Chapter 2

Information Systems in the Enterprise

Objectives

1. What are the major types of systems in a business? What role do they play?

2. How do information systems support the major business functions: sales and marketing, manufacturing and production, finance and accounting, and human resources?

Objectives

3. Why should managers pay attention to business processes? Why do firms need to integrate their business processes?

4. What are enterprise applications? What role do they play? What benefits do they provide?

5. 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

Major Types of Systems in Organizations

Types of information systems

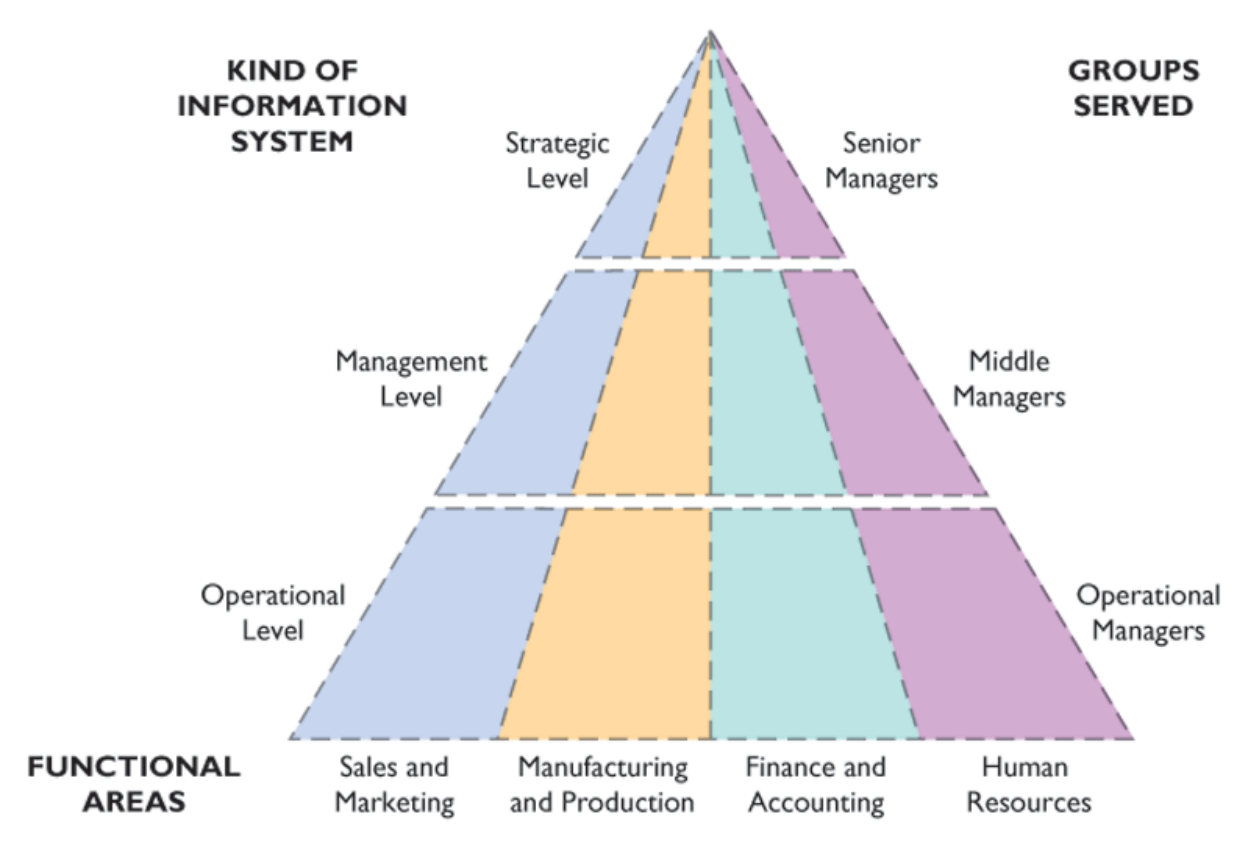

Figure 2-1

Different Kinds of Systems

Three Main Categories of Information Systems

1. Operational-level systems
2. Management-level systems
3. Strategic-level systems

Major Types of Systems in Organizations

Four Major Types of Systems

1. Transaction Processing Systems (TPS)
2. Management Information Systems (MIS)
3. Decision-Support Systems (DSS)
4. Executive-Support Systems (ESS)

