

Managing the Digital Firm

Chapter 1

Lecture 1

Why Information Systems?

Capital Management
Foundation of Doing Business
Productivity
Strategic Opportunity and Advantage

The Competitive Business Environment and The Emerging Digital Firm

Five factors to consider when assessing the growing impact of IT in business firms:

- Internet growth and technology convergence
- Transformation of the business enterprise
- Growth of a globally connected economy
- Growth of knowledge and information-based economies
- Emergence of the digital firm

The Competitive Business Environment and The Emerging Digital Firm

The Internet and Technology Convergence

New business technologies with favorable costs

E-business, e-commerce, and e-government

Rapid changes in markets and market structure

Increase obsolescence of traditional business models

The Competitive Business Environment and The Emerging Digital Firm

Transformation of the Business Enterprise

Flattening

Decentralization

Flexibility

Location independence

Low transaction and coordination costs

Empowerment

Collaborative work and teamwork

Information systems are needed to optimize the flow of information and knowledge within the organization and to help management maximize the firm's knowledge resources.

The Competitive Business Environment and The Emerging Digital Firm

Globalization

Management and control in a global marketplace

Competition in world markets

Global work groups

Global delivery systems

Information systems provide the communication and analytic power that firms need for conducting trade and managing businesses on a global scale.

The Competitive Business Environment and The Emerging Digital Firm

Rise of the Information Economy

Knowledge- and information-based economies

New products and service

Knowledge: a central productive and strategic asset

Time-based competition

Shorter product life

Turbulent environment

Limited employee knowledge base

Knowledge- and information-intense products: Products that require a great deal of learning and knowledge to produce.

The Competitive Business Environment and The Emerging Digital Firm

Emergence of the Digital Firm

Digitally enabled relationships with customers, suppliers, and employees

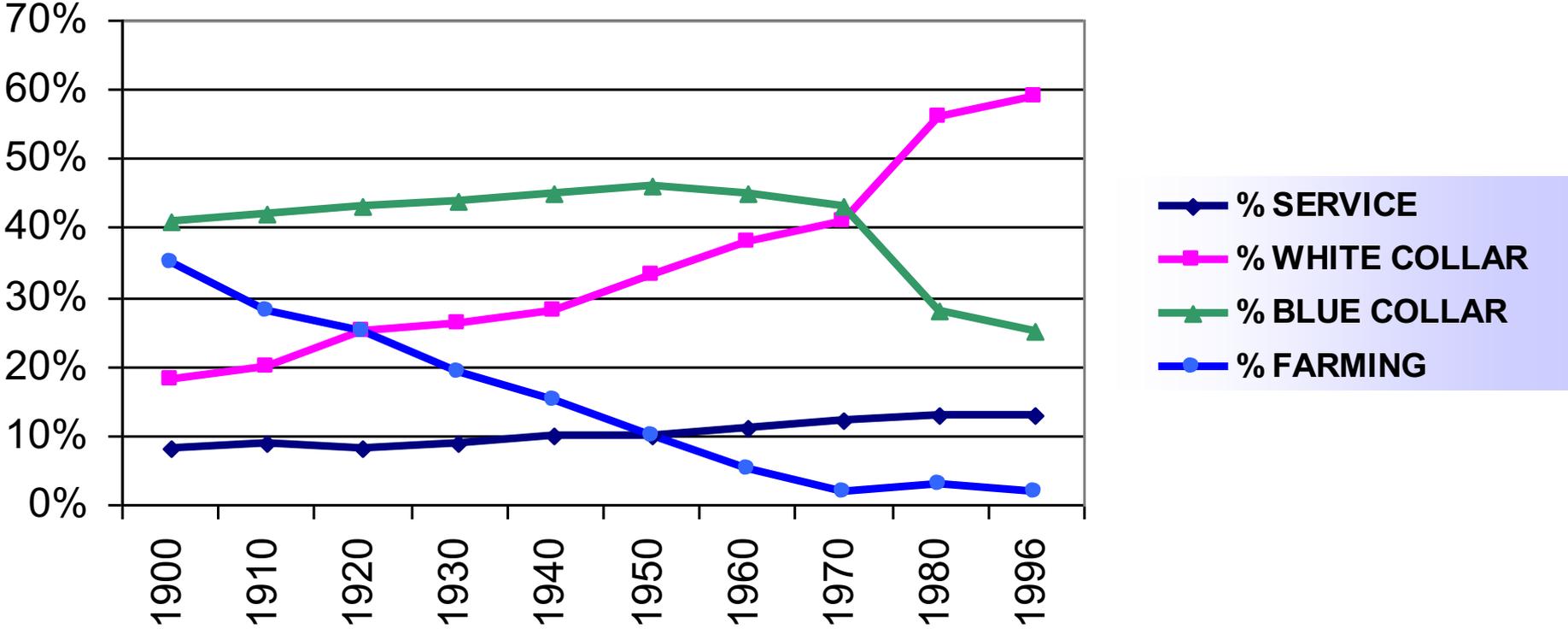
Core business processes accomplished via digital networks

Digital management of key corporate assets

Agile sensing and responding to environment changes

Digital firm: Organization where nearly all significant business processes and relationships with customers, suppliers, and employees are digitally enabled, and key corporate assets are managed through digital means.

