain competitive advantage is vital to the company's success.

➢ Factors that lead firms to seek competitive advantage:

1. Rivalry among existing competitors.
2. Threat of new entrants.
3. Threat of substitute products and services.
4. Bargaining power of customers and suppliers.

Strategic Planning for Competitive Advantage

➢ Creating new products and services.

➢ Improving existing product lines and services.

➢ Other strategies:

  ✓ Growth in sales.

  ✓ First to market.

  ✓ Customizing products and services.

  ✓ Hiring the best people.

Performance-Based Information Systems

➢ Major stages in the use of information systems:

- Cost reduction and productivity.

- Competitive advantage.

- Performance-based management.
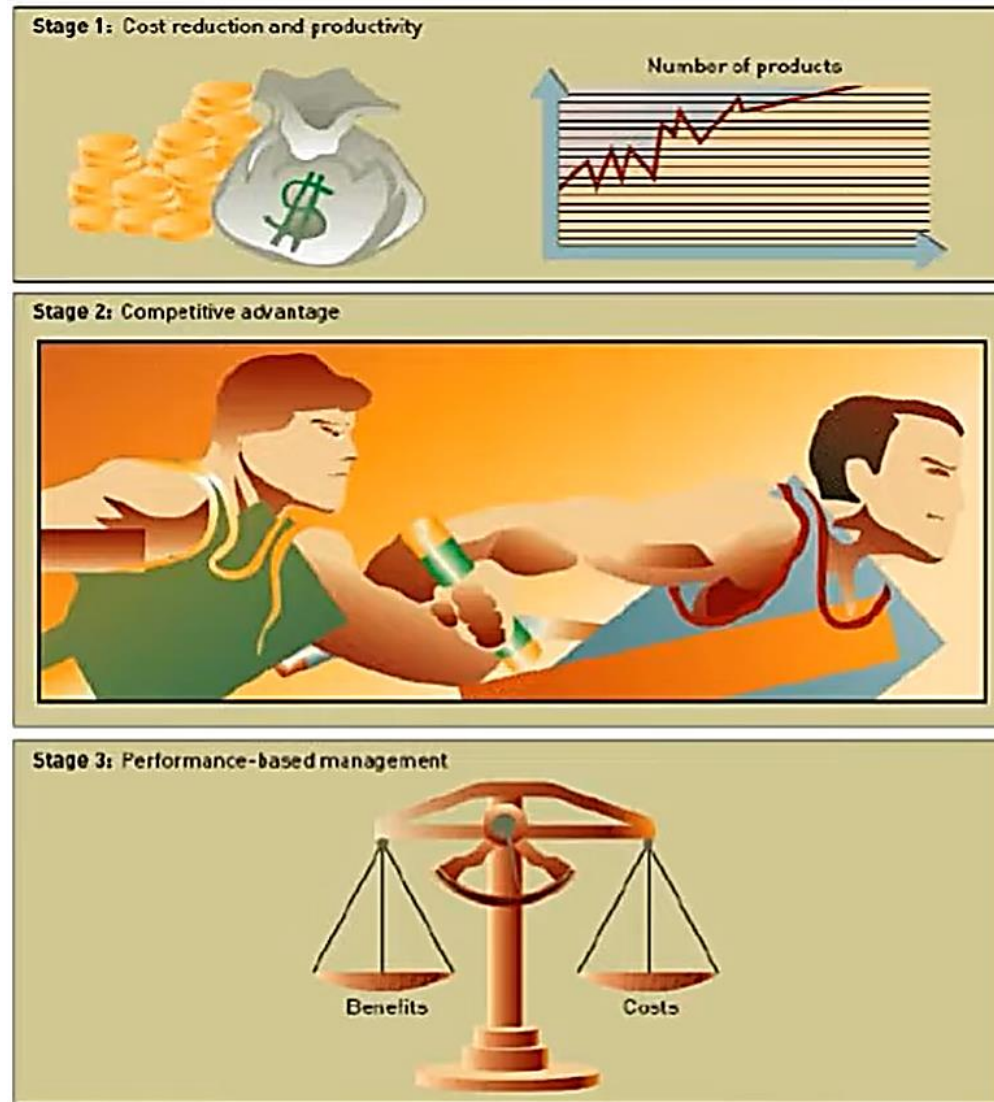
Performance-Based Information Systems

Figure 2.9

Three Stages in the Business Use of Information Systems

Productivity

➢ A measure of output achieved divided by input required.

➢ Higher level of output for a given level of input means greater productivity.

➢ Productivity = (Output/Input) × 100 %

Return on Investment and the Value of IS

➢ Earning growth.

➢ Market share and speed to market.

➢ Customer awareness and satisfaction.