Major Types of Systems in Organizations

The four major types of information systems

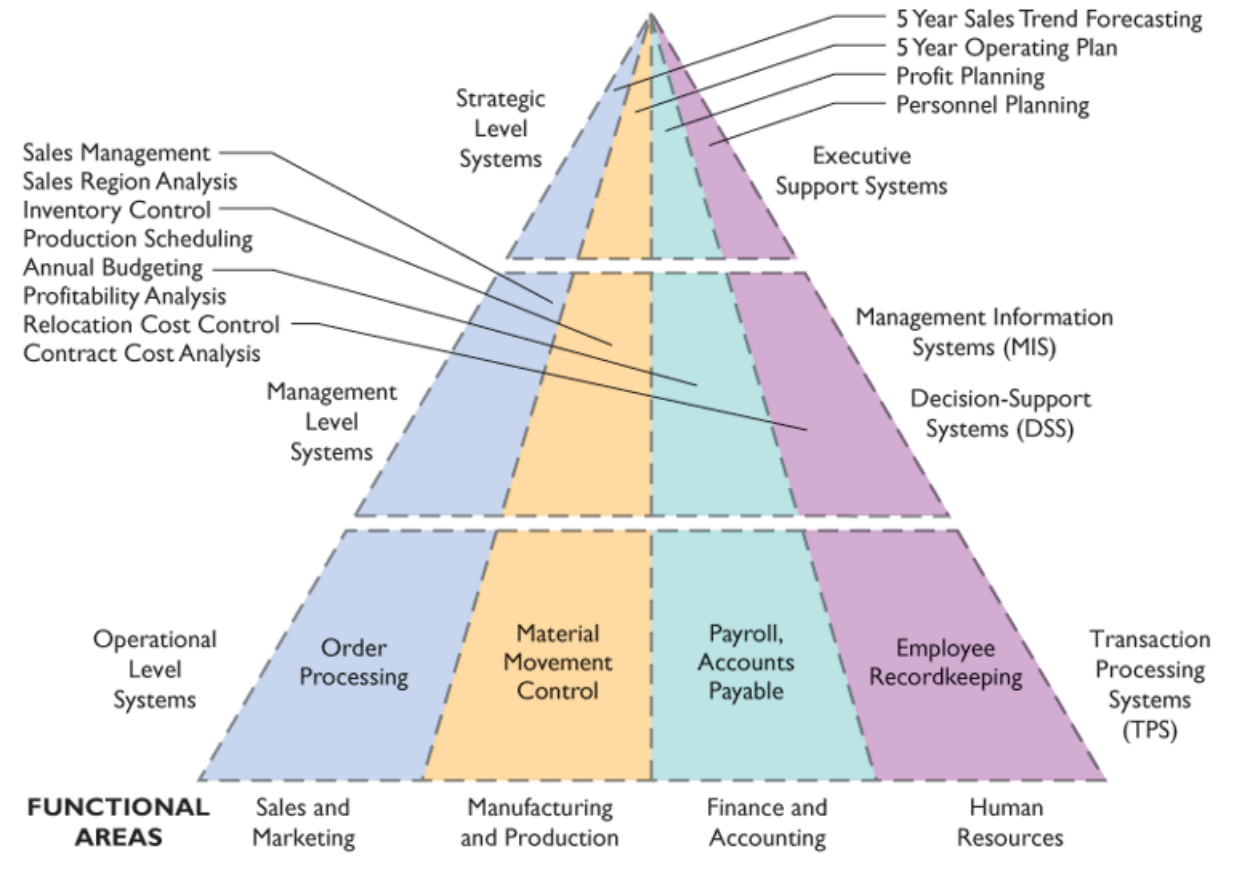

Figure 2-2

Major Types of Systems in Organizations

Four Major Types of Systems

Transaction Processing Systems (TPS)

- Basic business systems that serve the organization's operational level
- Input: Transactions, events
- Processing: Sorting, listing, merging, updating
- Output: Detailed reports, lists, summaries
- Users: Operations personnel, supervisors

Major Types of Systems in Organizations

A symbolic representation for a payroll TPS

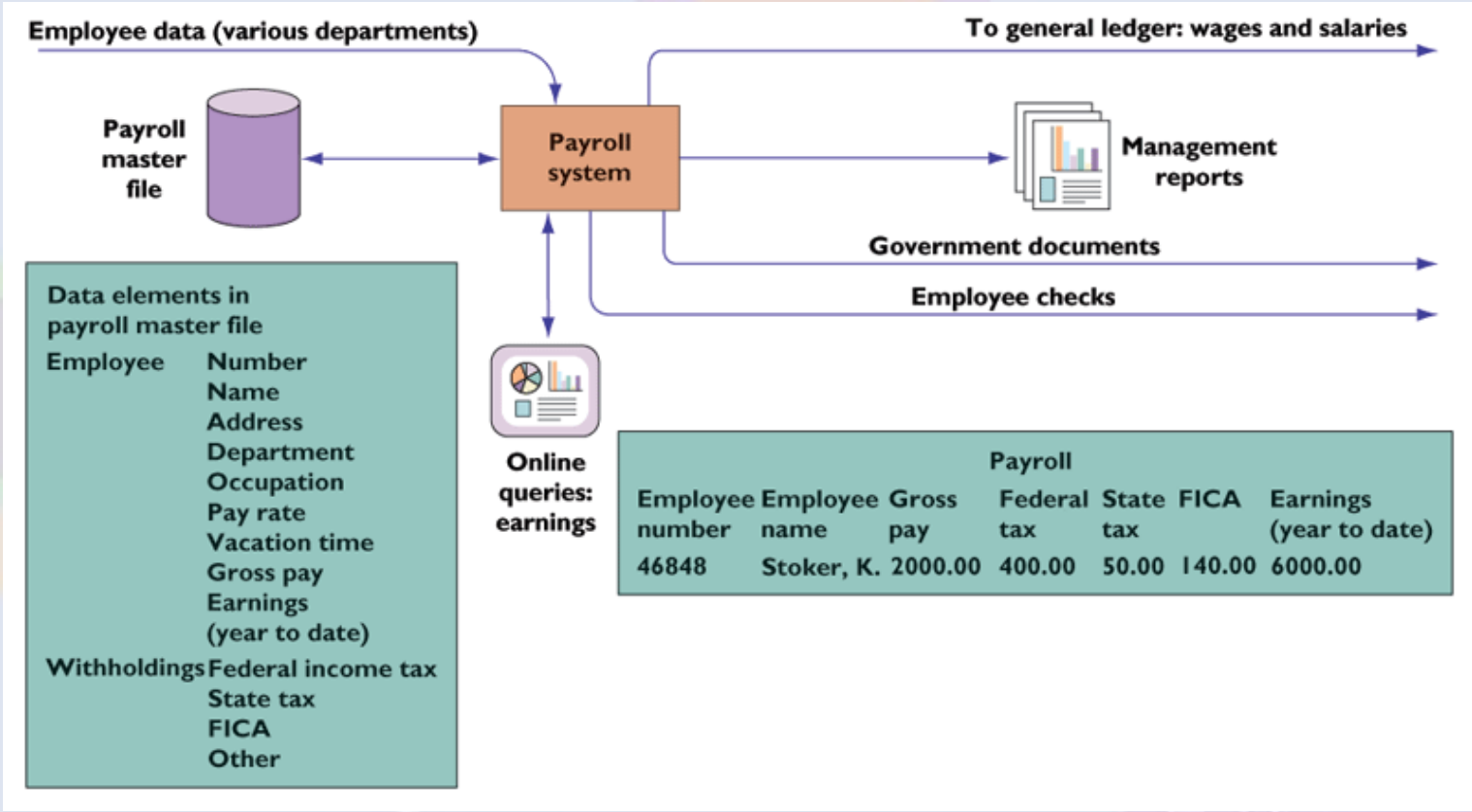

Figure 2-3

Major Types of Systems in Organizations

Typical applications of TPS

	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	Customer service Sales management Promotion tracking Price changes Dealer communications	Scheduling Purchasing Shipping/receiving Operations	General ledger Billing Cost accounting	Personnel records Benefits Compensation Labor relations Training	Admissions Grade records Course records Alumni records
Major application systems	Sales order information system Sales commission system Sales support system	Machine control systems Purchase order systems Quality control systems	General ledger Payroll Accounts receivable/payable Funds management systems	Employee records Benefit systems Employee skills inventory	Registration system Student transcript system Curriculum class control systems Alumni benefactor system

Figure 2-4

Four Major Types of Systems

Management Information Systems (MIS)

- Serve management level; provide reports and access to company data
- Input: Summary transaction data, high-volume data, simple models
- Processing: Routine reports, simple models, low-level analysis
- Output: Summary and exception reports
- Users: Middle managers