Labor Force Composition 1900-1997

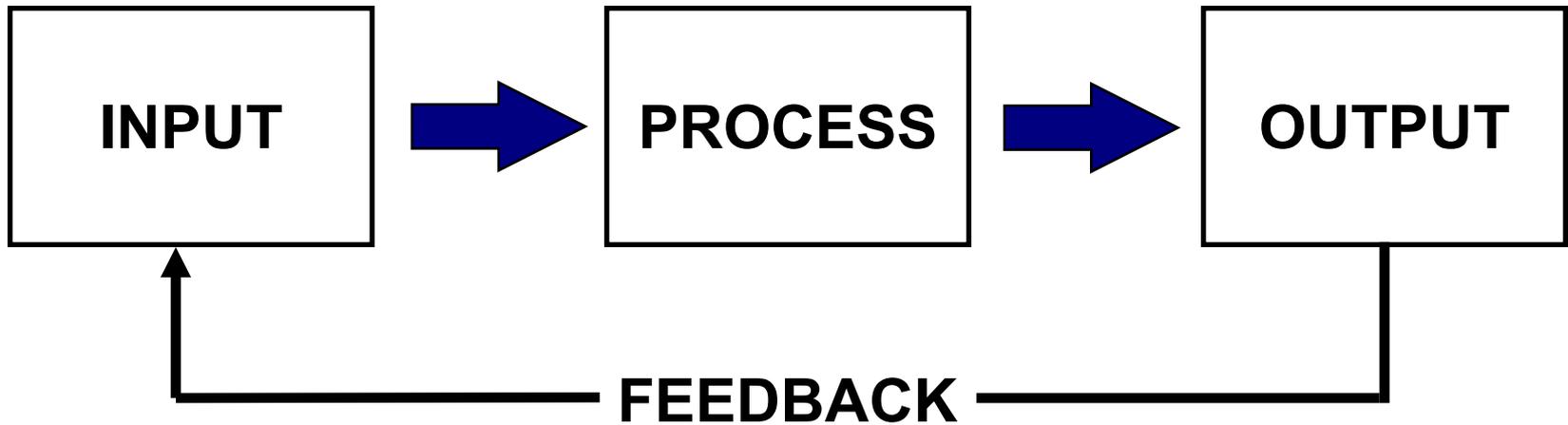


The Competitive Business Environment and The Emerging Digital Firm

Four Major Systems Defining the Digital Firm

- Supply chain management systems
- Customer relationship management systems
- Enterprise systems
- Knowledge management systems

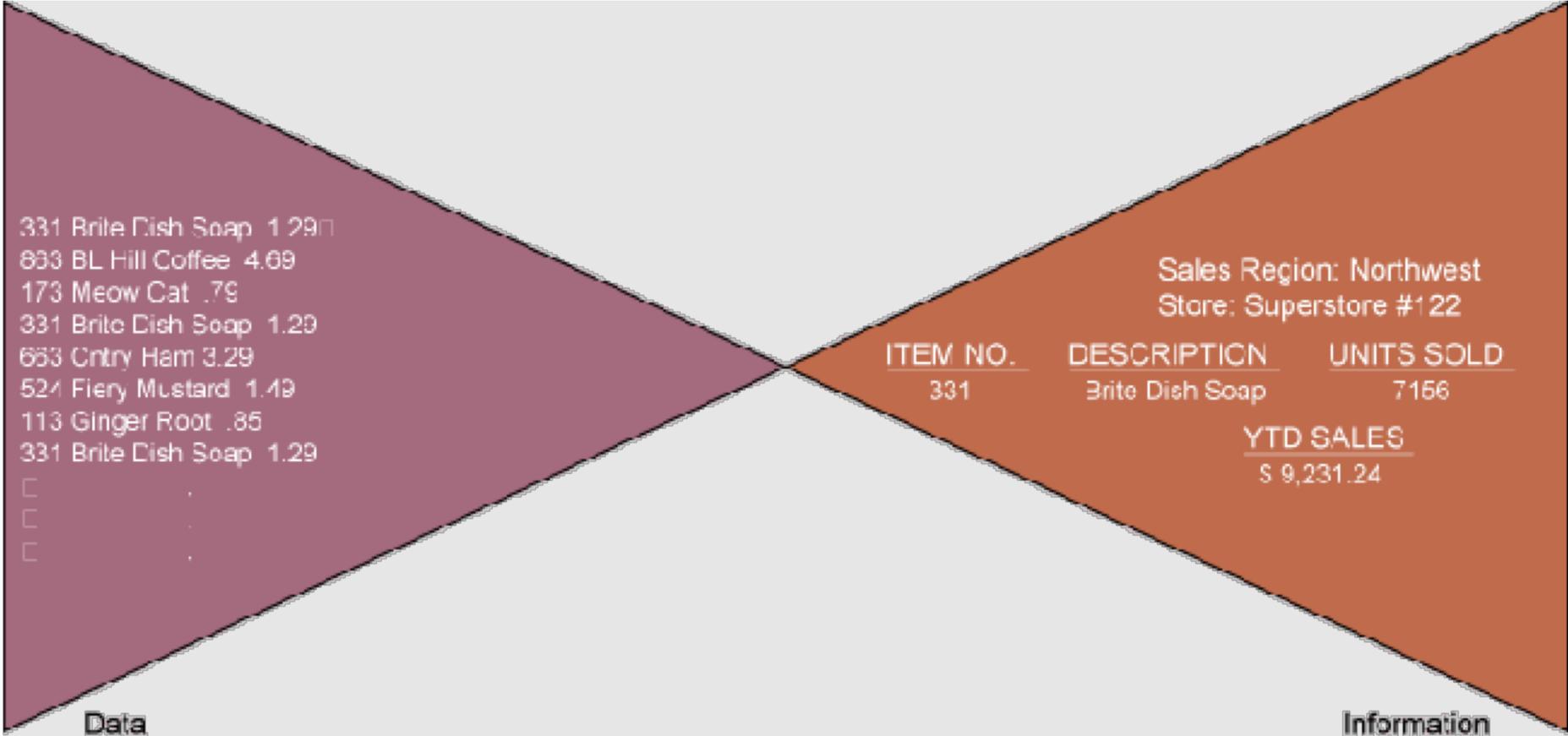
What is an Information System? System



What is an Information System?

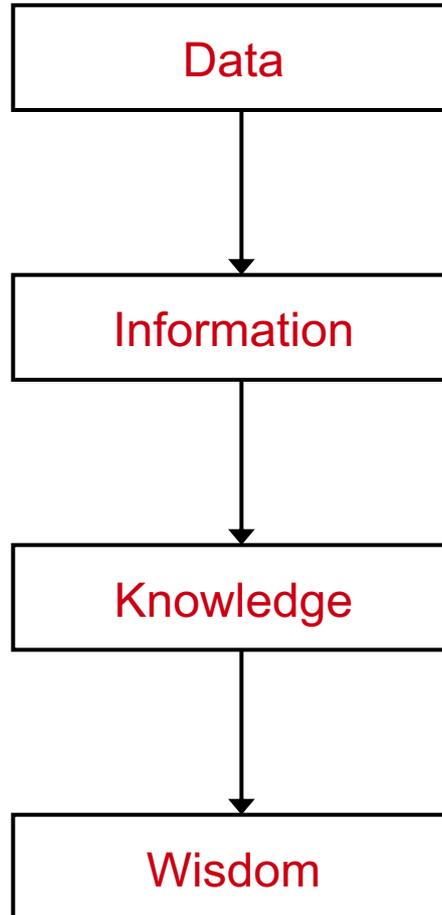
Information System

Interrelated components working together to collect, process, store, and disseminate information to support decision making coordination, control, analysis, and visualization in an organization.



Data and Information

Wisdom Sequence



What is an Information System?

