

INFORMATION SYSTEMS IN THE ENTERPRISE

OBJECTIVES

- **What are the key system applications in a business? What role do they play?**
- **How do information systems support the major business functions?**
- **Why should managers pay attention to business processes?**

OBJECTIVES

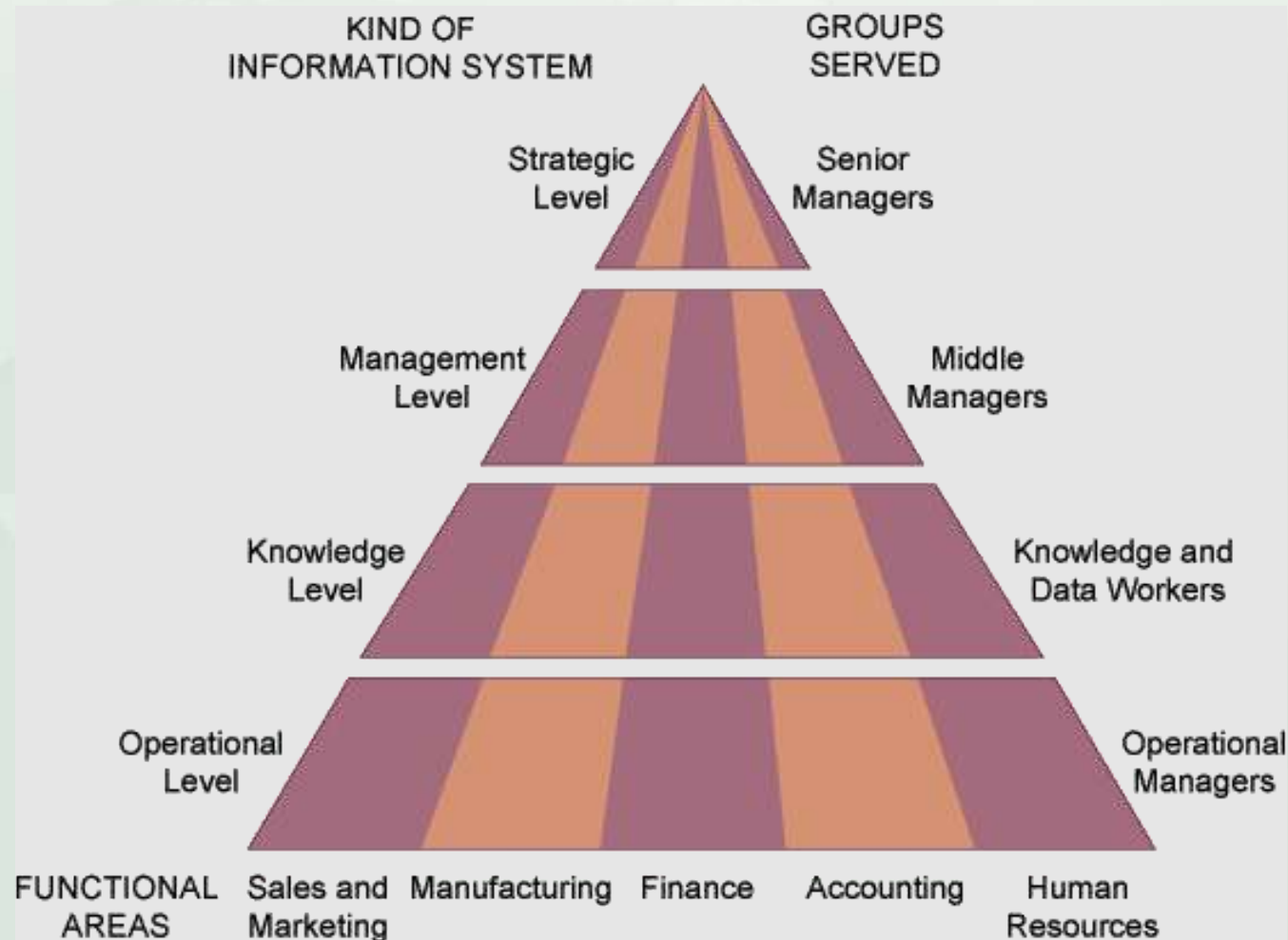
- **What are the business benefits of using collaborative commerce, private industrial networks and enterprise systems?**
- **What types of information systems are used by companies that operate internationally?**

MANAGEMENT CHALLENGES

- 1. Integration:** Different systems serve variety of functions, connecting organizational levels difficult, costly
- 2. Enlarging scope of management thinking:** Huge system investments, long development time must be guided by common objectives

KEY SYSTEM APPLICATIONS IN THE ORGANIZATION

Types of Information Systems



KEY SYSTEM APPLICATIONS IN THE ORGANIZATION

Major Types of Systems

- **Executive Support Systems (ESS)**
- **Decision Support Systems (DSS)**
- **Management Information Systems (MIS)**
- **Knowledge Work Systems (KWS)**
- **Office Automation Systems (OAS)**
- **Transaction Processing Systems (TPS)**

Essentials of Management Information Systems

Chapter 2 Information Systems in the Enterprise

TYPES OF INFORMATION SYSTEMS

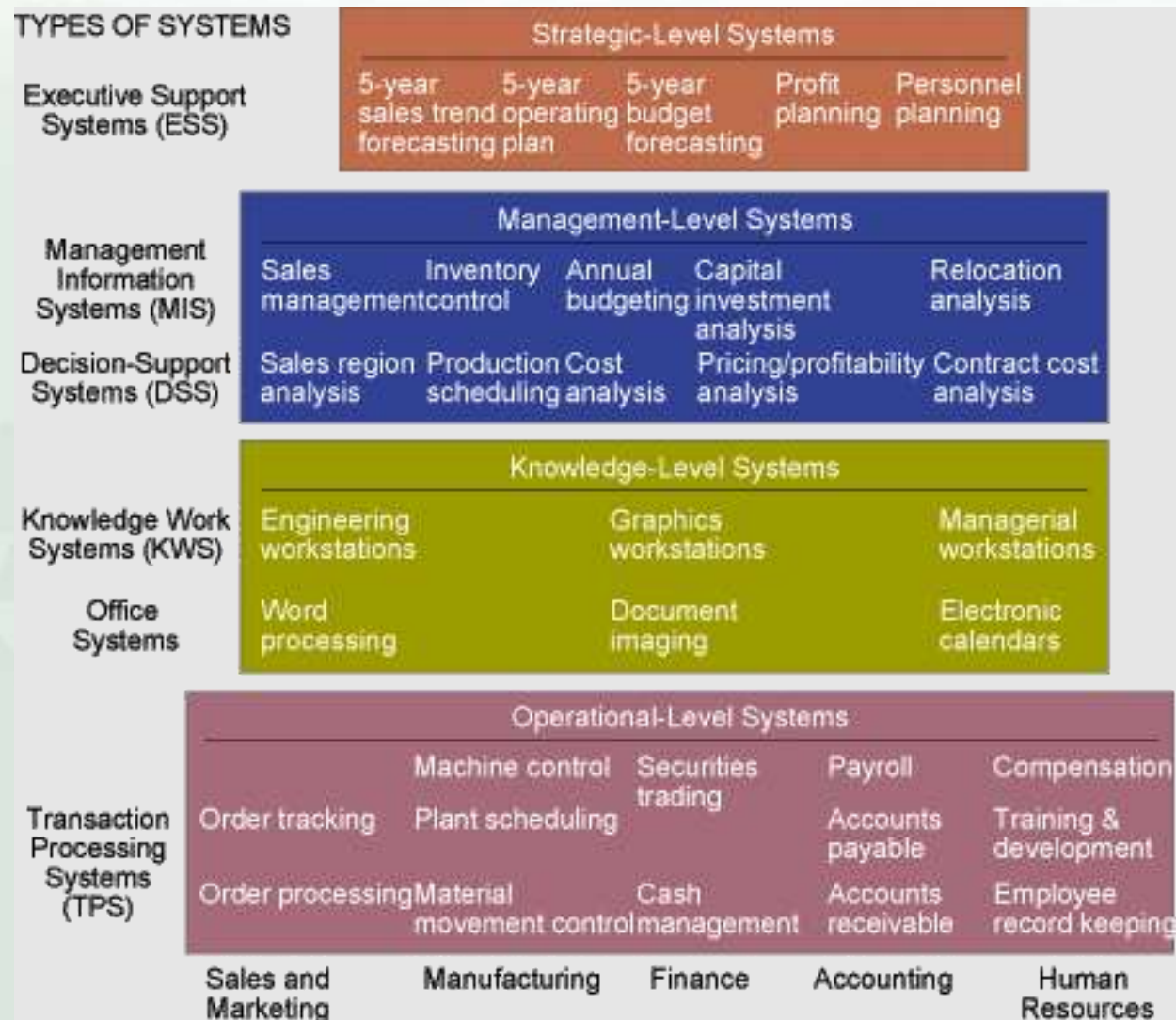


Figure 2-2

Transaction Processing Systems (TPS):

- **Basic business systems that serve the operational level**
- **A computerized system that performs and records the daily routine transactions necessary to the conduct of the business**