Major Types of Systems in Organizations

How management information systems obtain their data from the organization's TPS

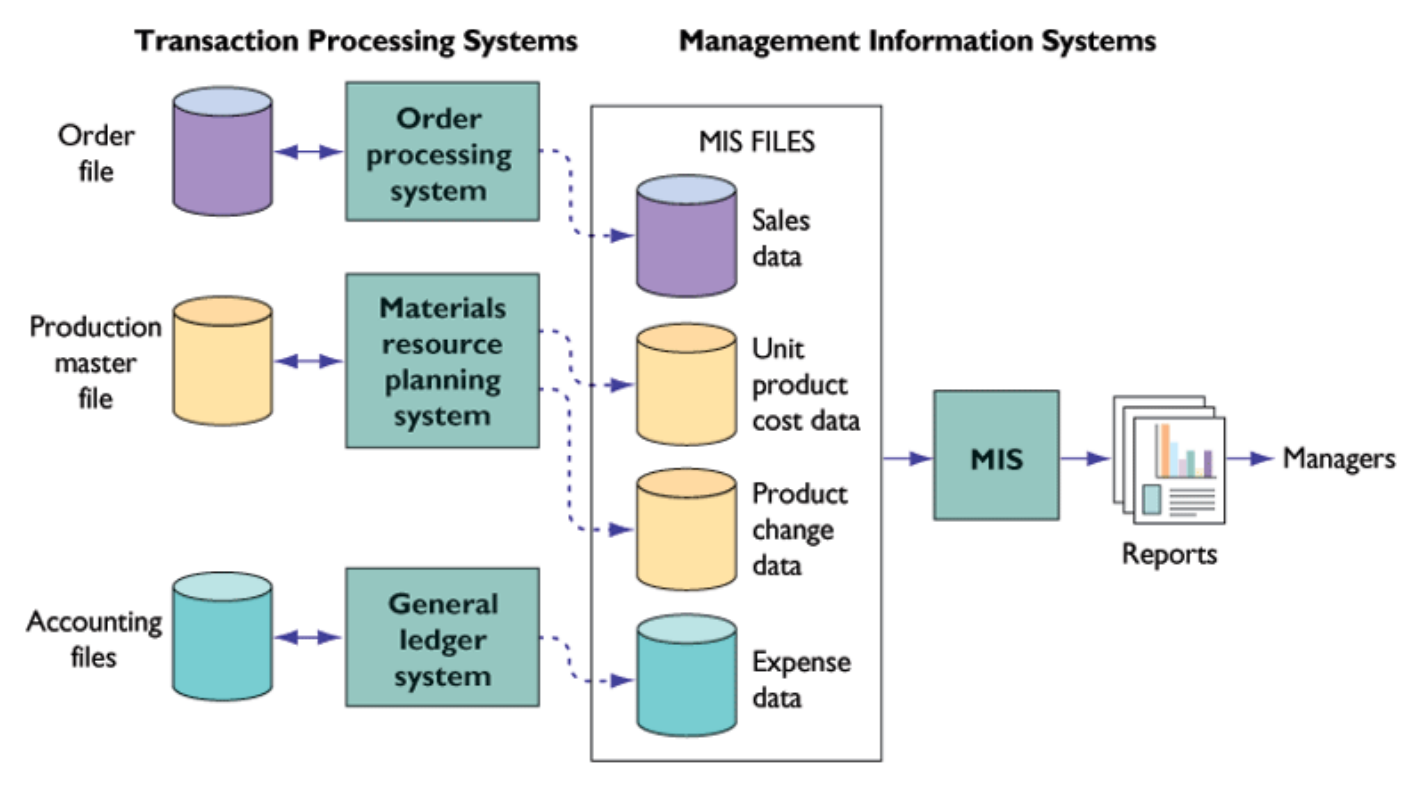

Figure 2-5

Major Types of Systems in Organizations

A sample report that might be produced by the MIS in Figure 2-5

Consolidated Consumer Products Corporation
Sales by Product and Sales Region: 2004

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

Four Major Types of Systems

Decision-Support Systems (DSS)

- Serve management level with data analysis for making decisions
- Input: Low-volume data or massive databases, analytic models, and data analysis tools
- Processing: Interactive, simulations, analysis
- Output: Special reports, decision analyses, responses to queries
- Users: Professionals, staff managers