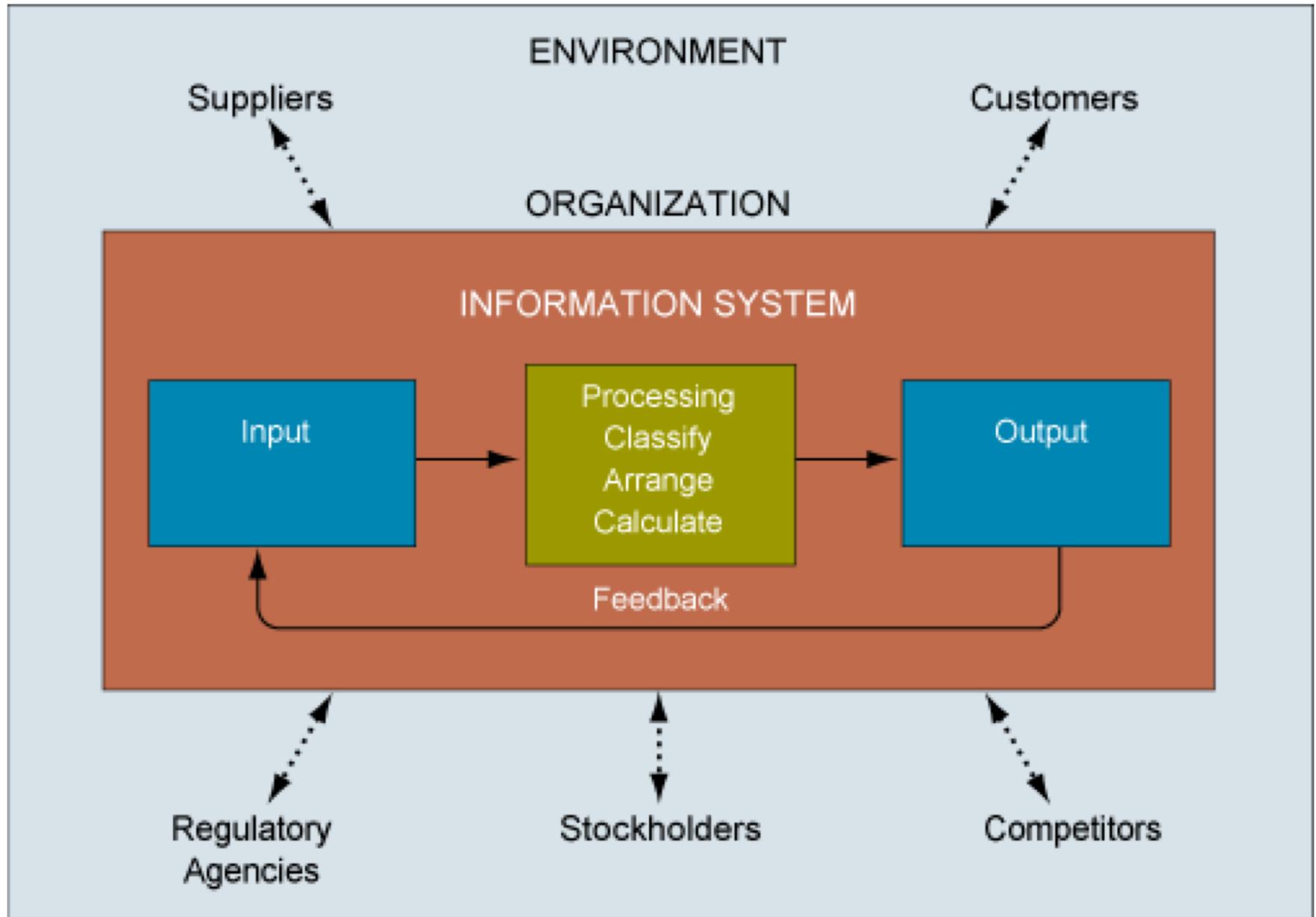
Information – Data – CBI

Information: Data that have been shaped into a form that is meaningful and useful to human beings.

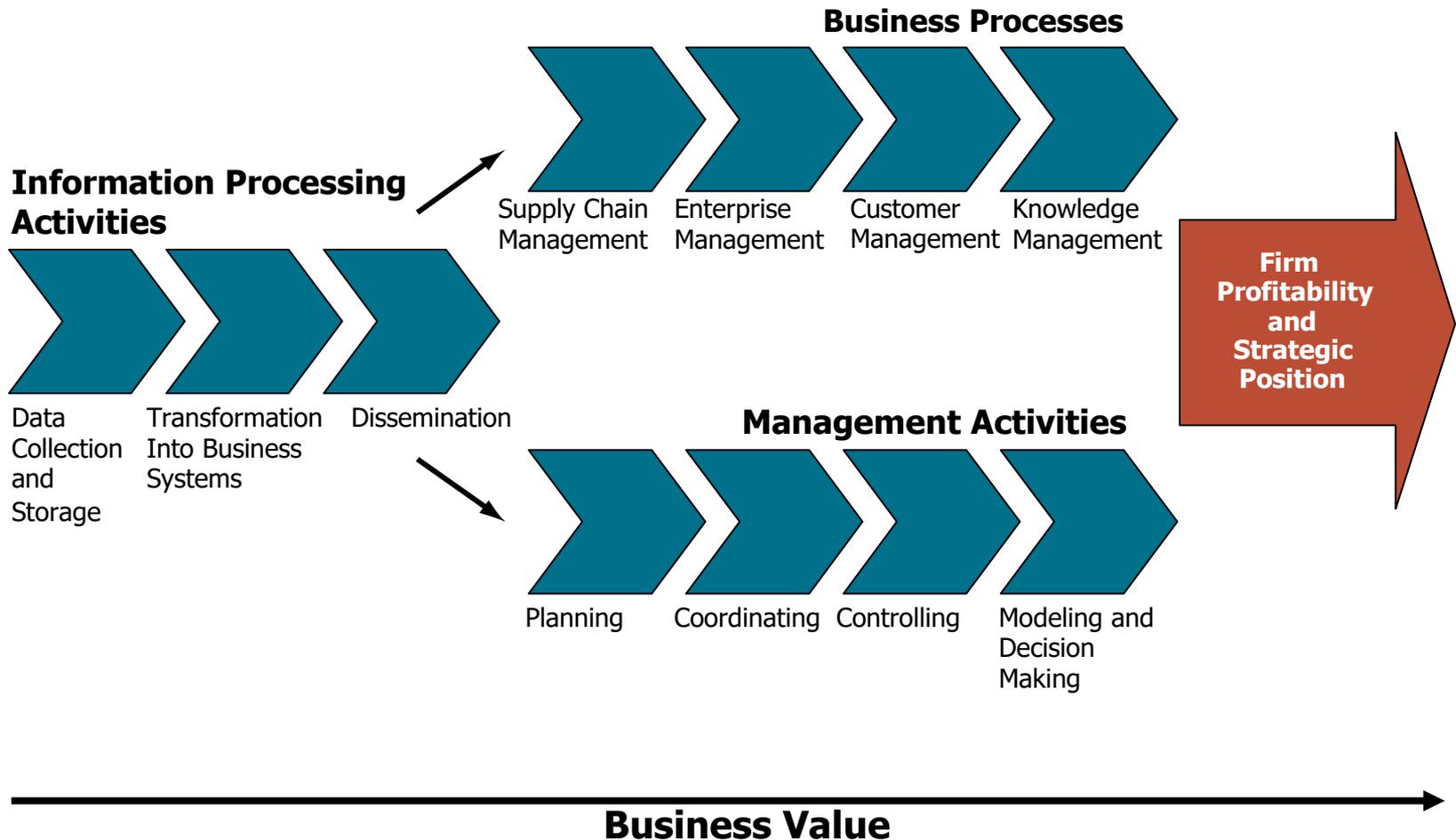
Data: Streams of raw facts representing events occurring in organizations on the physical environment before they have been organized and arranged into a form that people can understand and use.