KEY SYSTEM APPLICATIONS IN THE ORGANIZATION

Payroll TPS

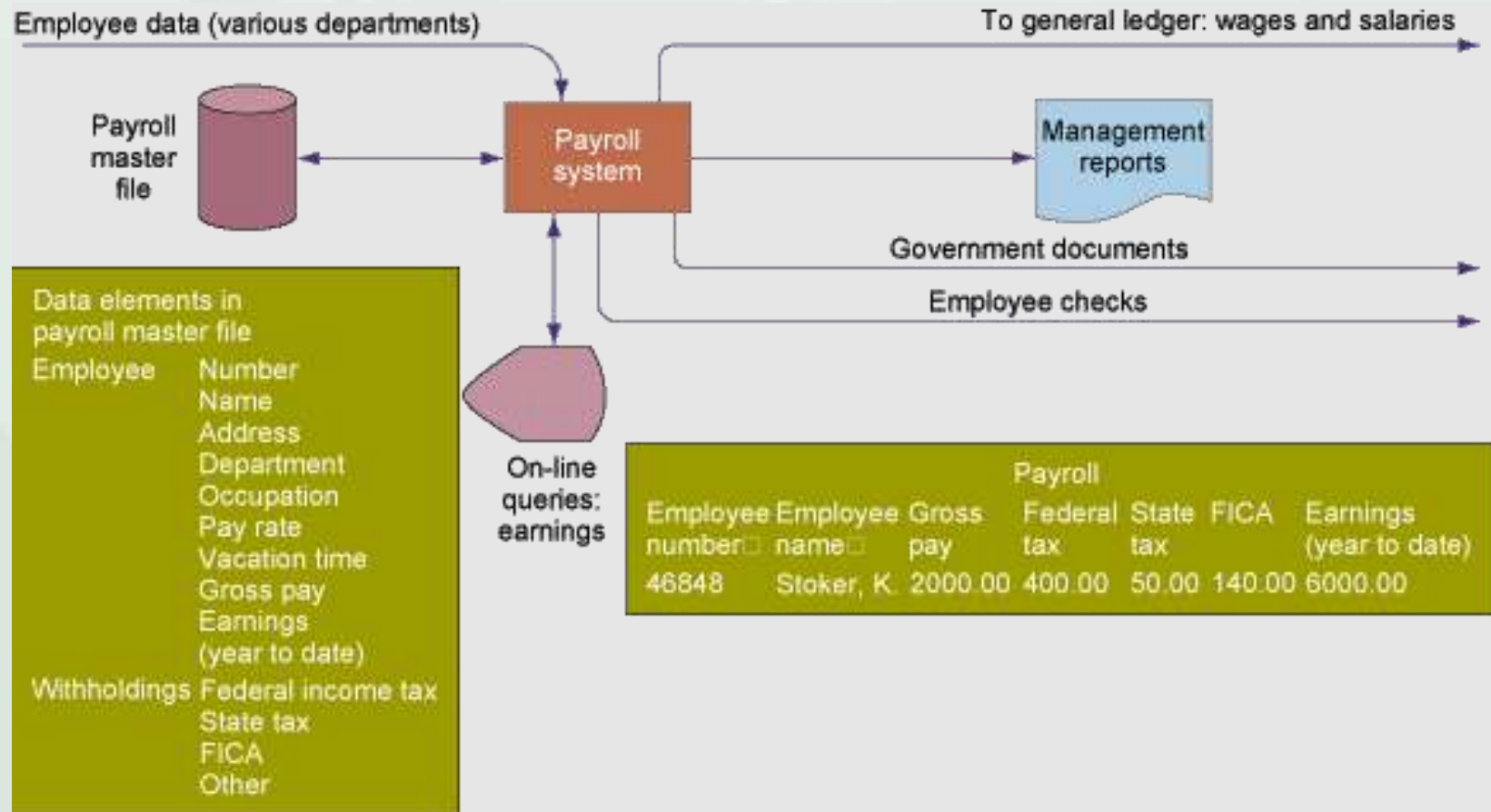


Figure 2-3

KEY SYSTEM APPLICATIONS IN THE ORGANIZATION

Types of TPS Systems

	TYPE OF TPS SYSTEM				
	Sales/ marketing systems	Manufacturing/ production systems	Finance/ accounting systems	Human resources systems	Other types (e.g., university)
Major functions of system	Sales management	Scheduling	Budgeting	Personnel records	Admissions
	Market research	Purchasing	General ledger	Benefits	Grade records
	Promotion	Shipping/receiving	Billing	Compensation	Course records
	Pricing	Engineering	Cost accounting	Labor relations	Alumni
	New products	Operations		Training	
Major application systems	Sales order information system	Machine control systems	General ledger	Payroll	Registration system
	Market research system	Purchase order systems	Accounts receivable/payable	Employee records	Student transcript system
	Sales commission system	Quality control systems	Funds management systems	Benefit systems	Curriculum class control systems
				Career path systems	Alumni benefactor system

Figure 2-4

Knowledge Work Systems (KWS):

Knowledge level

- **Inputs:** Design specs
- **Processing:** Modeling
- **Outputs:** Designs, graphics
- **Users:** Technical staff

Example: Engineering work station

Management Information System (MIS):

Management level

- **Inputs:** High volume data
- **Processing:** Simple models
- **Outputs:** Summary reports
- **Users:** Middle managers

Example: Annual budgeting

KEY SYSTEM APPLICATIONS IN THE ORGANIZATION

Management Information System (MIS)

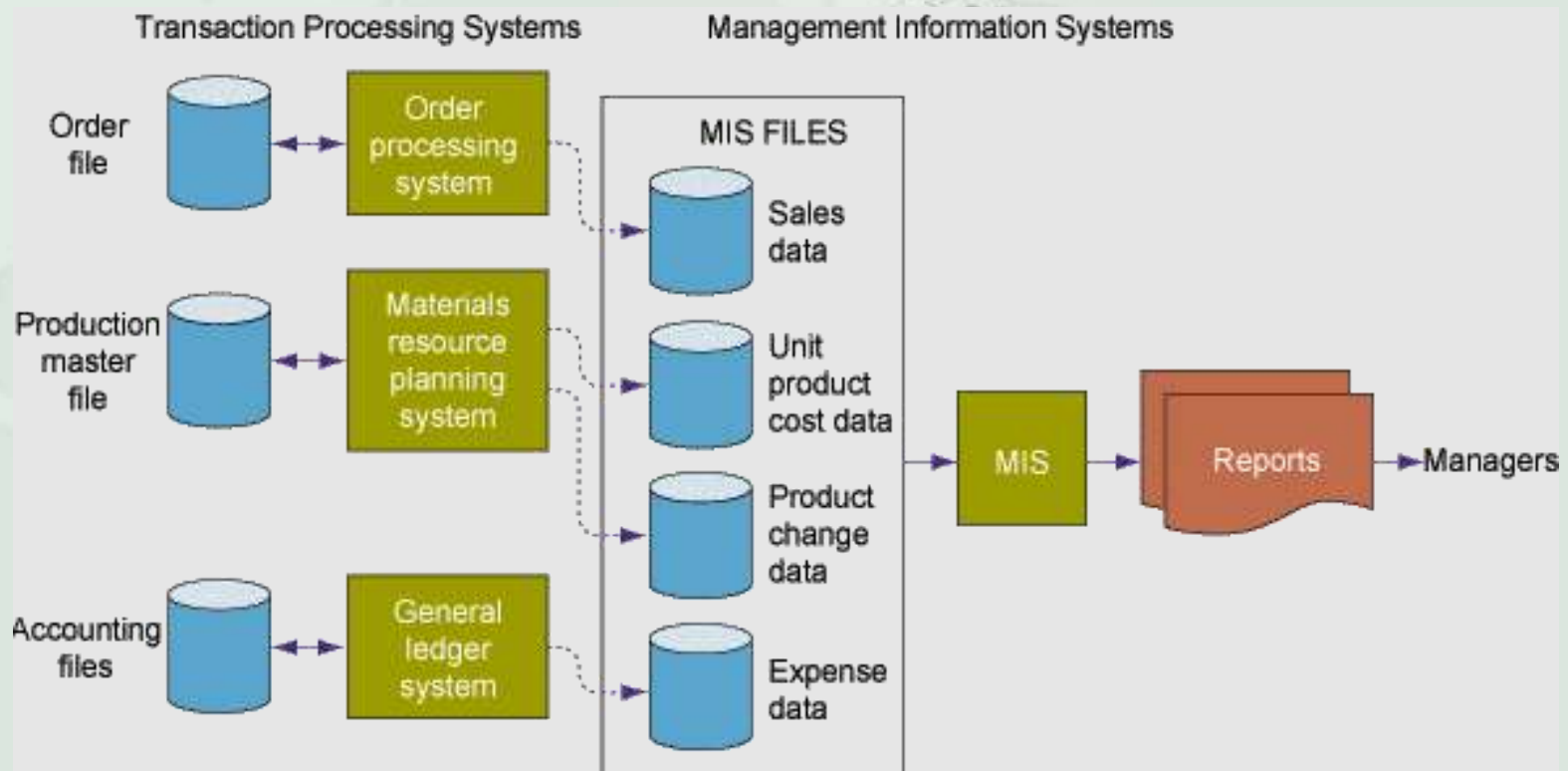


Figure 2-5

KEY SYSTEM APPLICATIONS IN THE ORGANIZATION

Management Information System (MIS)

- **Structured and semi-structured decisions**
- **Report control oriented**
- **Past and present data**
- **Internal orientation**
- **Lengthy design process**

Decision Support System (DSS):

Management level

- **Inputs:** Low volume data
- **Processing:** Interactive
- **Outputs:** Decision analysis
- **Users:** Professionals, staff

Example: Contract cost analysis

KEY SYSTEM APPLICATIONS IN THE ORGANIZATION

Decision Support System (DSS)

Consolidated Consumer Products Corporation
Sales by Product and Sales Region: 2001

PRODUCT CODE	PRODUCT DESCRIPTION	SALES REGION	ACTUAL SALES	PLANNED	ACTUAL VS. PLANNED
4469	Carpet Cleaner	Northeast	4,066,700	4,800,000	0.85
		South	3,778,112	3,750,000	1.01
		Midwest	4,867,001	4,600,000	1.06
		West	4,003,440	4,400,000	0.91
		TOTAL	16,715,253	17,550,000	0.95
5674	Room Freshener	Northeast	3,676,700	3,900,000	0.94
		South	5,608,112	4,700,000	1.19
		Midwest	4,711,001	4,200,000	1.12
		West	4,563,440	4,900,000	0.93
		TOTAL	18,559,253	17,700,000	1.05