Major Types of Systems in Organizations

Voyage-estimating decision-support system

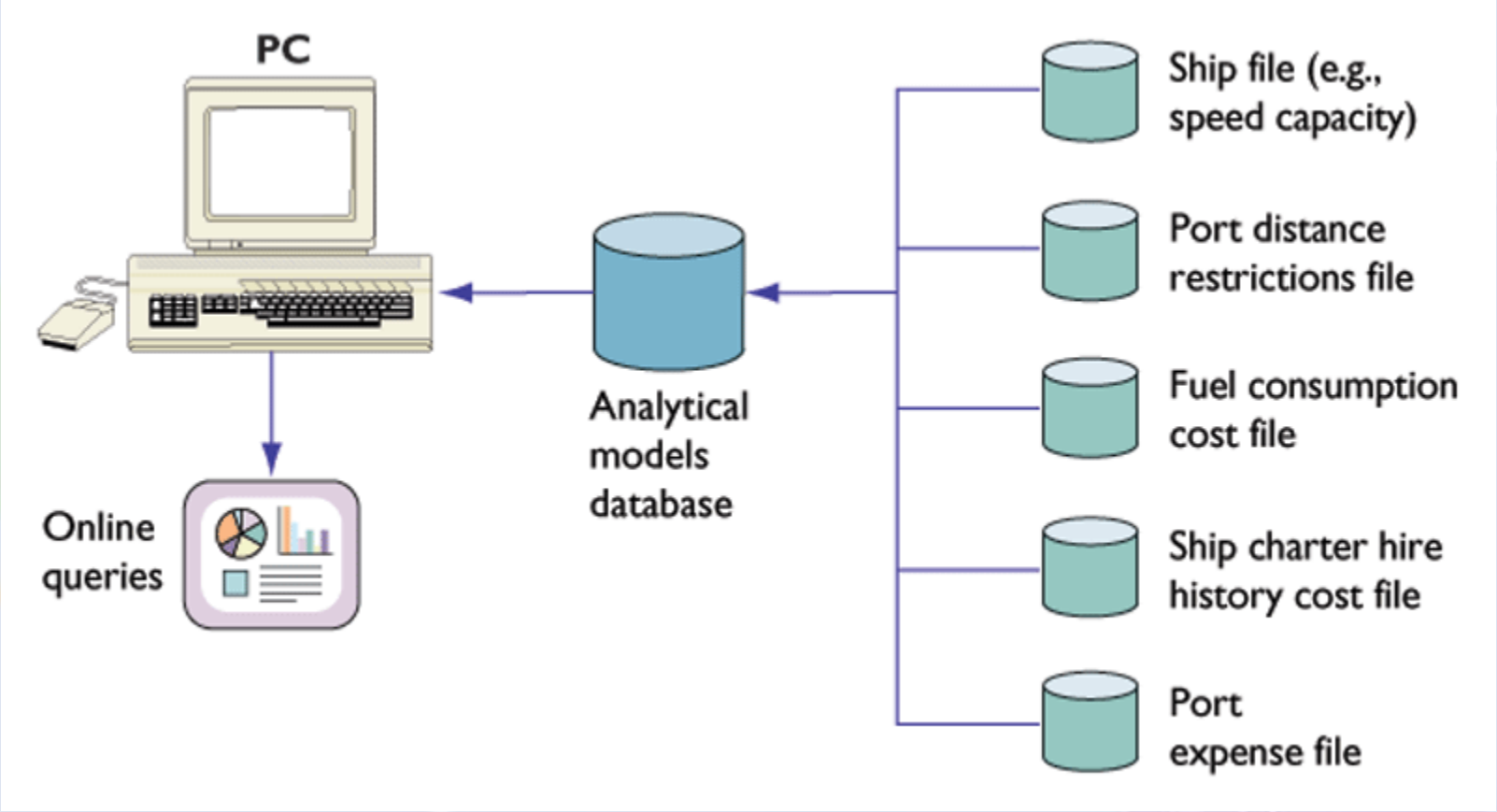

Figure 2-7

Four Major Types of Systems

Executive Support Systems (ESS)

- Provide communications and computing environment that serves the organization's strategic level
- Input: External and internal aggregate data
- Processing: Graphics, simulations, interactive
- Output: Projections, responses to queries
- Users: Senior Managers