Computer based information systems (CBIs): Information systems that rely on computer hardware and software for processing and disseminating information.

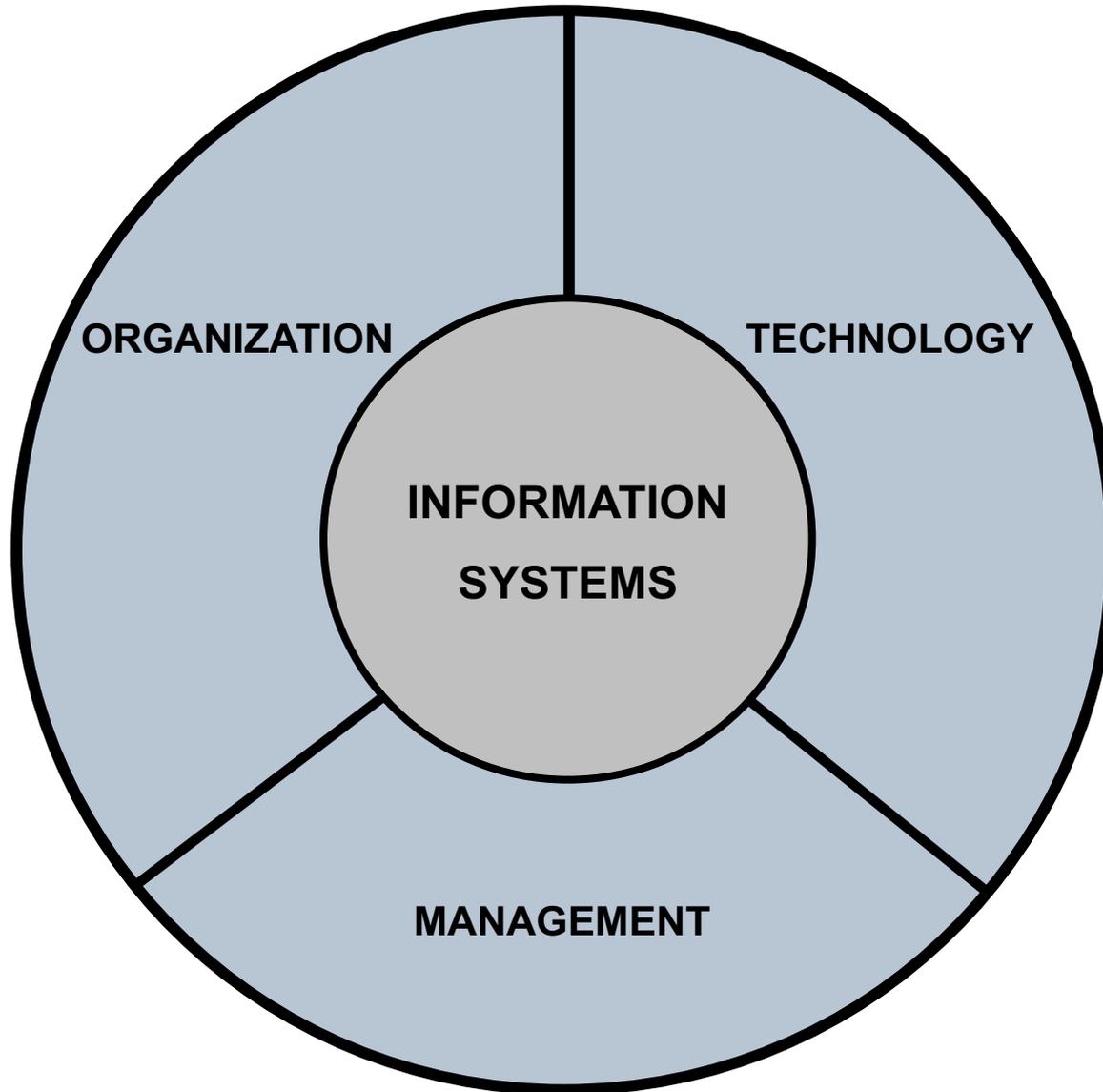
What is an Information System?: Functions of an Information System



What is an Information System?: The business information value chain



A Business Perspective on Information Systems



A Business Perspective on Information Systems

Information systems literacy: Broad-based understanding of information systems that includes behavioral knowledge about organizations and individuals using information systems and technical knowledge about computers.

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

A Business Perspective on Information Systems: Organizations

The key elements of an organization are its people, structure and operating procedures, politics and culture. An organization coordinates work through a structured hierarchy and formal, standard operating procedures.

Standard operating procedures (SOPs) are formal rules that have been developed over a long time for accomplish tasks; these rules guide employees in a variety of procedures, from writing an invoice to responding to complaining costumers.

Knowledge workers (Engineers, Architects, Scientists, ...)

Data workers (Secretaries, Bookkeepers, Clerks, ...)

Production or service workers (Mechanists, Assemblers, Packers, ...)

Each organization has a unique culture, or fundemental set of assumptions, values, and ways of doing things, that has been accepted by most of its members.

A Business Perspective on Information Systems: Organizations

Major Business Functions:

Sales and Marketing

Manufacturing and Production

Finance

Accounting

Human Resources

A Business Perspective on Information Systems: Management

Managers perceive business challenges in the environment; they set the organizational strategy for responding; and they allocate the human and financial resources to achieve the strategy and coordinate the work.