Figure 2-6

KEY SYSTEM APPLICATIONS IN THE ORGANIZATION

Decision Support System (DSS)

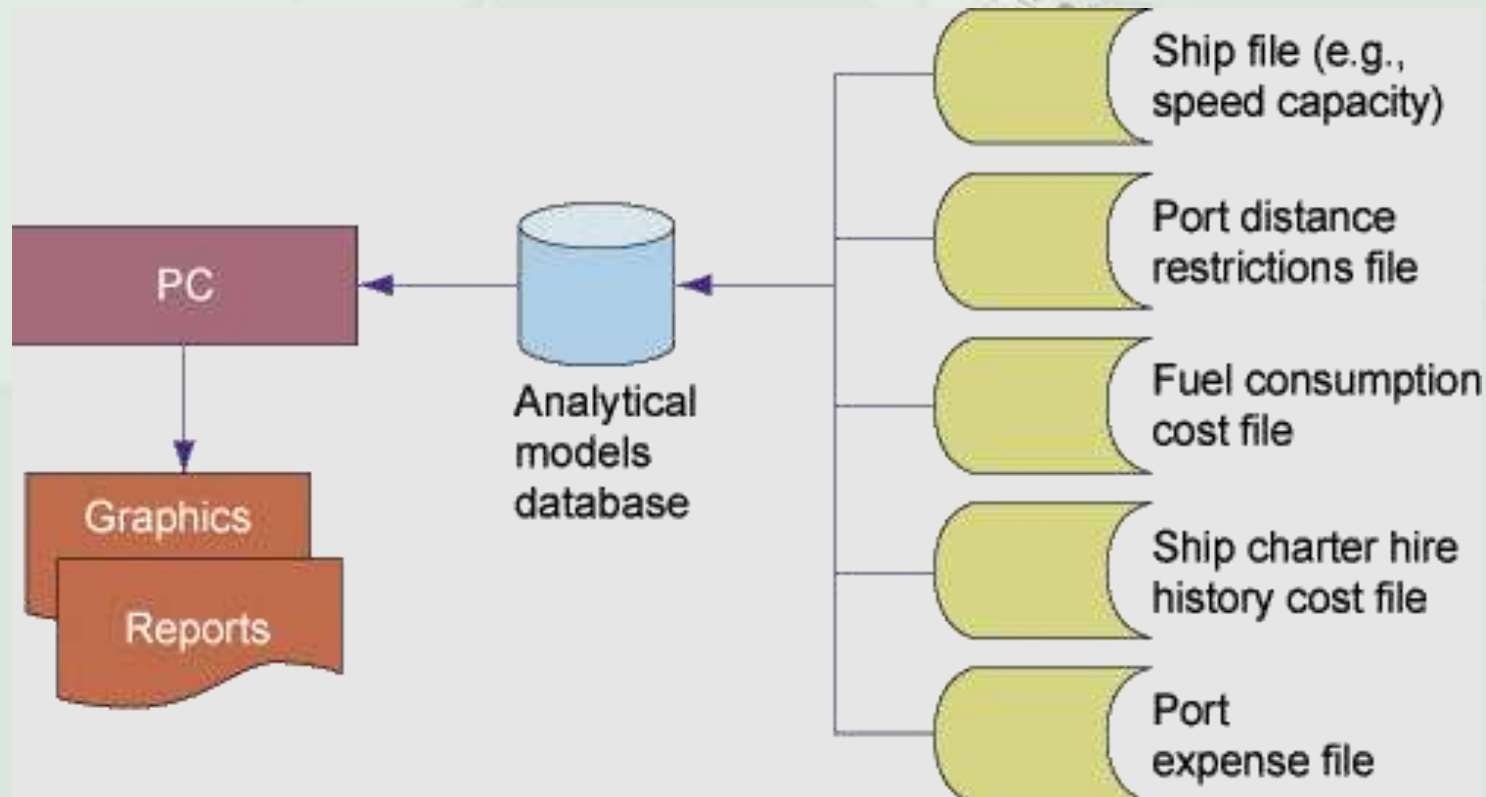


Figure 2-7

Executive Support System (ESS):

Strategic level

- **Inputs:** Aggregate data
- **Processing:** Interactive
- **Outputs:** Projections
- **Users:** Senior managers

Example: 5-year operating plan

KEY SYSTEM APPLICATIONS IN THE ORGANIZATION

Executive Support System (ESS)

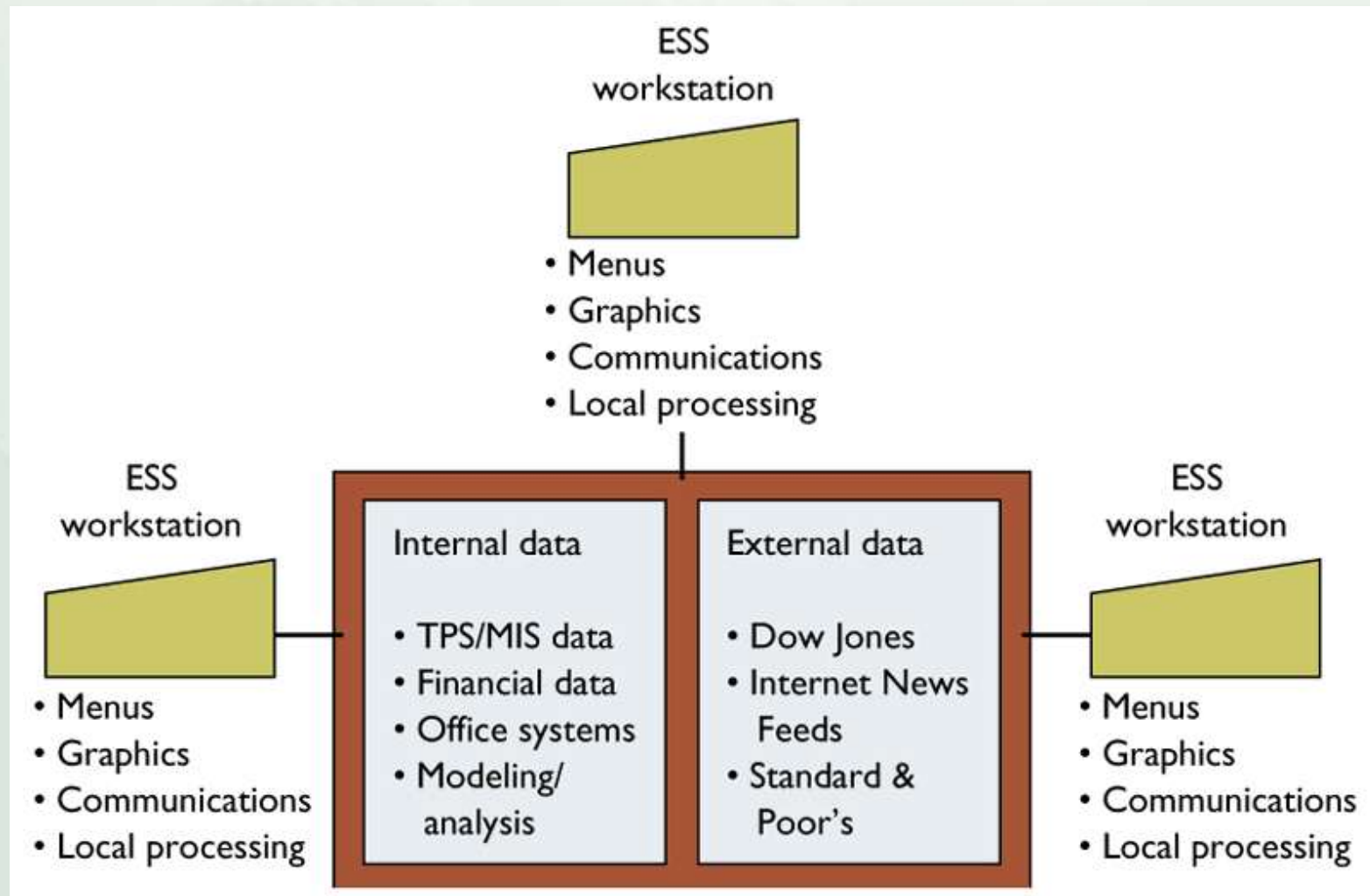


Figure 2-8

KEY SYSTEM APPLICATIONS IN THE ORGANIZATION

Executive support system (ESS)

- **Top level management**
- **Designed to the individual**
- **Ties CEO to all levels**
- **Very expensive to keep up**
- **Extensive support staff**