Major Types of Systems in Organizations

Model of a typical executive support system

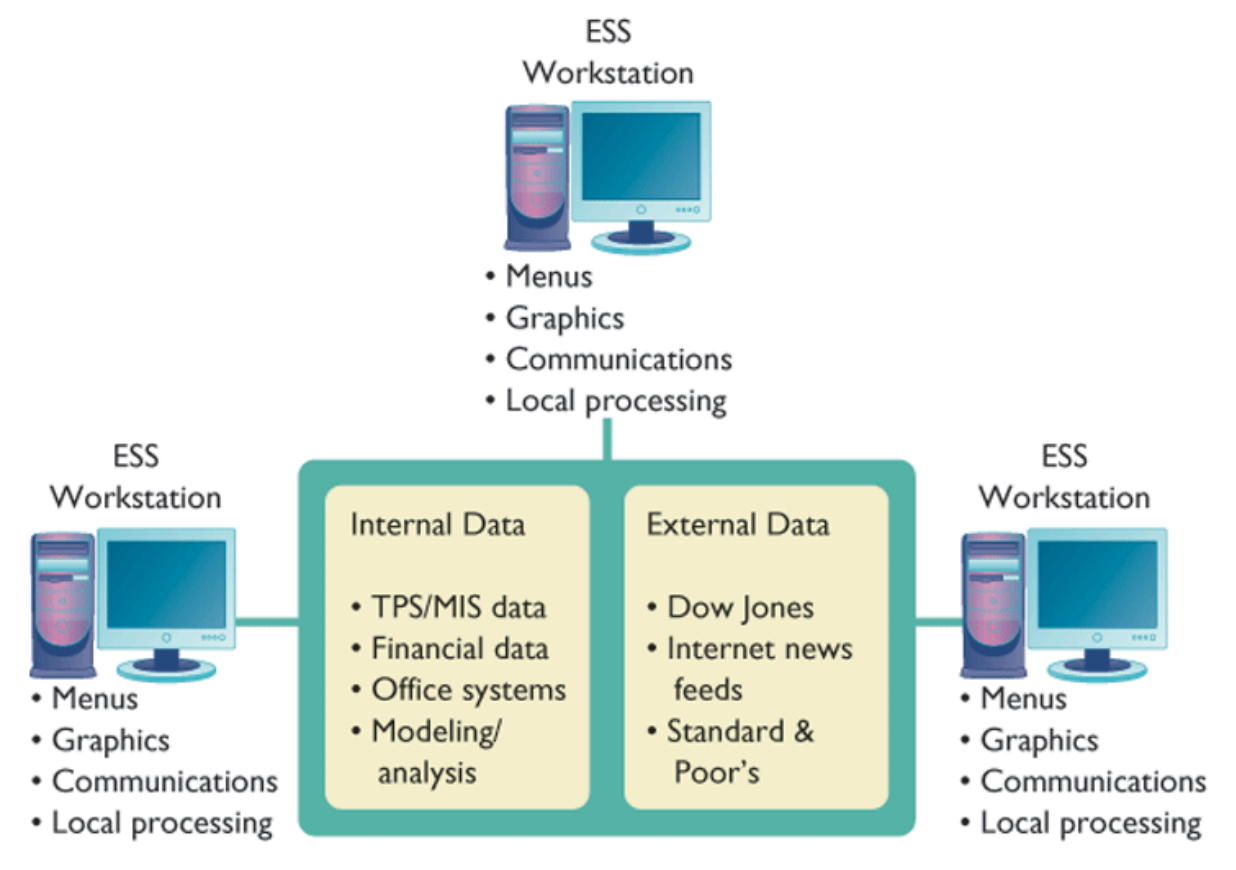

Figure 2-8

Major Types of Systems in Organizations

Interrelationships among systems

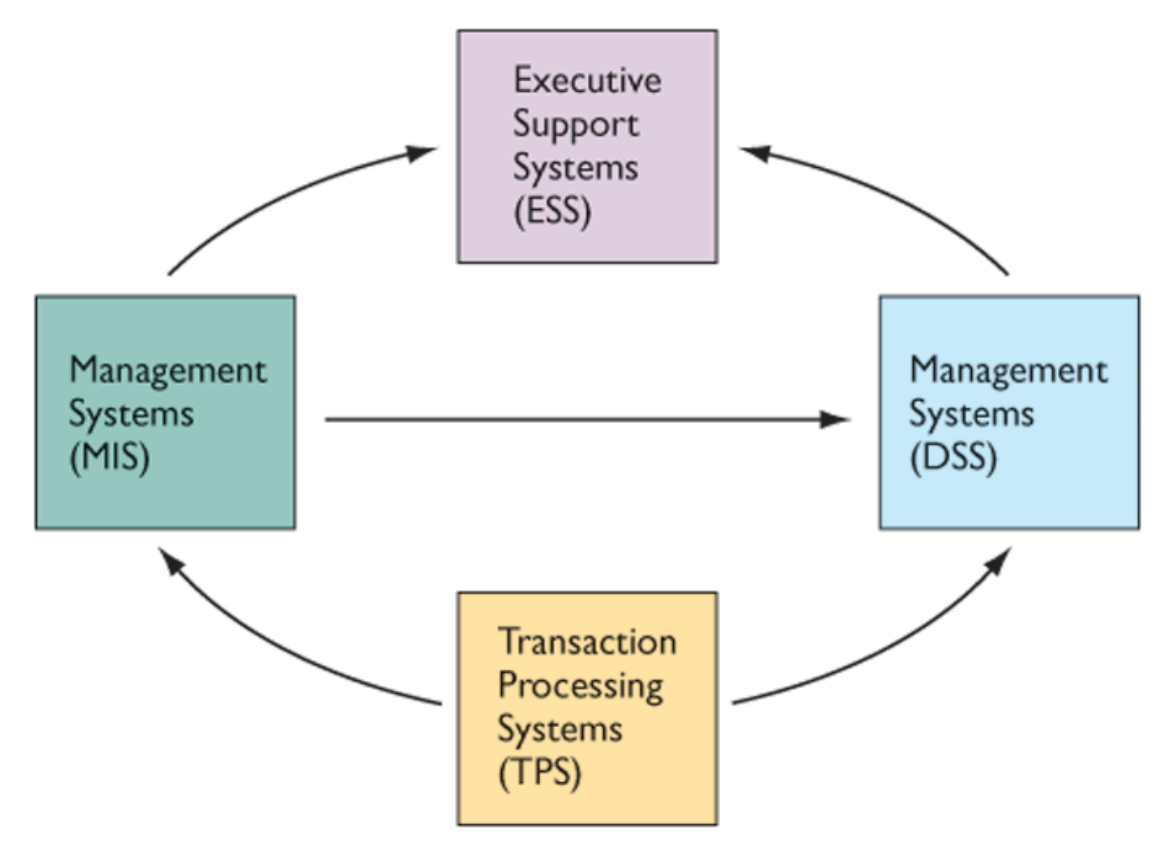

Figure 2-9

Major Business Functions

1. Sales and Marketing Systems
2. Manufacturing and Production Systems
3. Finance and Accounting Systems
4. Human Resource Systems

Sales and Marketing Systems

- Help identify customers
- Develop products and services
- Promote products and services
- Sell products and services
- Provide ongoing customer support

Systems from a Functional Perspective

Table 2-2: Examples of Sales and Marketing Information Systems

System	Description	Organizational Level
Order processing	Enter, process, and track orders	Operational
Pricing analysis	Determine prices for products and services	Management
Sales trend forecasting	Prepare 5-year sales forecasts	Strategic

Manufacturing and Production Systems

- Planning, development, production of products and services
- Planning, development, maintenance of production facilities
- Acquisition, storage, availability of materials
- Scheduling materials, facilities, labor
- Controlling the flow of production

Systems from a Functional Perspective

Table 2-3: Examples of Manufacturing and Production Information Systems

System	Description	Organizational Level
Machine control	Control the actions of machines and equipment	Operational
Production planning	Decide when and how many products should be produced	Management
Facilities location	Decide where to locate new facilities	Strategic

Systems from a Functional Perspective

Overview of an inventory system

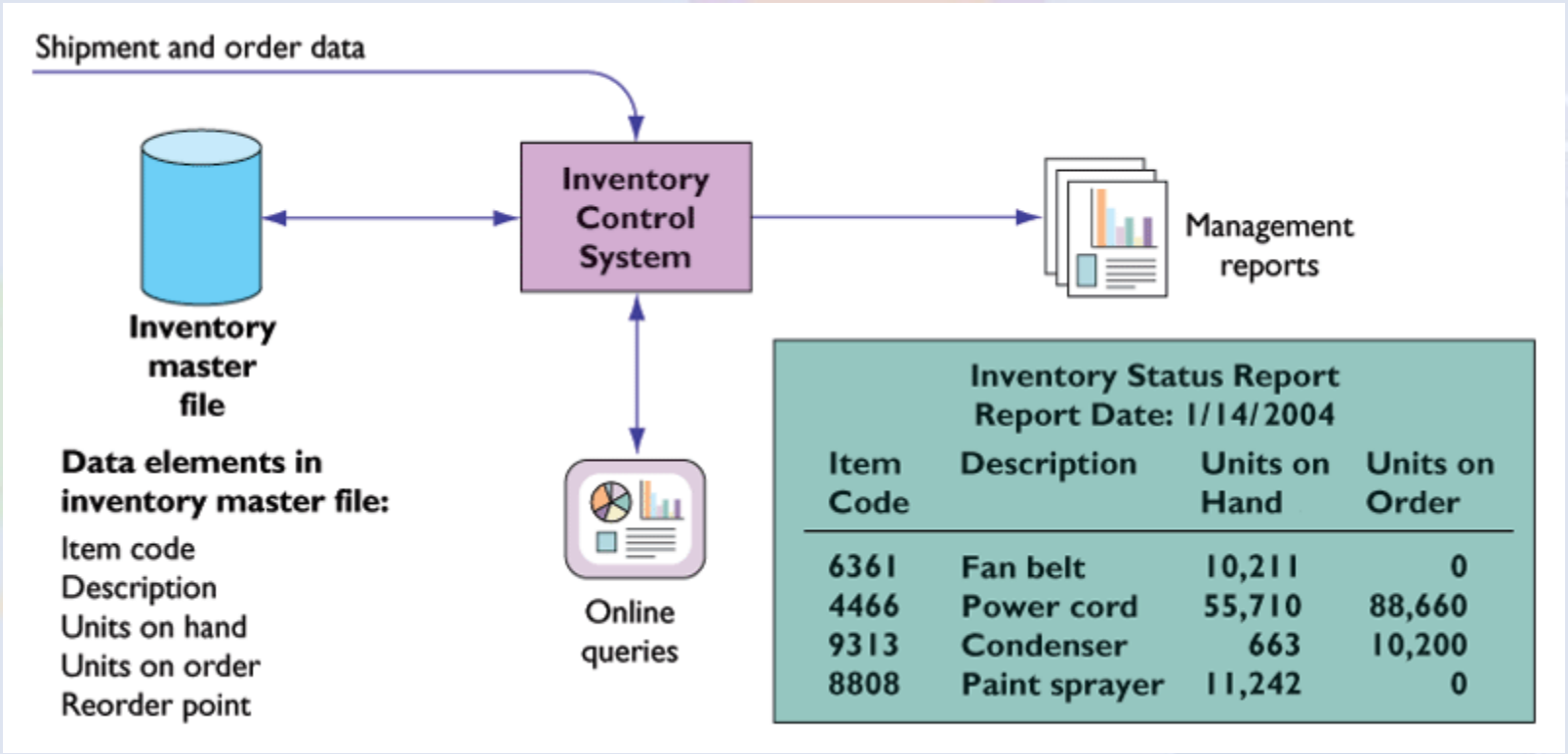

Figure 2-10

Finance and Accounting Systems

- Manage firm's financial assets: cash, stocks, bonds, etc.
- Manage capitalization of firm and finding new financial assets
- Maintain and manage financial records