Managers at different levels in the organization have different information needs:

EXECUTIVE MANAGEMENT – Senior managers – *Formulation of the organization's overall direction* - Strategic, long term, summary information

MIDDLE MANAGEMENT – Middle managers – *Implementation of the organization's strategies and policies* - Tactical, medium term, somewhat summarized information

FIRST LEVEL SUPERVISION – Operational managers – *Conduct of daily activities* - Operational, day-to-day, detail information

A Business Perspective on Information Systems: Technology

Computer hardware

Computer software

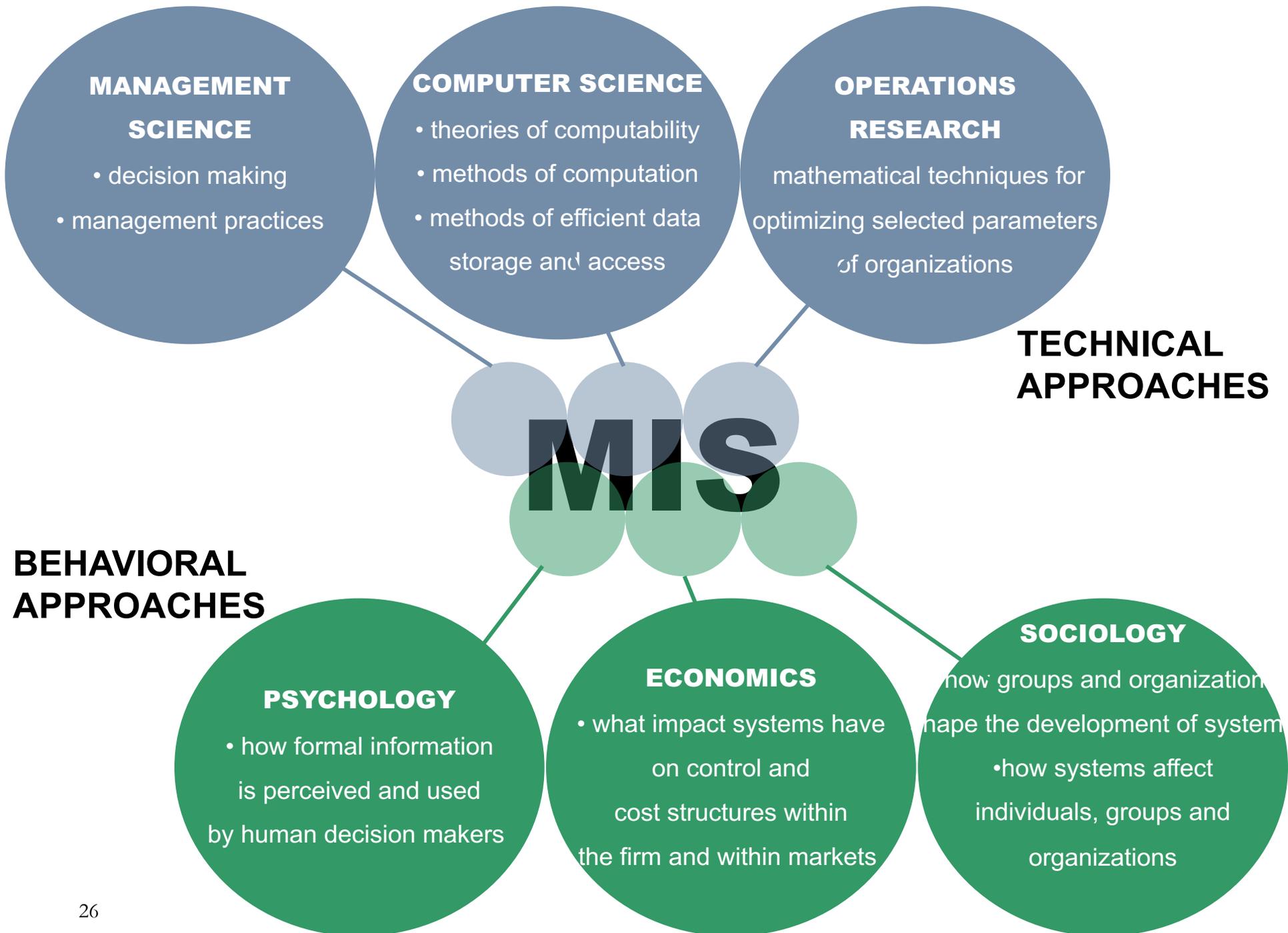
Storage technology

Communications technology

Information Technology (IT) Infrastructure:

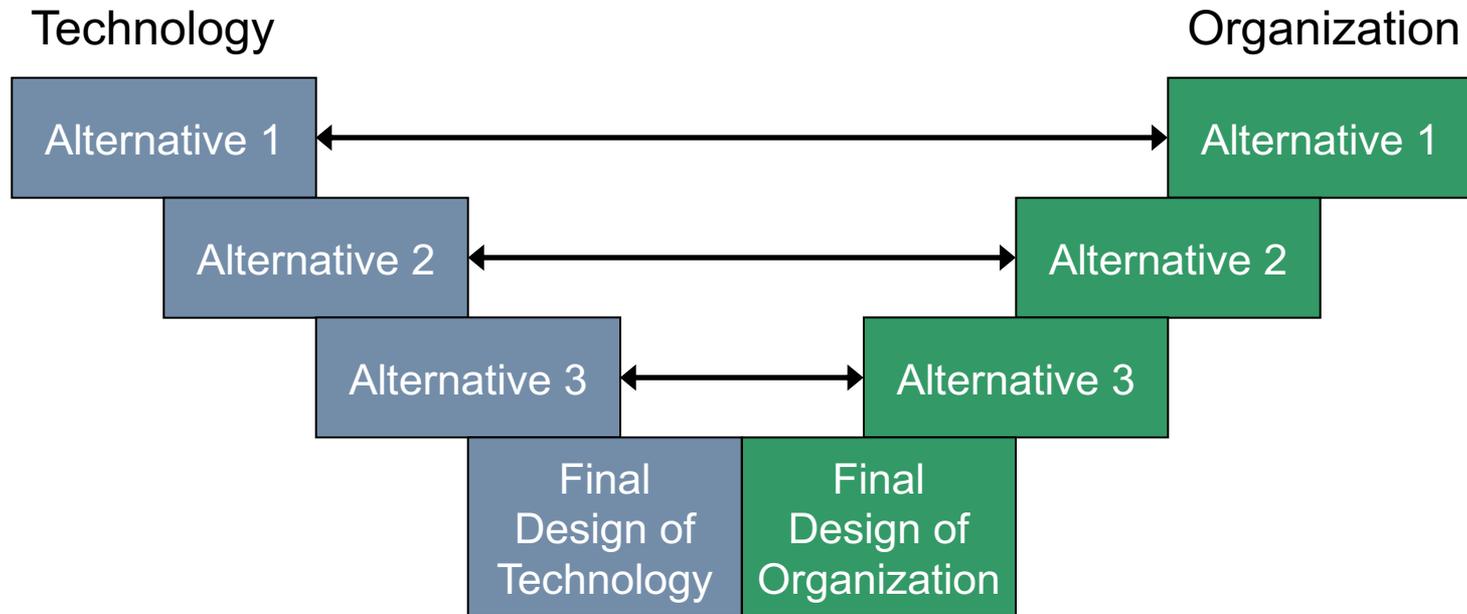
Computer hardware, software, data, and storage technology, and networks providing a portfolio of shared information technology resources for the organization.