INTERRELATIONSHIPS AMONG SYSTEMS

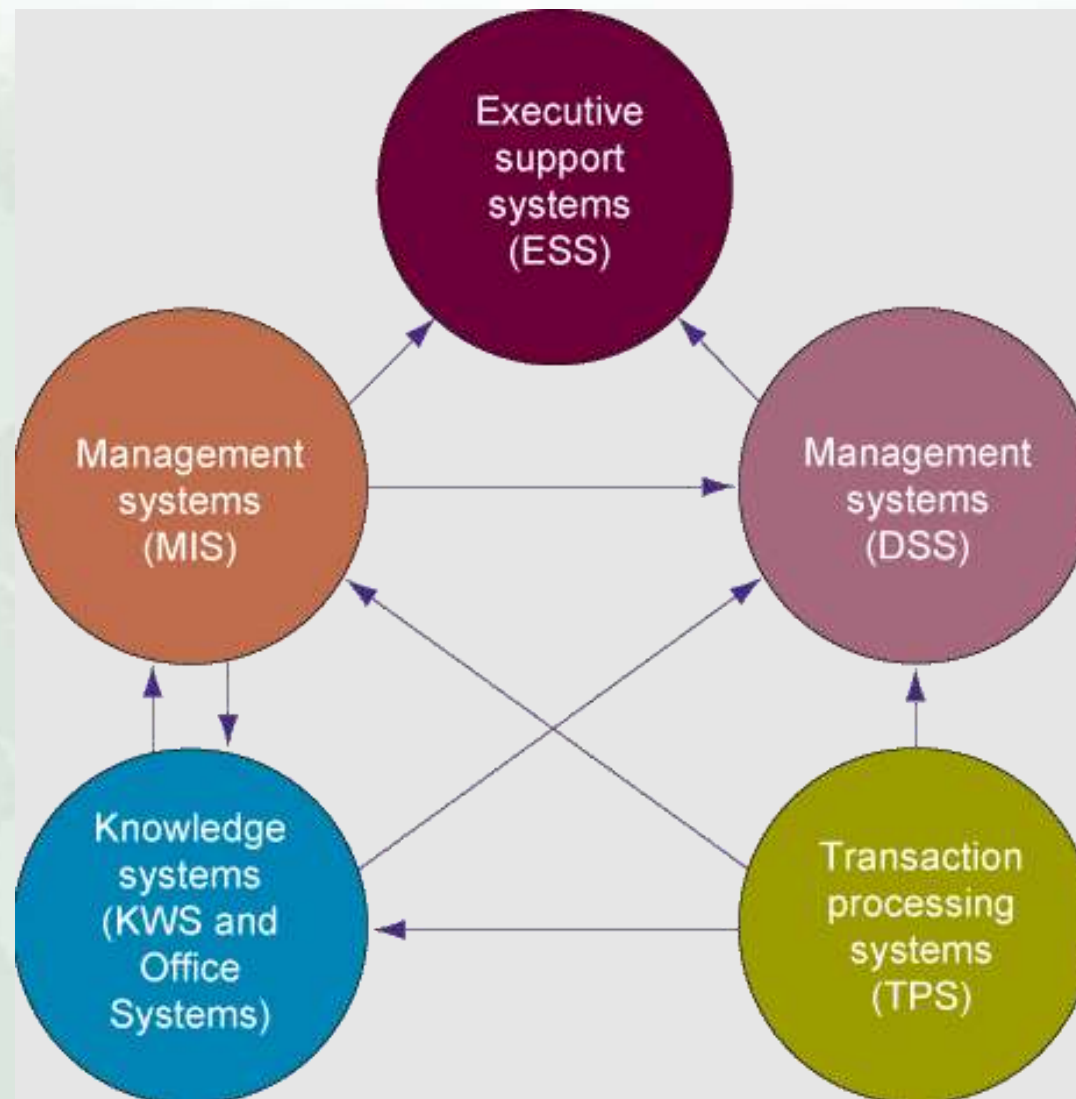


Figure 2-9

SYSTEMS FROM A FUNCTIONAL PERSPECTIVE

Sales and Marketing Systems

Major functions of systems:

- Sales management, market research, promotion, pricing, new products

Major application systems:

- Sales order info system, market research system, pricing system

SYSTEMS FROM A FUNCTIONAL PERSPECTIVE

Sales and Marketing Systems

SYSTEM	DESCRIPTION	ORGANIZATIONAL LEVEL
ORDER PROCESSING	ENTER, PROCESS, TRACK ORDERS	OPERATIONAL
MARKET ANALYSIS	IDENTIFY CUSTOMERS & MARKETS	KNOWLEDGE
PRICING ANALYSIS	DETERMINE PRICES	MANAGEMENT
SALES TRENDS	PREPARE 5-YEAR FORECASTS	STRATEGIC

SYSTEMS FROM A FUNCTIONAL PERSPECTIVE

Manufacturing and Production Systems

Major functions of systems:

- Scheduling, purchasing, shipping, receiving, engineering, operations

Major application systems:

- Materials resource planning systems, purchase order control systems, engineering systems, quality control systems

SYSTEMS FROM A FUNCTIONAL PERSPECTIVE

Manufacturing and Production Systems

SYSTEM	DESCRIPTION	ORGANIZATIONAL LEVEL
MACHINE CONTROL	CONTROL ACTIONS OF EQUIPMENT	OPERATIONAL
COMPUTER-AIDED-DESIGN	DESIGN NEW PRODUCTS	KNOWLEDGE
PRODUCTION PLANNING	DECIDE NUMBER, SCHEDULE OF PRODUCTS	MANAGEMENT
FACILITIES LOCATION	DECIDE WHERE TO LOCATE FACILITIES	STRATEGIC

SYSTEMS FROM A FUNCTIONAL PERSPECTIVE

Overview of Inventory Systems

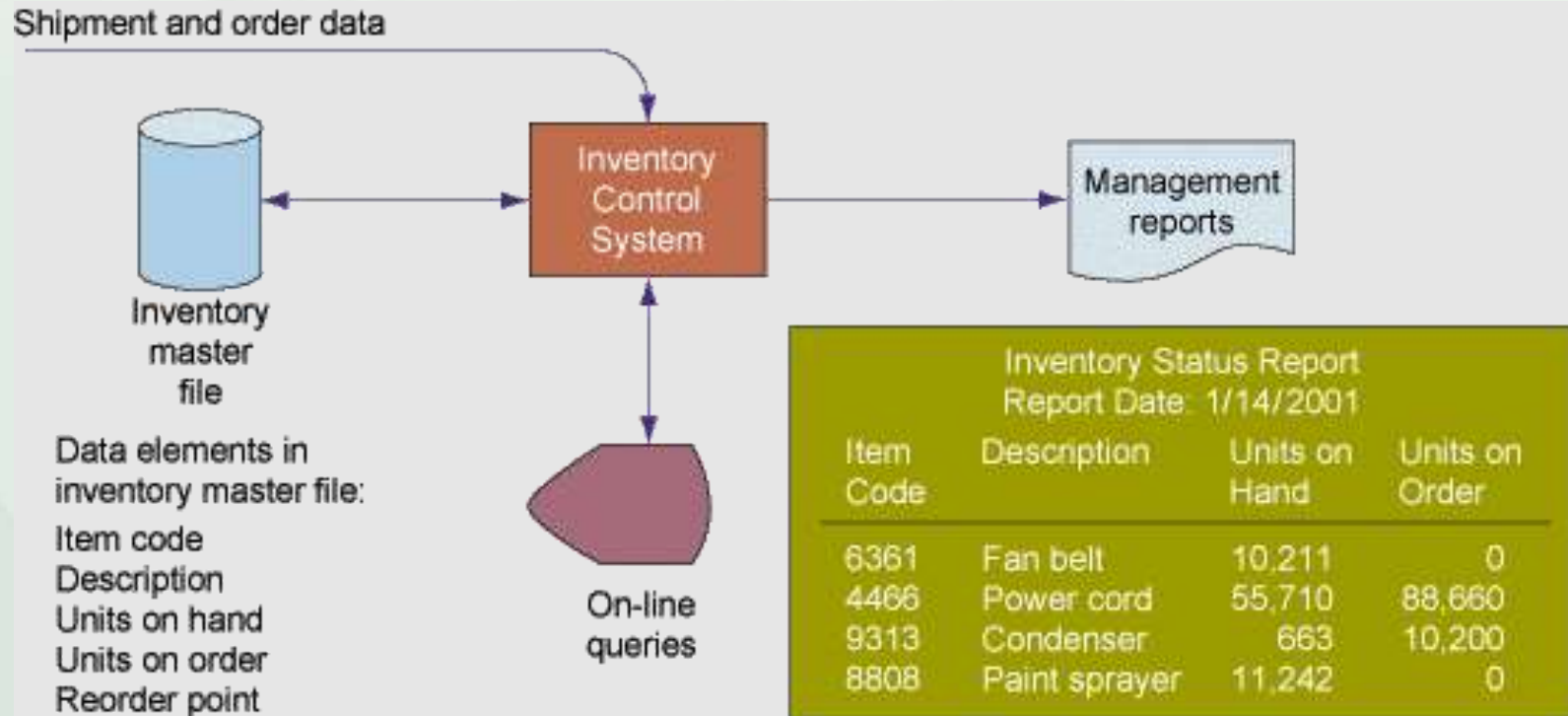


Figure 2-10

SYSTEMS FROM A FUNCTIONAL PERSPECTIVE

Financing and Accounting Systems

Major functions of systems:

- **Budgeting, general ledger, billing, cost accounting**

Major application systems:

- **General ledger, accounts receivable, accounts payable, budgeting, funds management systems**

SYSTEMS FROM A FUNCTIONAL PERSPECTIVE

Financing and Accounting Systems

SYSTEM	DESCRIPTION	ORGANIZATIONAL LEVEL
ACCOUNTS RECEIVABLE	TRACK MONEY OWED TO FIRM	OPERATIONAL
PORTFOLIO ANALYSIS	DESIGN FIRM'S INVESTMENTS	KNOWLEDGE
BUDGETING	PREPARE SHORT TERM BUDGETS	MANAGEMENT
PROFIT PLANNING	PLAN LONG-TERM PROFITS	STRATEGIC

SYSTEMS FROM A FUNCTIONAL PERSPECTIVE

Human Resource Systems

Major functions of systems:

- Personnel records, benefits, compensation, labor relations, training

Major application systems:

- Payroll, employee records, benefit systems, career path systems, personnel training systems

SYSTEMS FROM A FUNCTIONAL PERSPECTIVE

Human Resource Systems

SYSTEM	DESCRIPTION	ORGANIZATIONAL LEVEL
TRAINING & DEVELOPMENT	TRACK TRAINING, SKILLS, APPRAISALS	OPERATIONAL
CAREER PATHING	DESIGN EMPLOYEE CAREER PATHS	KNOWLEDGE
COMPENSATION ANALYSIS	MONITOR WAGES, SALARIES, BENEFITS	MANAGEMENT
HUMAN RESOURCES PLANNING	PLAN LONG-TERM LABOR FORCE NEEDS	STRATEGIC