Systems from a Functional Perspective

Table 2-4: Examples of Finance and Accounting Information Systems

System	Description	Organizational Level
Accounts receivable	Track money owed the firm	Operational
Budgeting	Prepare short-term budgets	Management
Profit planning	Plan long-term profits	Strategic

Human Resources Systems

- Identify potential employees
- Maintain employee records
- Track employee skills, job performance, and training
- Support planning for employee compensation and career development

Systems from a Functional Perspective

Table 2-5: Examples of Human Resources Information Systems

System	Description	Organizational Level
Training and development	Track employee training, skills, and performance	Operational
Compensation analysis	Monitor wages, salaries, benefits	Management
Human resources planning	Plan long-term labor force needs	Strategic

Window on Management

Employees Serve Themselves Online

- What are the management benefits of employee self-service systems for human resources and benefits administration?
- How do these systems provide value for businesses?
- What management, organization, and technology issues should be addressed when installing self-service human resources and benefits systems?

Systems from a Functional Perspective

An employee record-keeping system

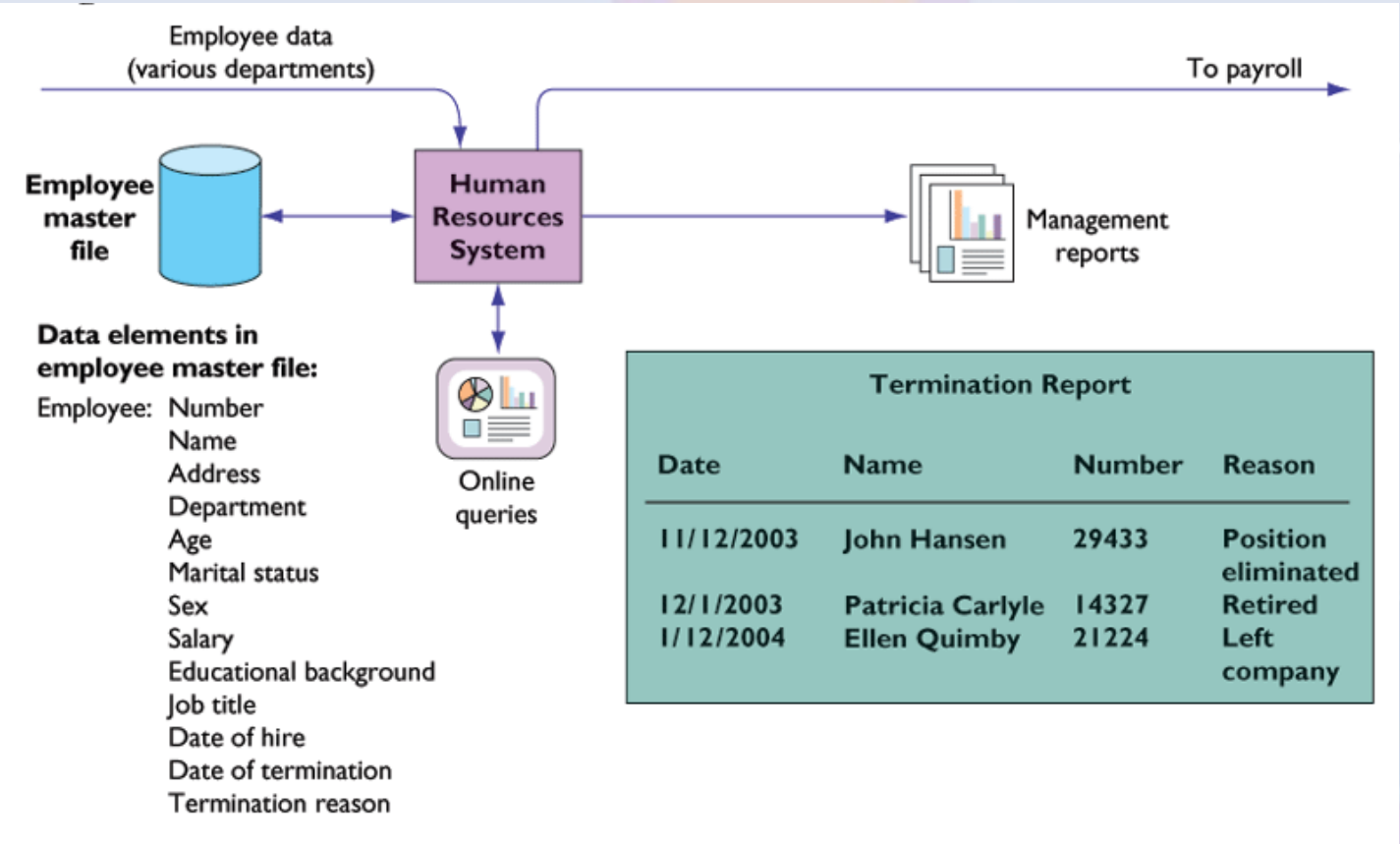

Figure 2-11

Business Processes and Information Systems

Business Processes

- Manner in which work is organized, coordinated, and focused
- Concrete workflows of material, information, and knowledge
- Unique ways to coordinate work, information, and knowledge