Contemporary Approaches to Information Systems



Sociotechnical Systems

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



Toward the Digital Firm: The New Role of Information Systems in Organizations

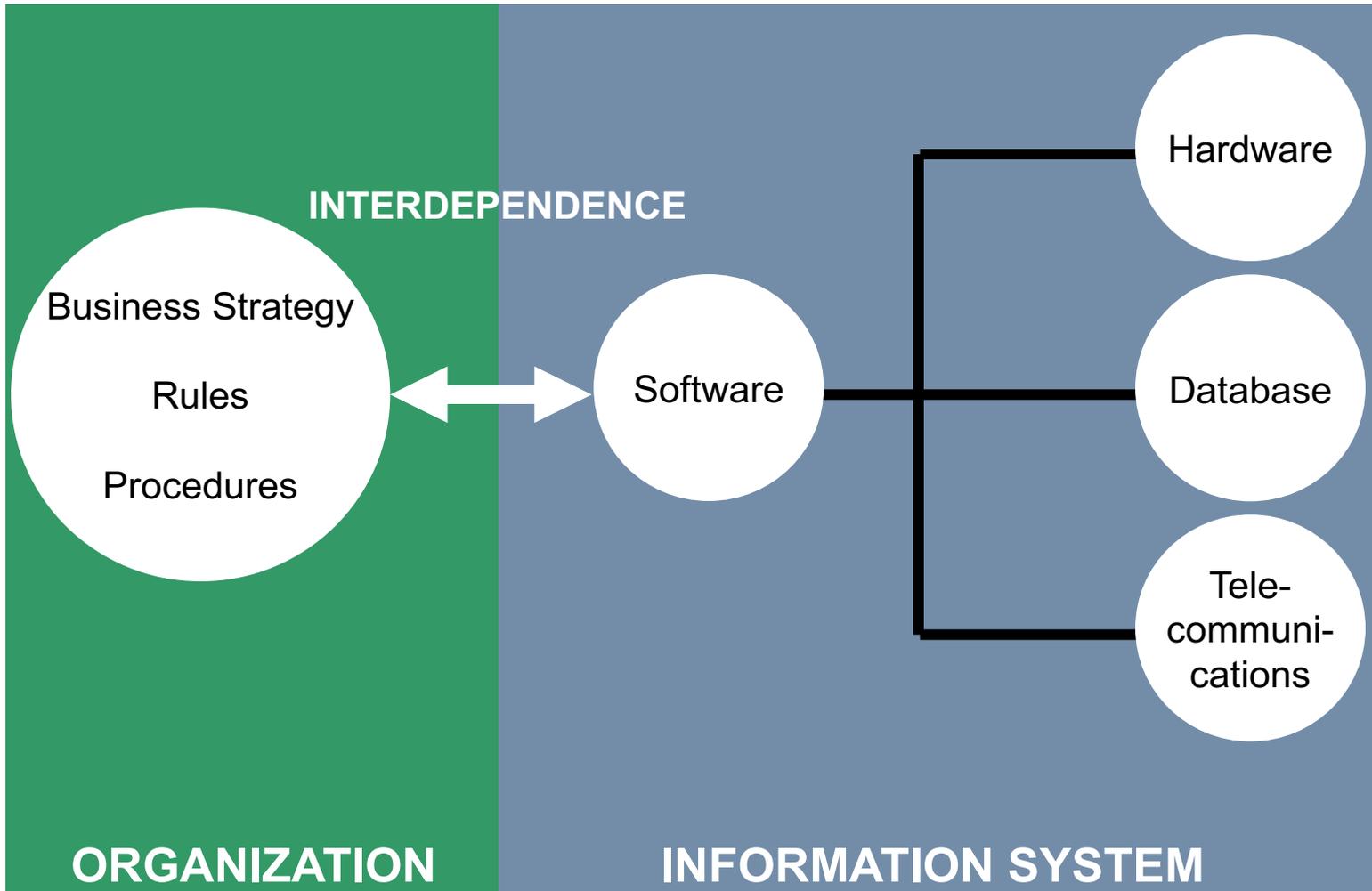
Information as...

a resource: Like money, people, raw materials, machinery or time, information can serve as a resource, an input to the production of outputs.

an asset: Information can serve as an asset, which is the property of a person or an organization that contributes to a company's output.

a commodity: Companies can also sell information, making it a commodity.