SYSTEMS FROM A FUNCTIONAL PERSPECTIVE

Human Resource Systems

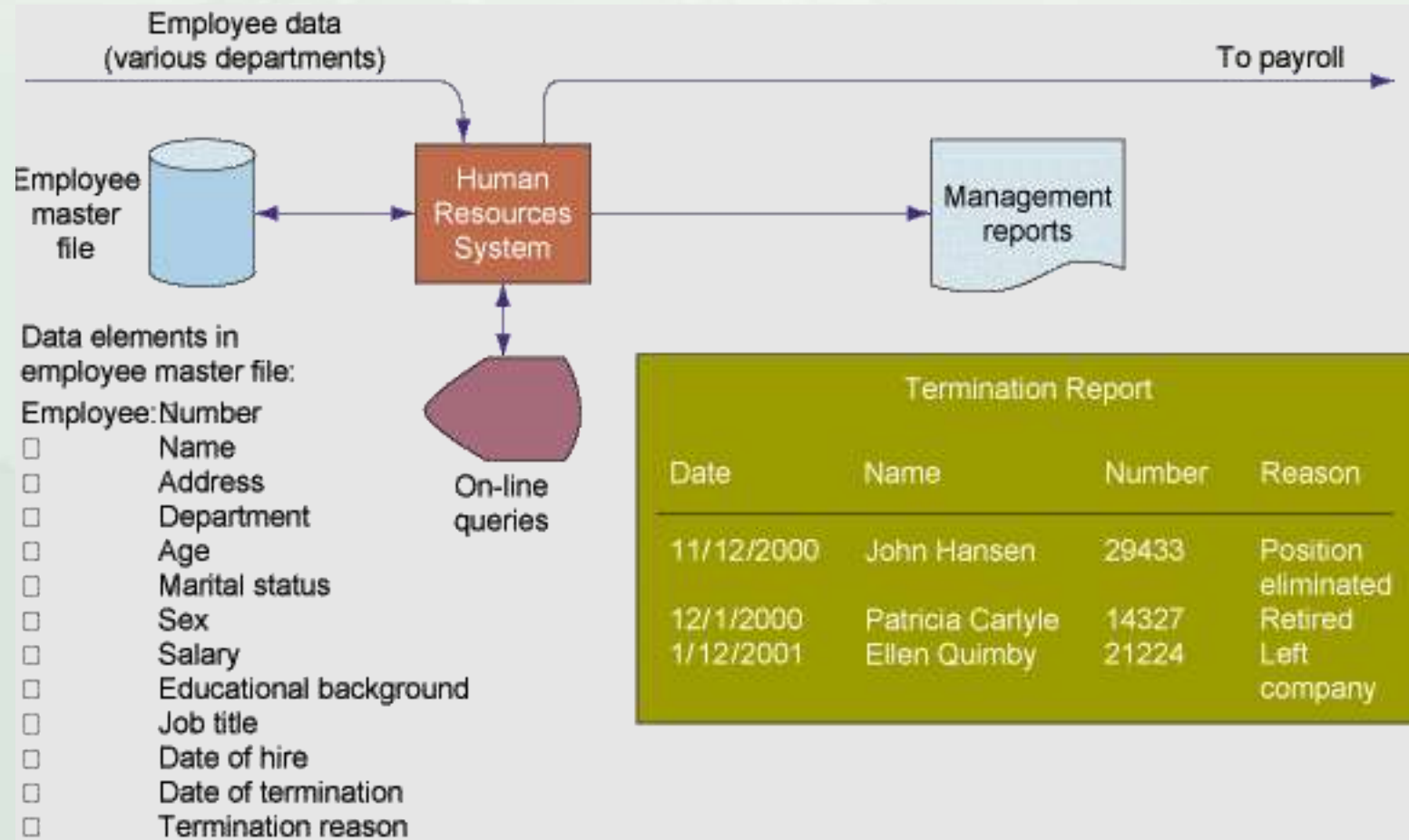


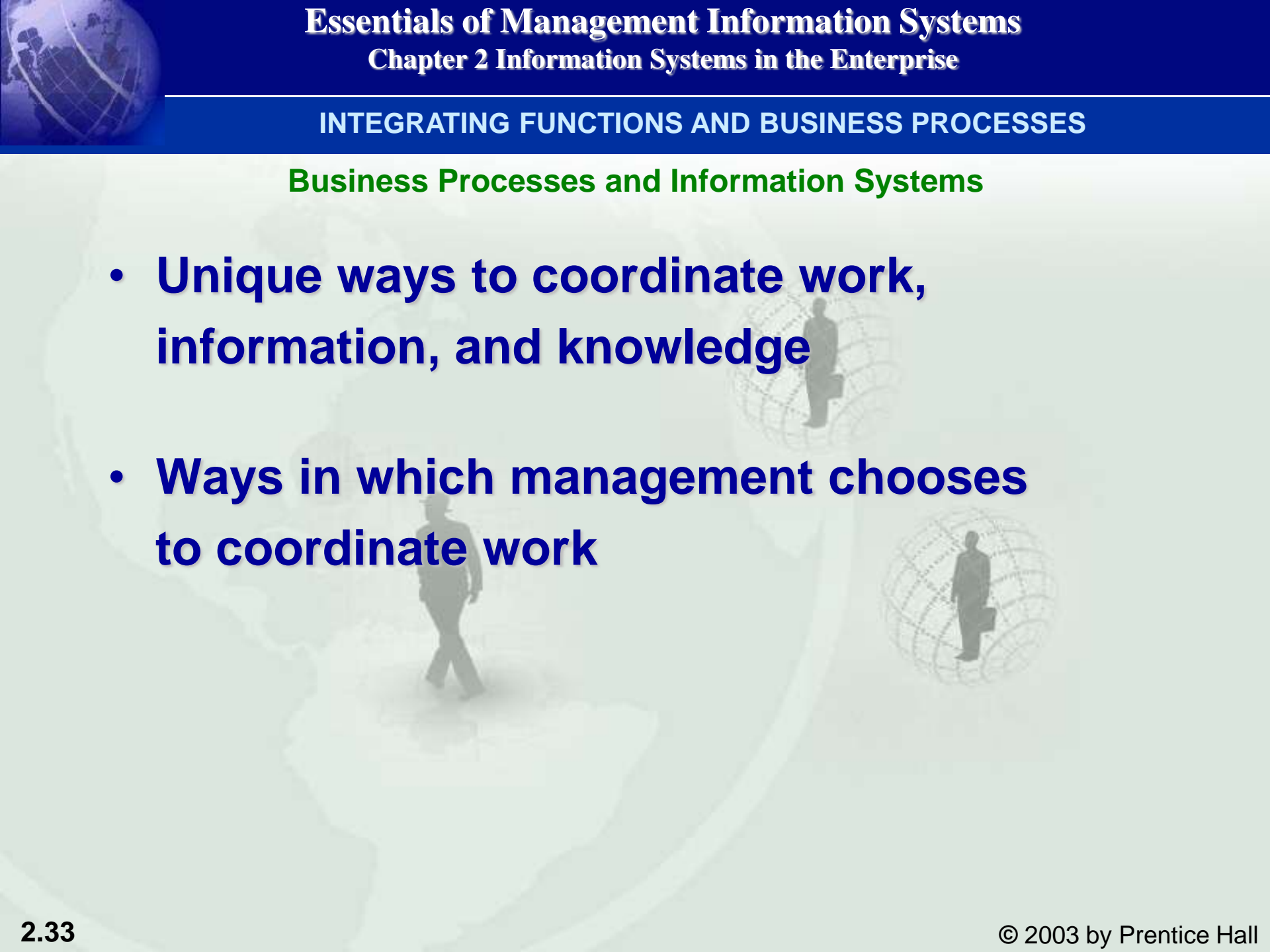
Figure 2-11

Business processes

- **Manner in which work is organized, coordinated, and focused to produce a valuable product or service**
- **Concrete work flows of material, information, and knowledge—sets of activities**

INTEGRATING FUNCTIONS AND BUSINESS PROCESSES

Business Processes and Information Systems

- **Unique ways to coordinate work, information, and knowledge**
 - **Ways in which management chooses to coordinate work**
- 

INTEGRATING FUNCTIONS AND BUSINESS PROCESSES

Business Processes and Information Systems

Information systems help organizations

- Achieve great efficiencies by automating parts of processes
- Rethink and streamline processes

INTEGRATING FUNCTIONS AND BUSINESS PROCESSES

Examples of Business Processes

- **Manufacturing and production:** Assembling product, checking quality, producing bills of materials
- **Sales and marketing:** Identifying customers, creating customer awareness, selling

INTEGRATING FUNCTIONS AND BUSINESS PROCESSES

Examples of Business Processes

- **Finance and accounting:** Paying creditors, creating financial statements, managing cash accounts
- **Human Resources:** Hiring employees, evaluating performance, enrolling employees in benefits plans

INTEGRATING FUNCTIONS AND BUSINESS PROCESSES

Business Processes and Information Systems

Cross-Functional Business Processes

- Transcend boundary between sales, marketing, manufacturing, and research and development
- Group employees from different functional specialties to a complete piece of work