Business Processes and Information Systems

Examples of Functional Business Processes

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

Business Processes and Information Systems

Examples of Functional Business Processes

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

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

Enterprise Applications

The order fulfillment process

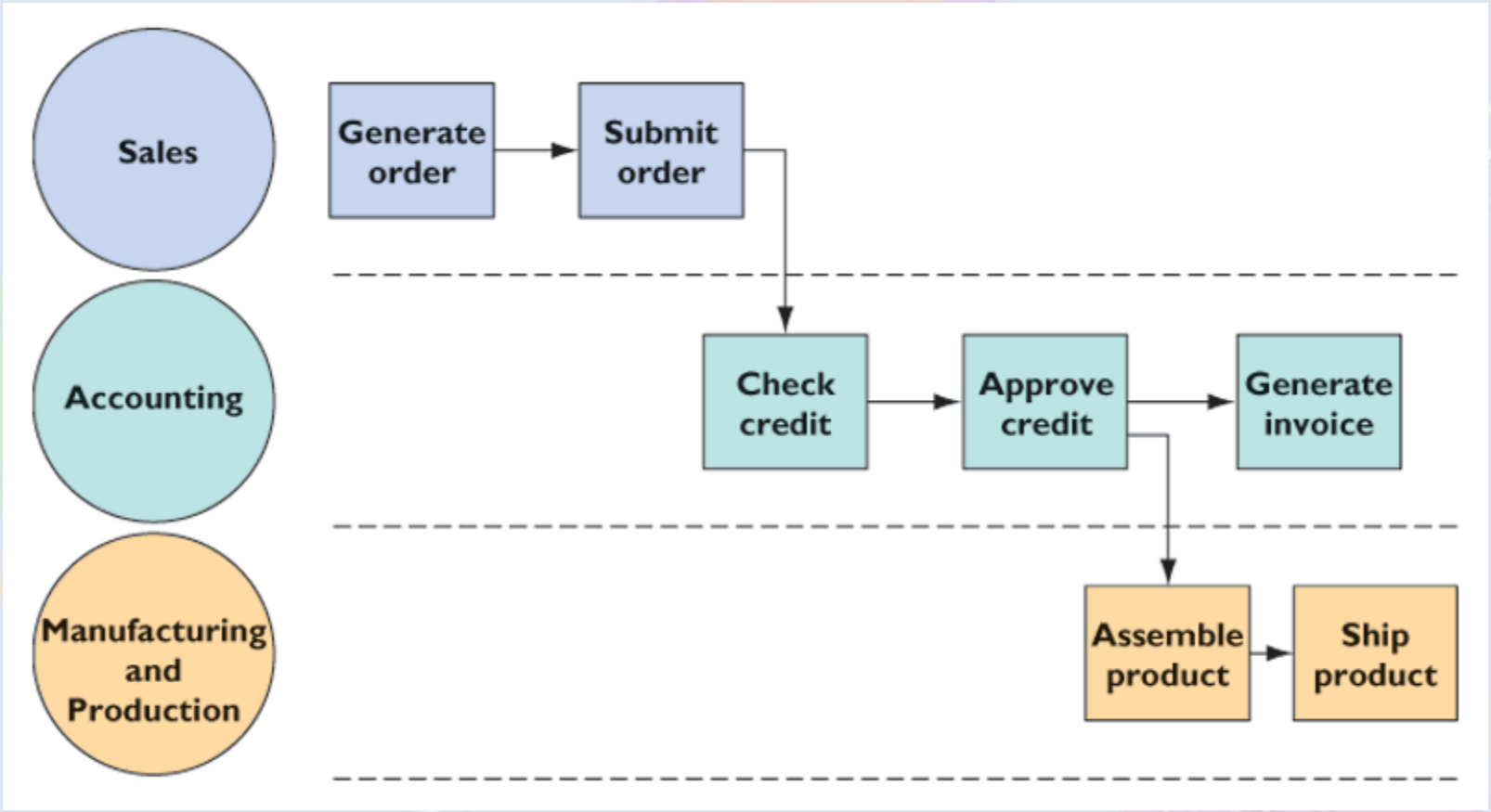

Figure 2-12

Enterprise Applications

Enterprise application architecture

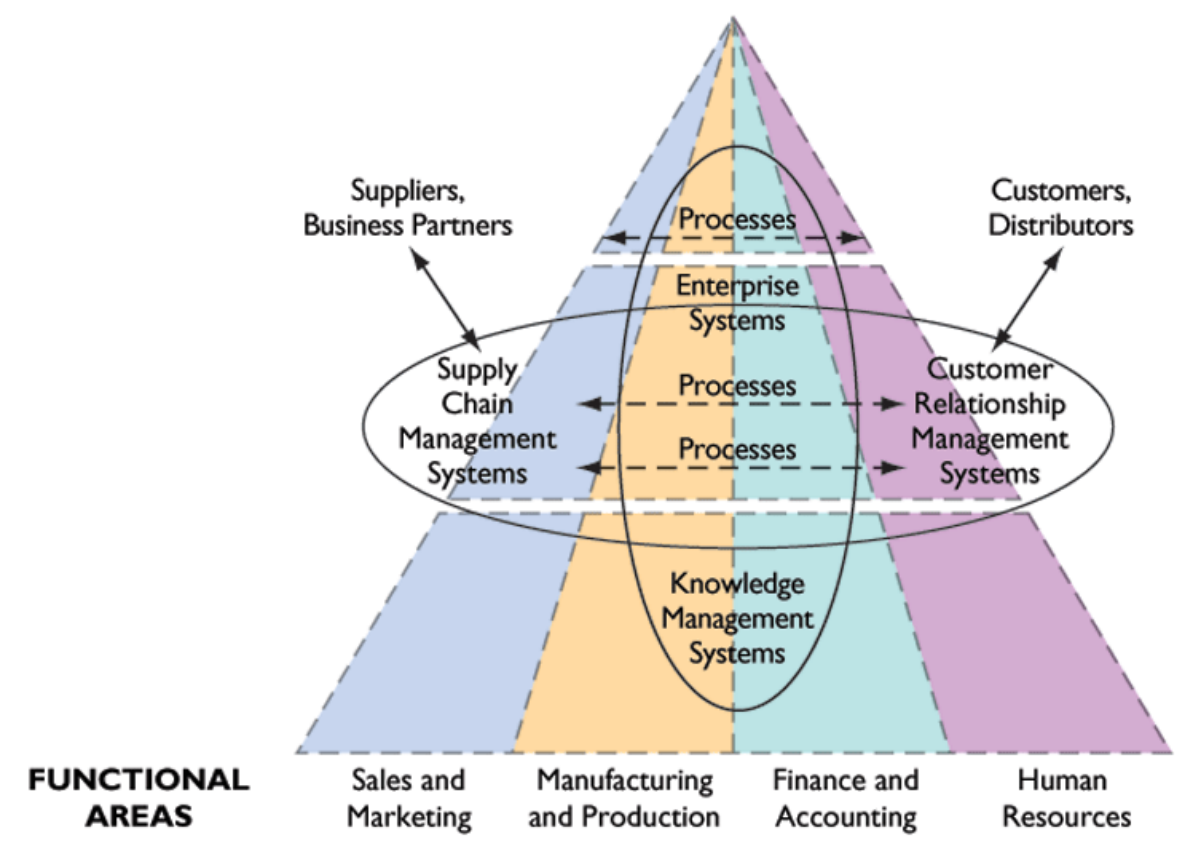

Figure 2-13

Business Processes and Information Systems

Enterprise Applications

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

Enterprise Applications

Traditional view of systems

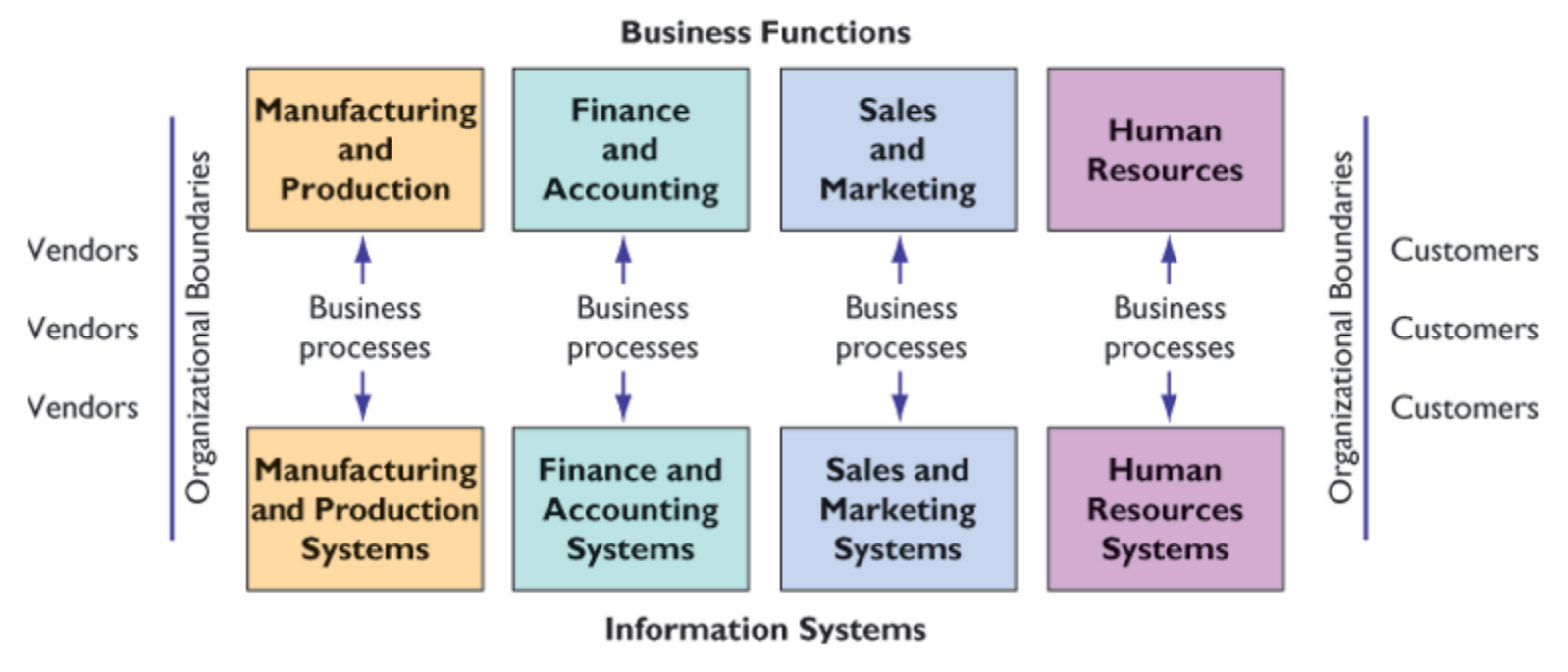