Interdependence Between Organizations and Information Systems

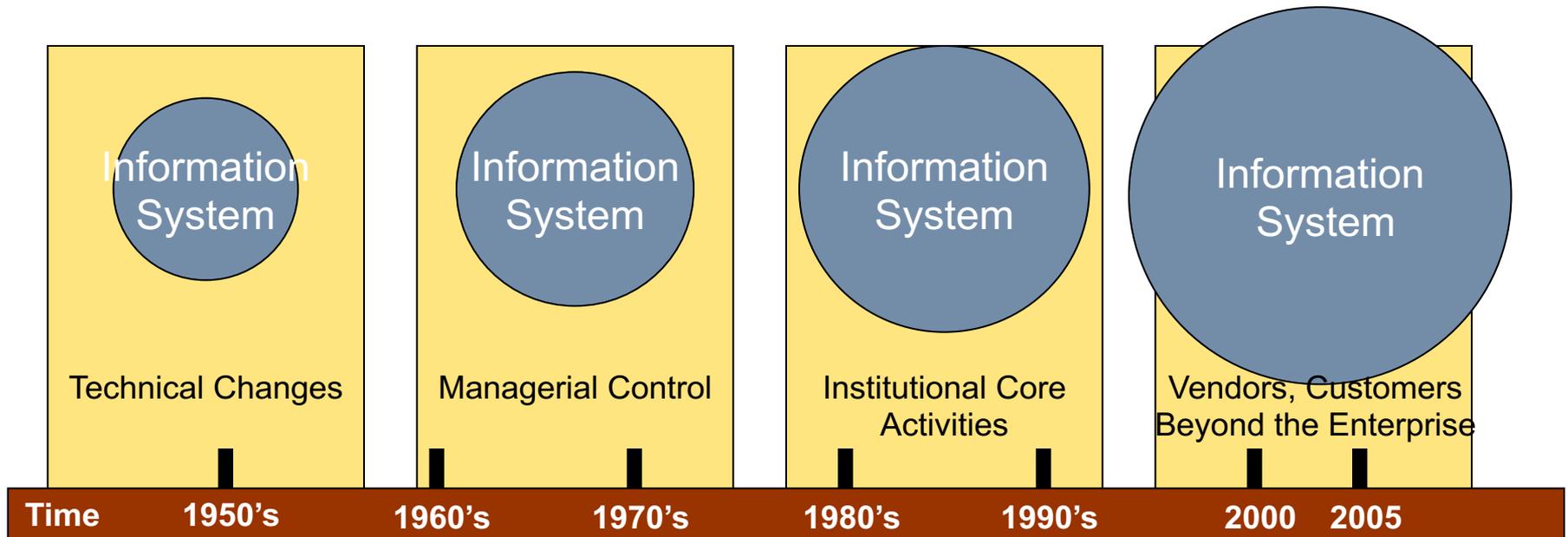


The Widening Scope of Information Systems

Early systems brought about largely technical changes that affected few people.

Later systems affected managerial control and behavior.

Ultimately systems influenced “core” institutional activities concerning products, markets, suppliers and customers.



The Network Revolution and The Internet

Communicate and collaborate

Access information

Participate in discussions

Supply information

Find entertainment

Exchange business transactions

New Options For Organizational Design: The Digital Firm and The Networked Enterprise

- Redesign and reshape organization
- Transforming
 - Organization structure
 - Scope of operations
 - Reporting and control mechanism
 - Work practices
 - Work flows
 - Products and service

New Options For Organizational Design: The Digital Firm and The Networked Enterprise

- Flattening organizations

Downsizing

Flattening

Empowerment

- Separating work from location

Virtual organization: Organization using networks linking people, assets, and ideas to create and distribute products and services without being limited by traditional organizational boundaries or physical location.

New Options For Organizational Design: The Digital Firm and The Networked Enterprise

- Reorganizing work flows
 - Manual work procedures
 - Automated work procedures
 - Automated work flows
 - Automated work processes

New Options For Organizational Design: The Digital Firm and The Networked Enterprise

- Increasing flexibility of organizations

Small companies

Provide the precision, speed and quality of giant manufacturers

Eliminates the need of research staff and libraries

Managers can easily obtain the information

Large companies

Customized products in small quantities

Databases of customer purchasing records

Information can be easily distributed down the ranks of the organization

New Options For Organizational Design: The Digital Firm and The Networked Enterprise

- Mass customization
- The changing management process

Enterprise resource planning (ERP): A business management system that integrates all facets of the business, including planning, manufacturing sales and finance, so that they can become more coordinated by sharing information with each other.

New Options For Organizational Design: The Digital Firm and The Networked Enterprise

- Redefining organizational boundaries

System linking a company to its customers, distributors or suppliers are termed interorganizational systems because they automate the flow of information across organizational boundaries.

The Digital Firm: Electronic Commerce and Electronic Business

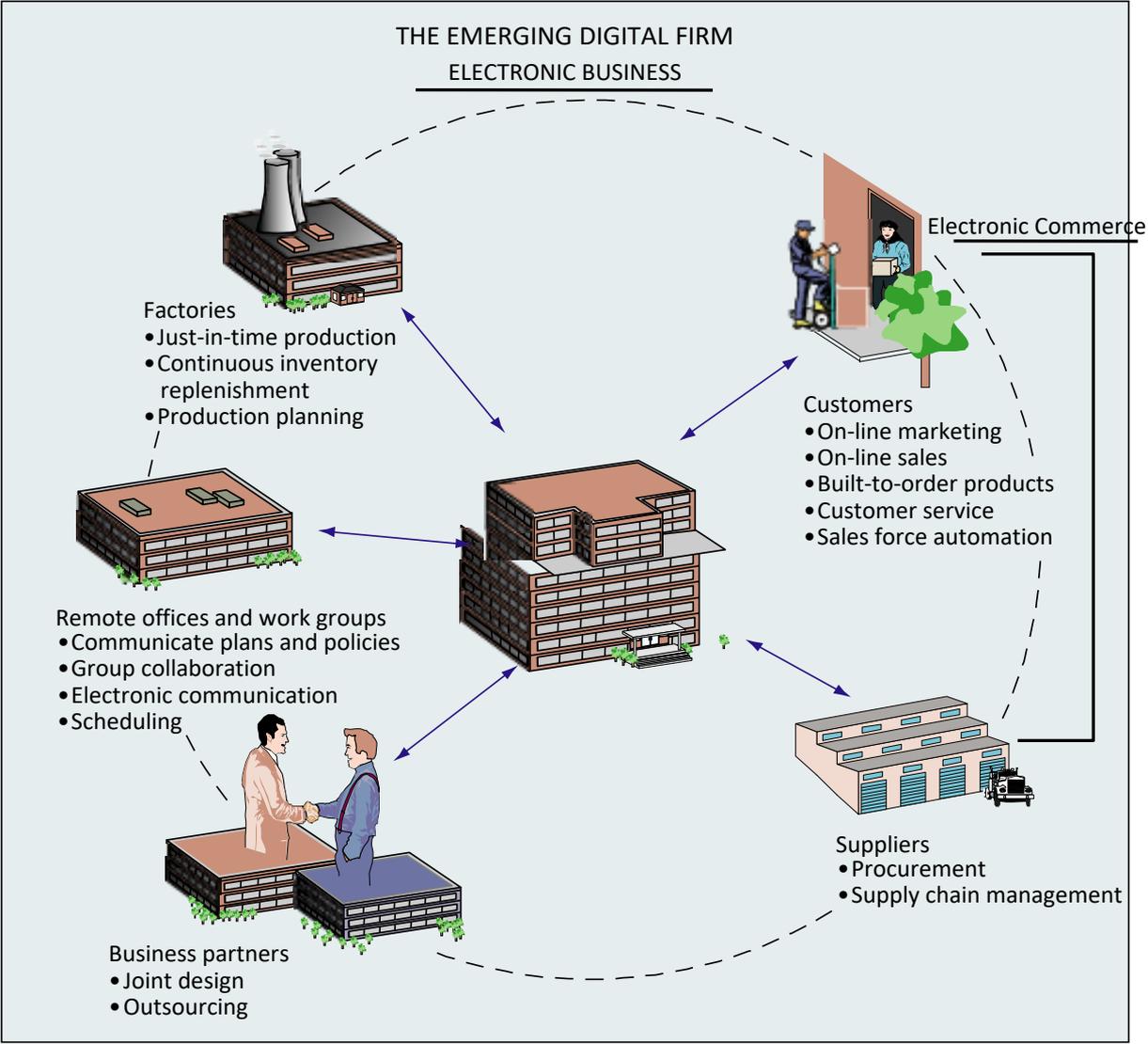
Electronic market: a marketplace that is created by computer and communication technologies that link many buyers and sellers.