Example: Order Fulfillment Process

INTEGRATING FUNCTIONS AND BUSINESS PROCESSES

The Order Fulfillment Process

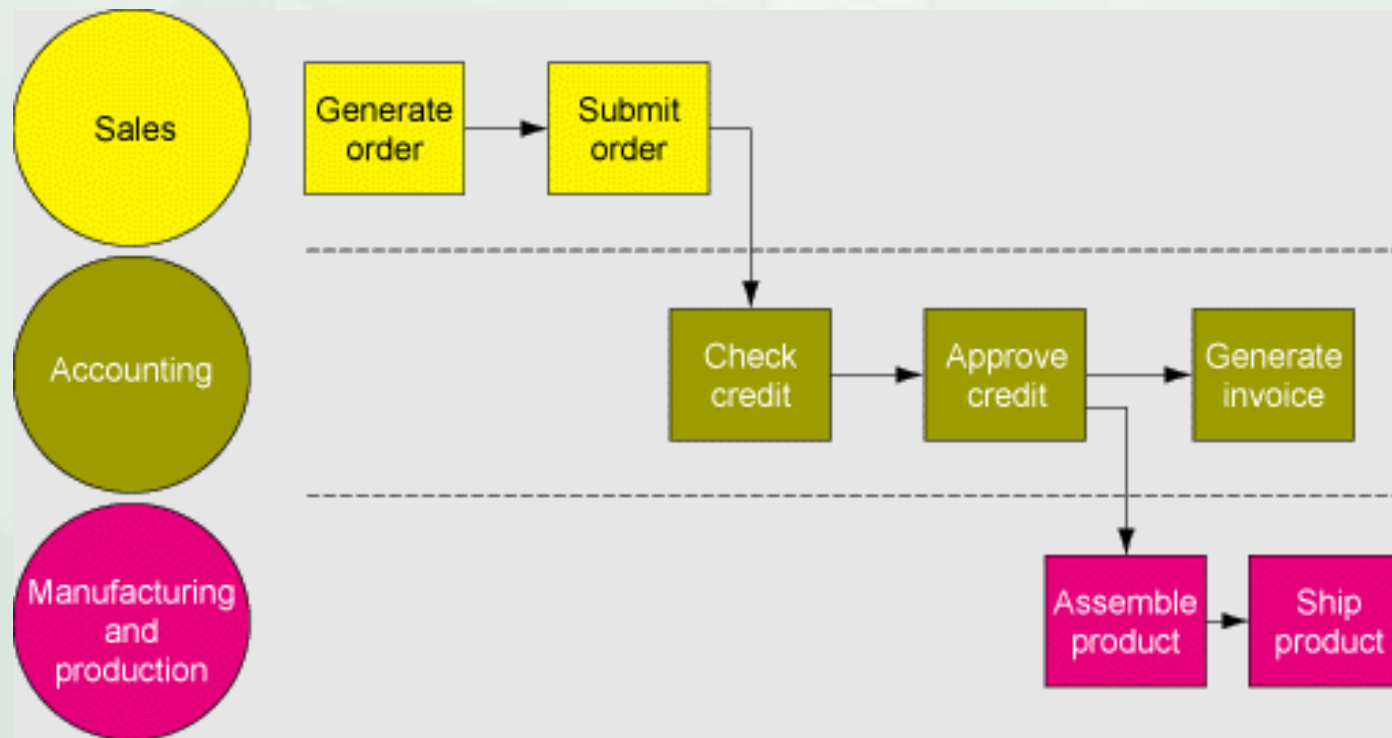


Figure 2-12

Customer Relationship Management (CRM)

Customer Relationship Management (CRM)

- **Manages all ways used by firms to deal with existing and potential new customers**
- **Business and Technology discipline**
- **Uses information system to coordinate entire business processes of a firm**

INTEGRATING FUNCTIONS AND BUSINESS PROCESSES

Customer Relationship Management (CRM)

- **Provides end-to-end customer care**
- **Provides a unified view of customer across the company**
- **Consolidates customer data from multiple sources and provides analytical tools for answering questions**

INTEGRATING FUNCTIONS AND BUSINESS PROCESSES

Customer Relationship Management (CRM)

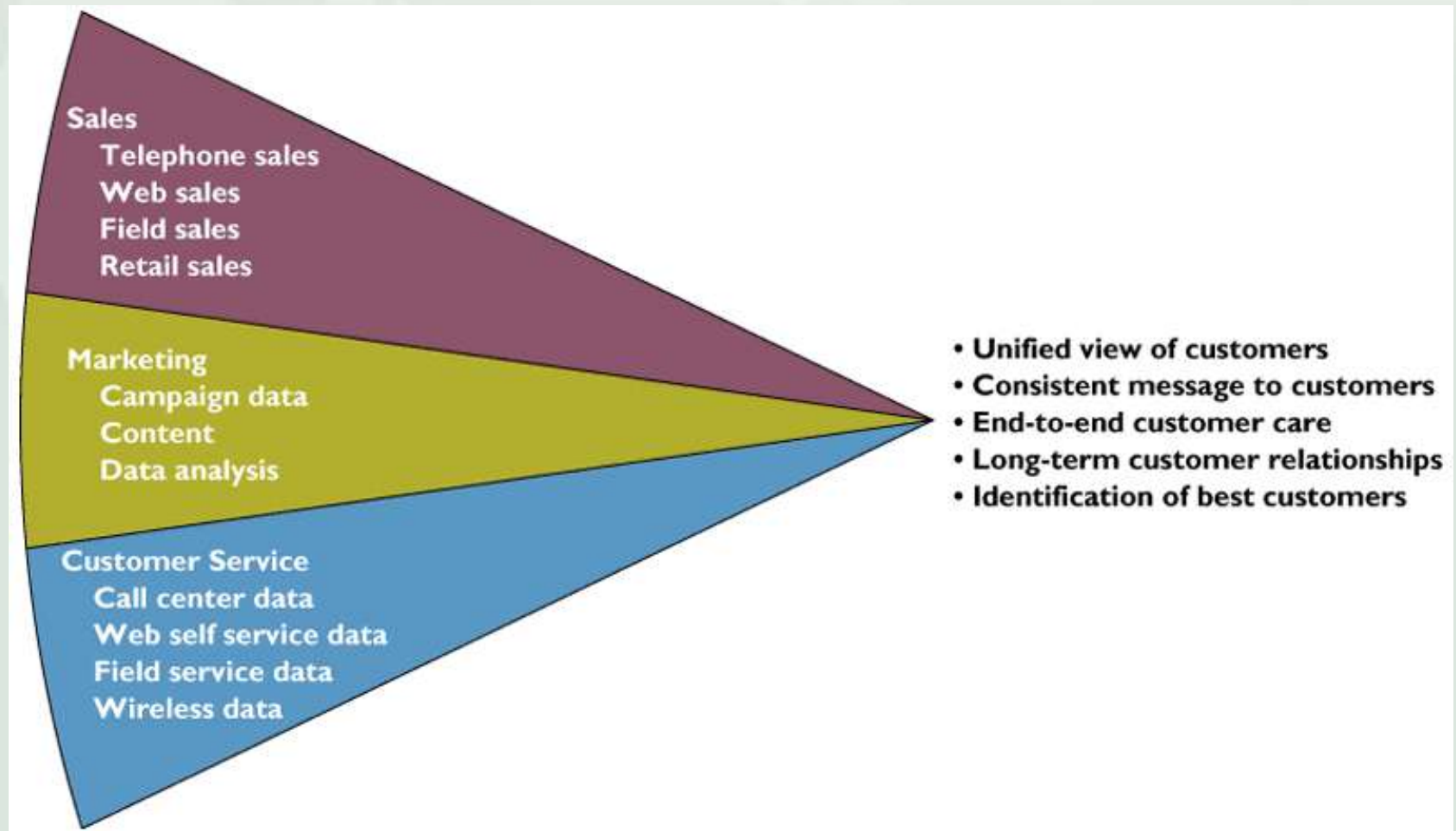


Figure 2-13

INTEGRATING FUNCTIONS AND BUSINESS PROCESSES

Supply Chain Management (SCM)

Supply Chain Management (SCM)

- Close linkage and coordination of activities involved in buying, making, and moving a product
- Integrates supplier, manufacturer, distributor, and customer logistics time
- Reduces time, redundant effort, and inventory costs

Supply Chain Management (SCM)

Supply Chain

- **Network of organizations and business processes**
- **Helps in procurement of materials, transformation of raw materials into intermediate and finished products**

INTEGRATING FUNCTIONS AND BUSINESS PROCESSES

Supply Chain Management (SCM)

- **Helps in distribution of the finished products to customers**
- **Includes reverse logistics - returned items flow in the reverse direction from the buyer back to the seller**