Risk

➢ Information systems can sometimes be costly failures.

➢ Costs of development and implementation can be greater than the returns from the new system.

Roles, Functions, and Careers in IS

➤ Primary, responsibilities in information systems:

- Operations

- System development

- Support

- Information service units

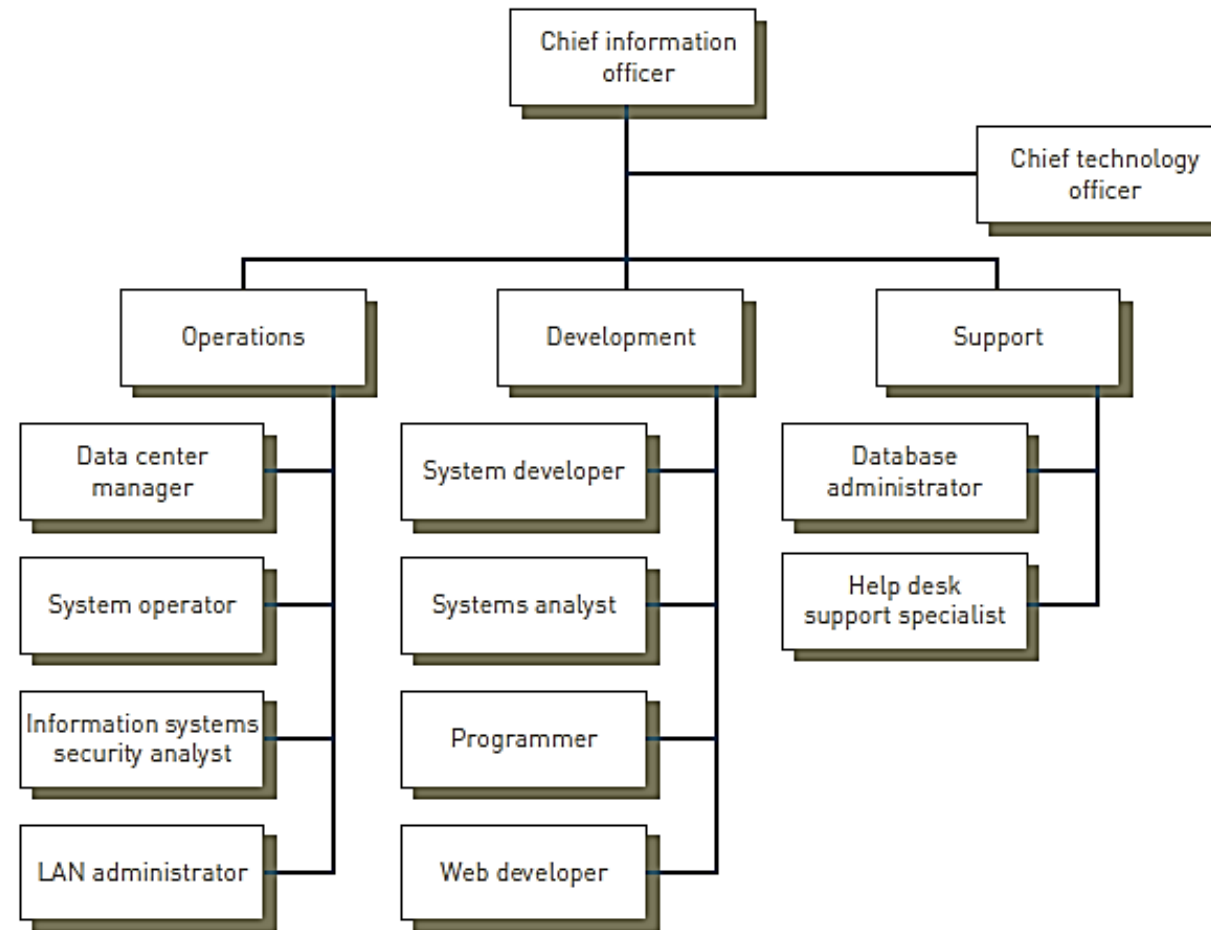# Roles, Functions, and Careers in IS

FIGURE 2.14

Three primary functions of the information systems organization
Each of these functions—operations, development, and support—encompasses several different
IS roles.

Typical IS Titles and Functions

➢ Chief information officer (CIO):

- Employs the IS department's equipment and personnel to help the organization attain its goals.

➢ LAN administrators:

- Set up and manage the network hardware, software, and security processes.

Typical IS Titles and Functions

- Internet careers:
  - Internet strategists and administrators.
  - Internet systems developers.
  - Internet programmers.
  - Internet or web site operators.
- Certification:
  - Process for testing skills and knowledge resulting in an endorsement by the certifying authority.