Electronic commerce: the process of buying and selling goods and services electronically involving transactions using the Internet, networks, and other digital technologies.

Intranet: An internal network based on Internet and World Wide Web technology and standards.

Electronic business: the use of the Internet and other digital technology for organizational communication and coordination and the management of the firm.

**Learning to Use
Information
Systems: New
Opportunities
With Technology**



The Challenge of Information Systems: Key Management Issues

The strategic business challenge

How can businesses use information technology to design organizations that are competitive and effective?

COMPETITIVE AND EFFECTIVE

The globalization challenge

How can firms understand the business and system requirements of a global economic environment?

MULTINATIONAL INFO

The Challenge of Information Systems: Key Management Issues

The information architecture challenge

How can organizations develop an information architecture and information technology infrastructure that supports their business goals?

SUPPORT GOALS

The information systems investment challenge

How can organizations determine the business value of information systems?

VALUE OF INFORMATION

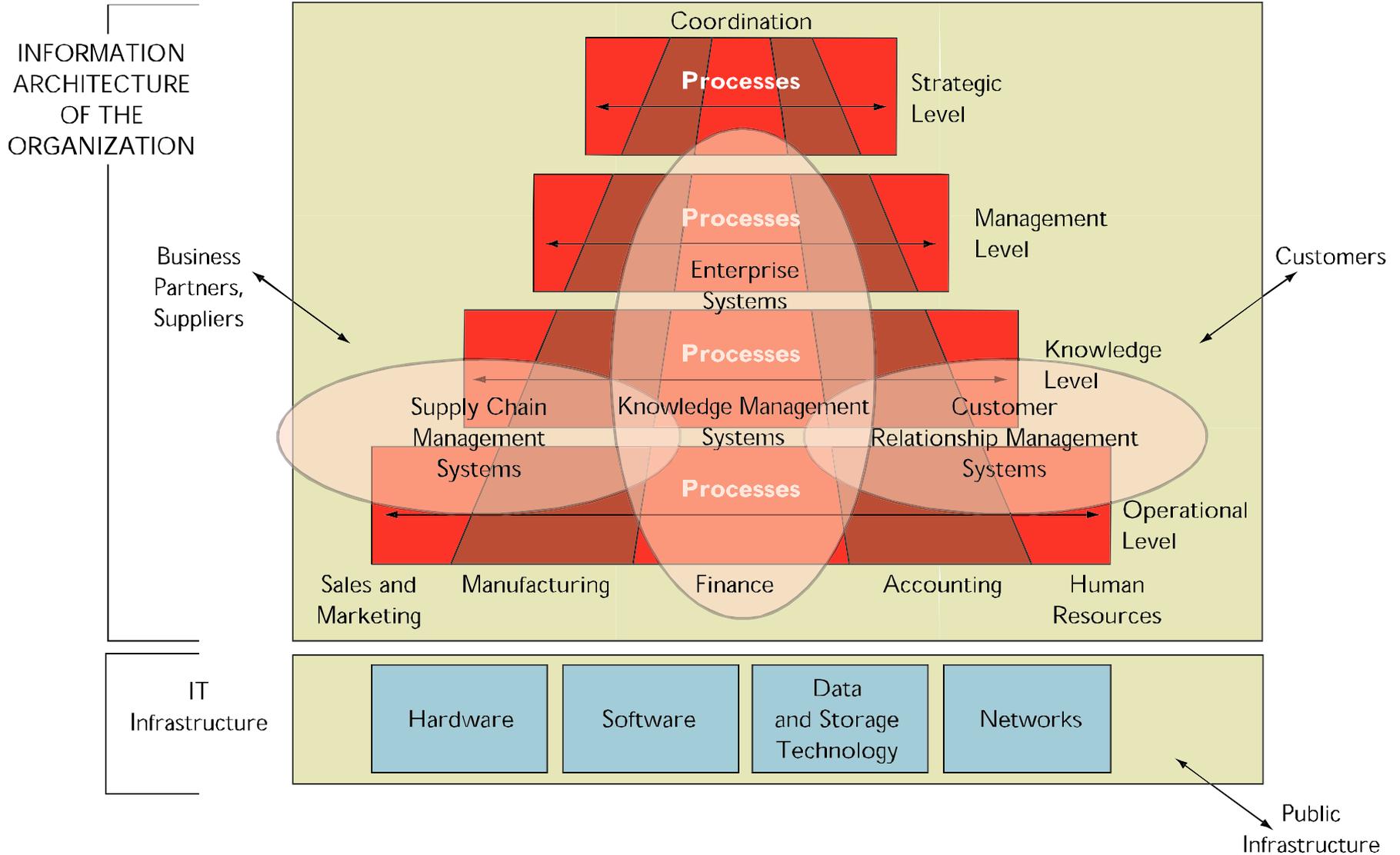
The Challenge of Information Systems: Key Management Issues

The responsibility and control challenge

How can organizations design systems that people can control and understand?

ETHICS

Information Architecture and Information Technology Infrastructure



Positive and Negative Impacts of Information Systems

Benefits of Information Systems

- can perform calculations or process paperwork much faster than people.
- can help companies learn more about the purchase patterns and preferences of their customers.
- provide new efficiencies through services such as ATMs, telephone systems, or computer-controlled airplanes and air terminals.
- have made possible new medical advances in surgery, radiology, and patient monitoring.
- distributes information instantly to millions of people accross the world.

Positive and Negative Impacts of Information Systems

Negative Impacts of Information Systems

- by automating activities that were previously performed by people, information systems may eliminate jobs.
- may allow organizations to collect personal details about people that violate their privacy.
- are used in so many aspects of everyday life that system outages can cause shutdowns of businesses or transportation services, paralyzing communities.
- heavy users of information systems may suffer repetitive stress injury, technostress, and other health problems.
- the Internet can be used to distribute illegal copies of software, books, articles, and other intellectual property.