INTEGRATING FUNCTIONS AND BUSINESS PROCESSES

Supply Chain Management

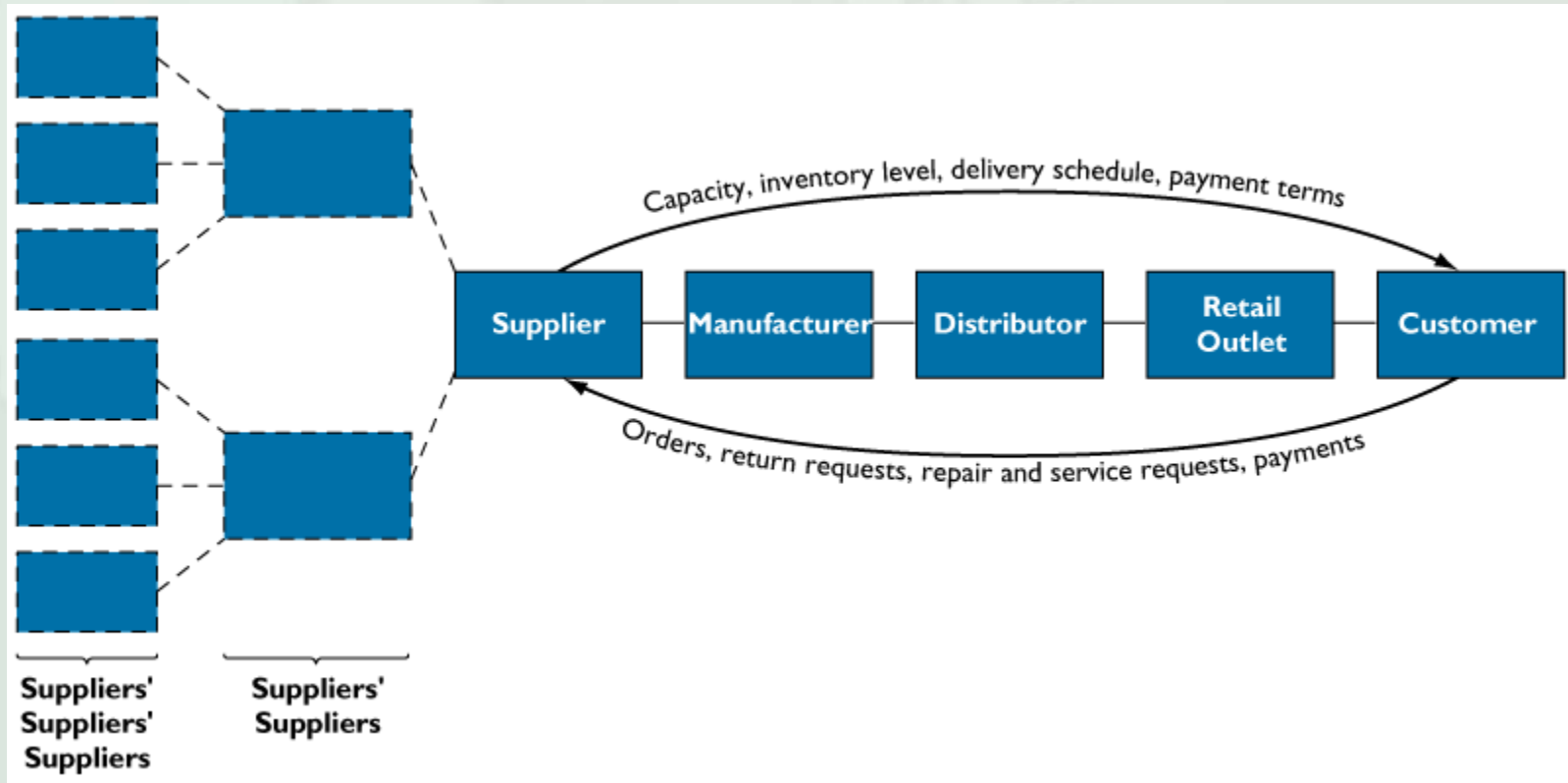


Figure 2-14

INTEGRATING FUNCTIONS AND BUSINESS PROCESSES

How Information Systems Facilitate Supply Chain Management

- **Decide when, what to produce, store, move**
- **Rapidly communicate orders**
- **Communicate orders, track order status**
- **Check inventory availability, monitor levels**
- **Track shipments**
- **Plan production based on actual demand**
- **Rapidly communicate product design change**
- **Provide product specifications**
- **Share information about defect rates, returns**

Supply Chain Management (SCM)

Limitations:

- Inefficiencies can waste as much as 25% of company's operating costs
- Bullwhip Effect: Information about the demand for the product gets distorted as it passes from one entity to next

INTEGRATING FUNCTIONS AND BUSINESS PROCESSES

Supply Chain Management (SCM)

- **Supply chain planning system:** Enables firm to generate forecasts for a product and to develop sourcing and a manufacturing plan for the product
- **Supply chain execution system:** Manages flow of products through distribution centers and warehouses

INTEGRATING FUNCTIONS AND BUSINESS PROCESSES

Collaborative Commerce

- **Uses digital technologies to enable multiple organizations to collaboratively design, develop, build, move, and manage products**
- **Increases efficiencies in reducing product design life cycles, minimizing excess inventory, forecasting demand, and keeping partners and customers informed**

INTEGRATING FUNCTIONS AND BUSINESS PROCESSES

Collaborative Commerce

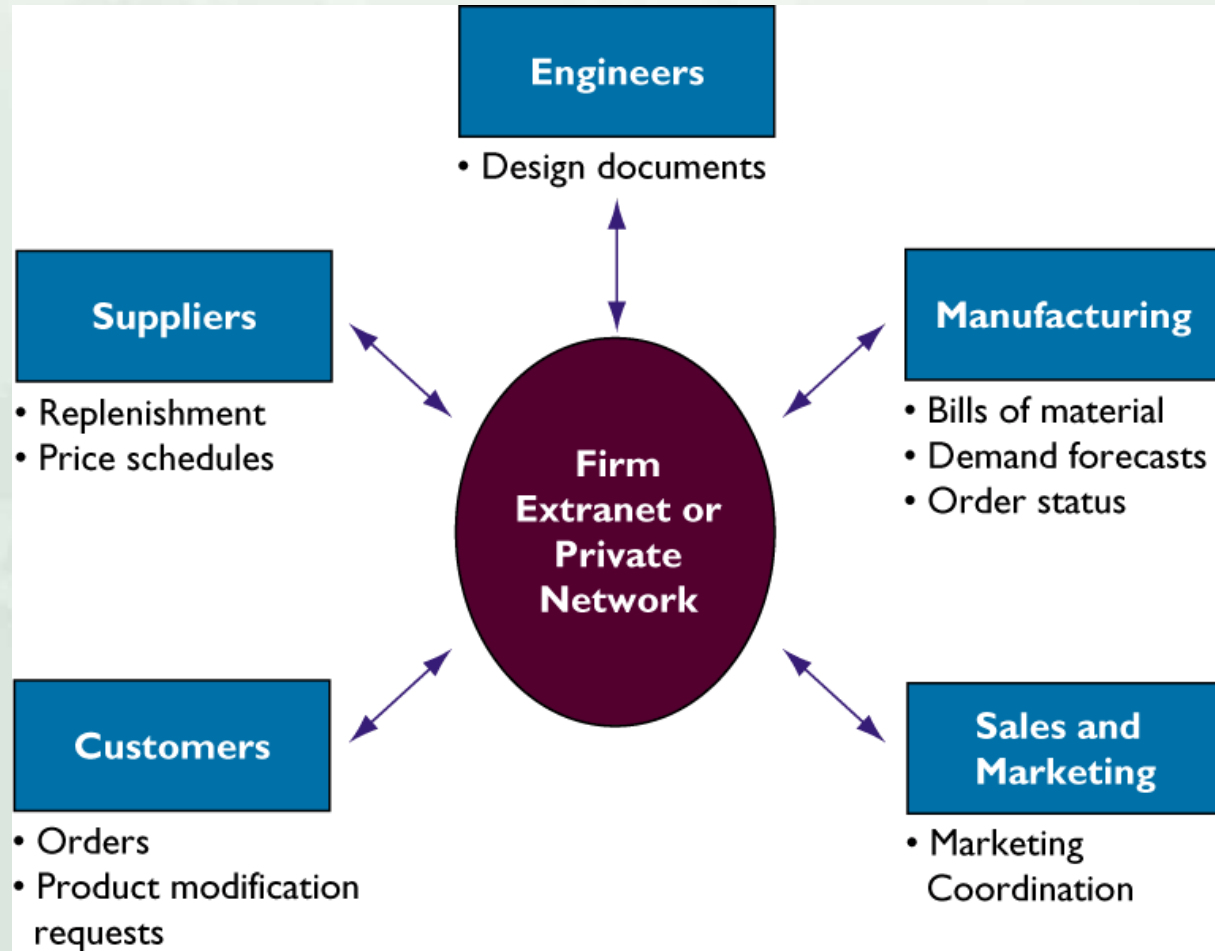


Figure 2-15

Industrial Networks

Private Industrial Networks

- **Web-enabled networks**
- **Link systems of multiple firms in an industry**
- **Coordinate transorganizational business processes**

INTEGRATING FUNCTIONS AND BUSINESS PROCESSES

Traditional View of the Systems

- **Within the business:** There are functions, each having its uses of information systems
- **Outside the organization's boundaries:** There are customers and vendors

Functions tend to work in isolation

INTEGRATING FUNCTIONS AND BUSINESS PROCESSES

Traditional View of the Systems

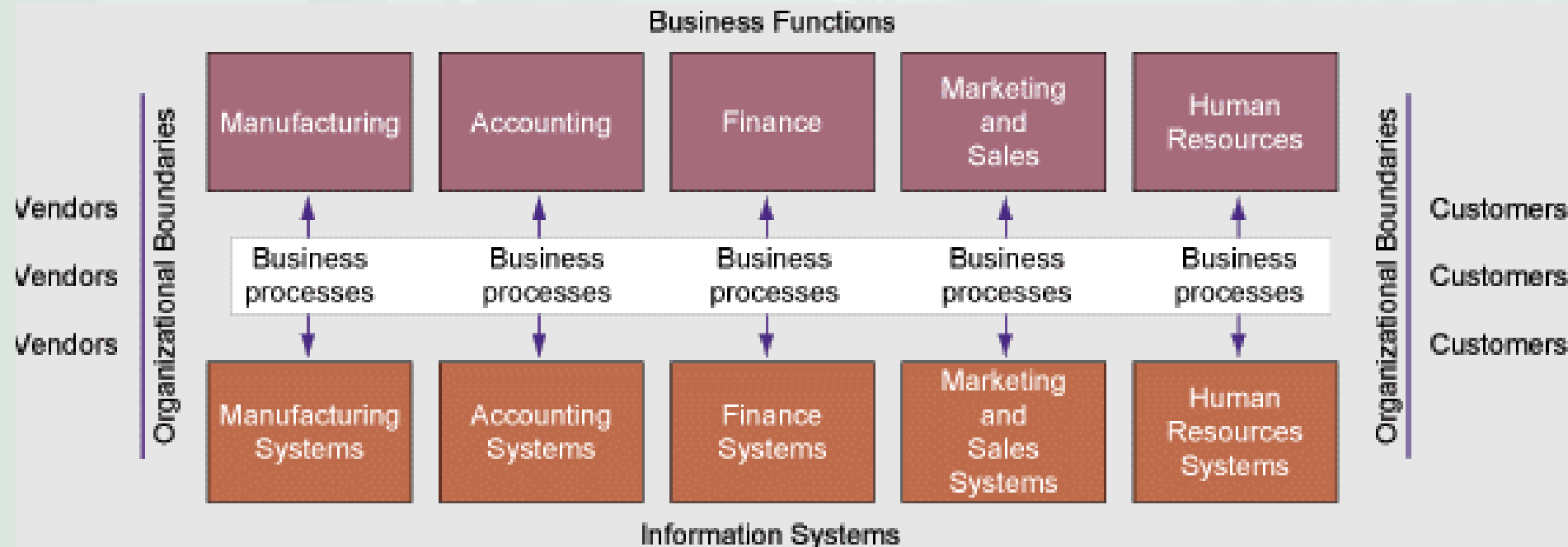
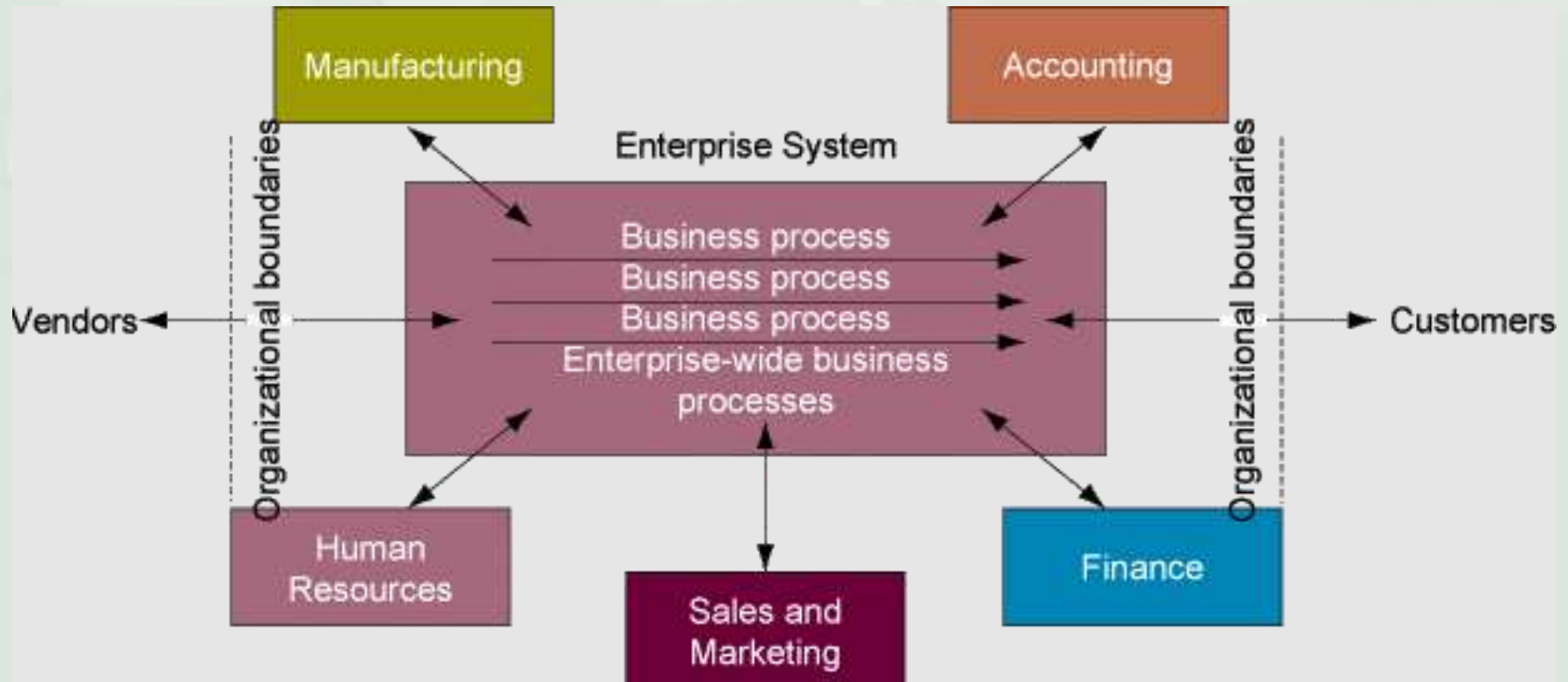


Figure 2-16

INTEGRATING FUNCTIONS AND BUSINESS PROCESSES

Enterprise Systems



INTEGRATING FUNCTIONS AND BUSINESS PROCESSES

Benefits of Enterprise Systems

- **Firm structure and organization:** One organization
- **Management:** Firm-wide knowledge-based management processes
- **Technology:** Unified platform
- **Business:** More efficient operations and customer-driven business processes

INTEGRATING FUNCTIONS AND BUSINESS PROCESSES

Challenges of Enterprise Systems

- **Difficult to build:** Require fundamental changes in the way the business operates
- **Technology:** Require complex pieces of software and large investments of time, money, and expertise
- **Centralized organizational coordination and decision making:** Not the best way for the firms to operate

INTERNATIONAL INFORMATION SYSTEMS

Forms of Global Business Organization

Four main ways of organizing businesses internationally:

- **Domestic Exporter:** Heavy centralization of corporate activities in the home country of origin
- **Multinational:** Financial management and control out of a central home base, production, sales and marketing operations decentralized

INTERNATIONAL INFORMATION SYSTEMS

Forms of Global Business Organization

- **Franchiser:** Product created, designed, financed, and produced in the home country, relies on foreign personnel for production, marketing and human resources
- **Transnational:** No national headquarters; value-added activities managed from a global perspective, no reference to national borders, sources of supply and demand and local competitive advantage optimized

INTERNATIONAL INFORMATION SYSTEMS

Global System Configuration

Four types of system configuration:

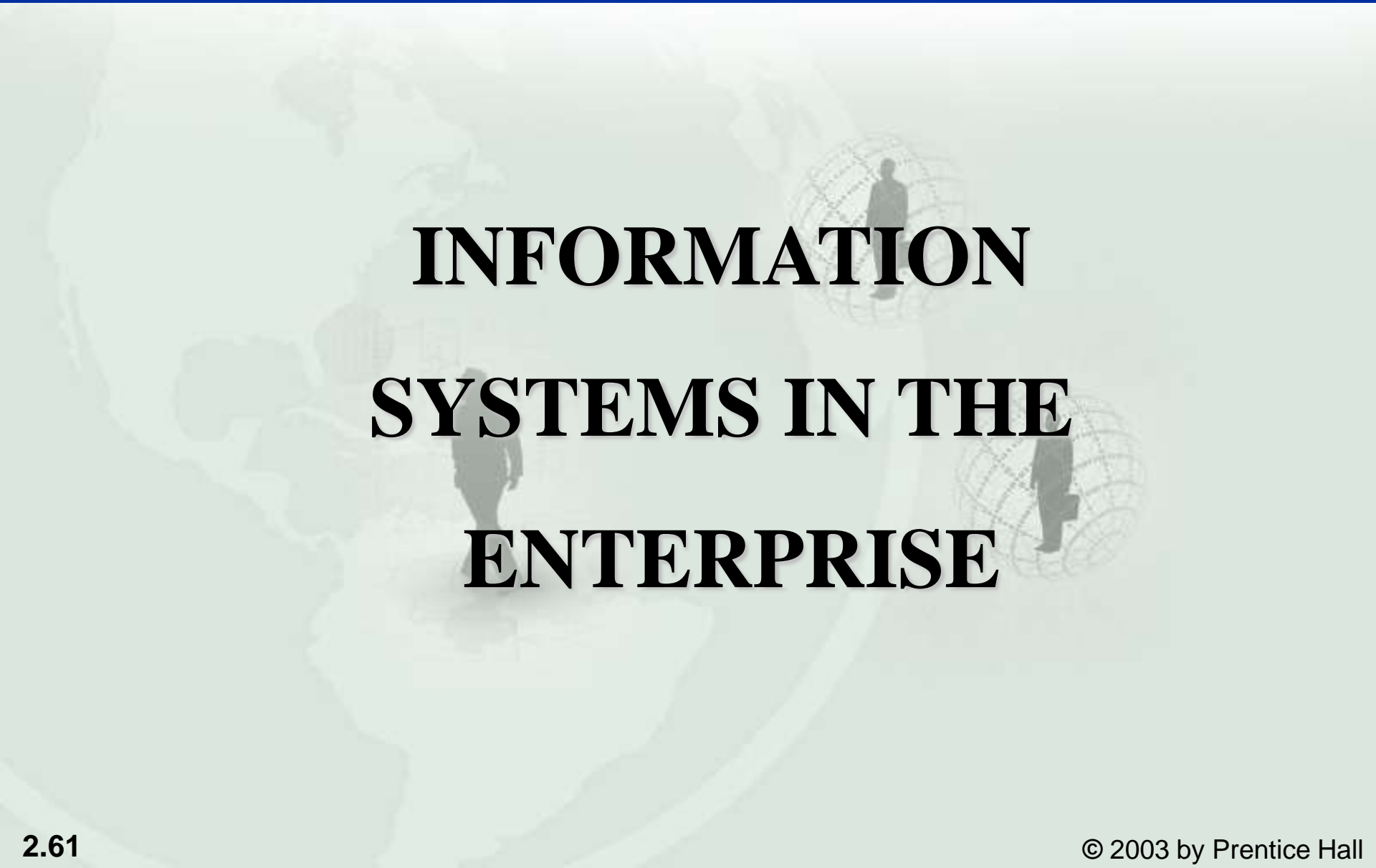
- **Centralized Systems**
- **Duplicated Systems**
- **Decentralized Systems**
- **Networked Systems**

INTERNATIONAL INFORMATION SYSTEMS

Global System Configuration

SYSTEM CONFIGURATION	BUSINESS ORGANIZATION			
	Domestic Exporter	Multinational	Franchiser	Transnational
Centralized	X			
Duplicated			X	
Decentralized	x	X	x	
Networked		x		X

Figure 2-18



INFORMATION SYSTEMS IN THE ENTERPRISE