Figure 2-14

Enterprise Systems

- Enterprise resource planning (ERP)
- Provides single information system for organization-wide coordination and integration of key business processes
- Models and automates many business processes

Enterprise Applications

Enterprise systems

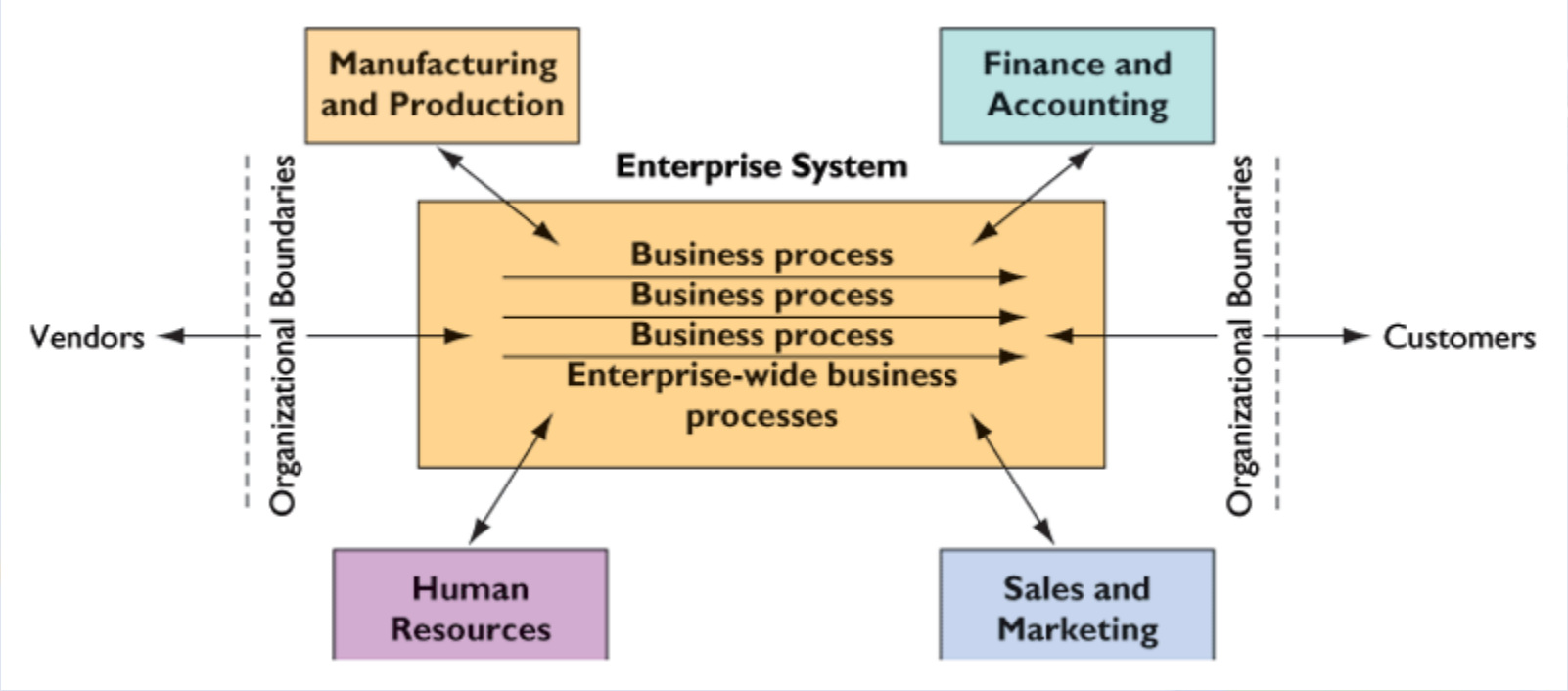

Figure 2-15

Supply Chain Management and Collaborative Commerce

- Supply Chain Management Systems (SCM): Automate flow of information between firm and suppliers to optimize production and delivery
- Supply Chain Management: Close linkage of activities involved in buying, making, moving a product
- Supply Chain: Network of organizations and business processes for production and distribution of products

Enterprise Applications

A supply chain

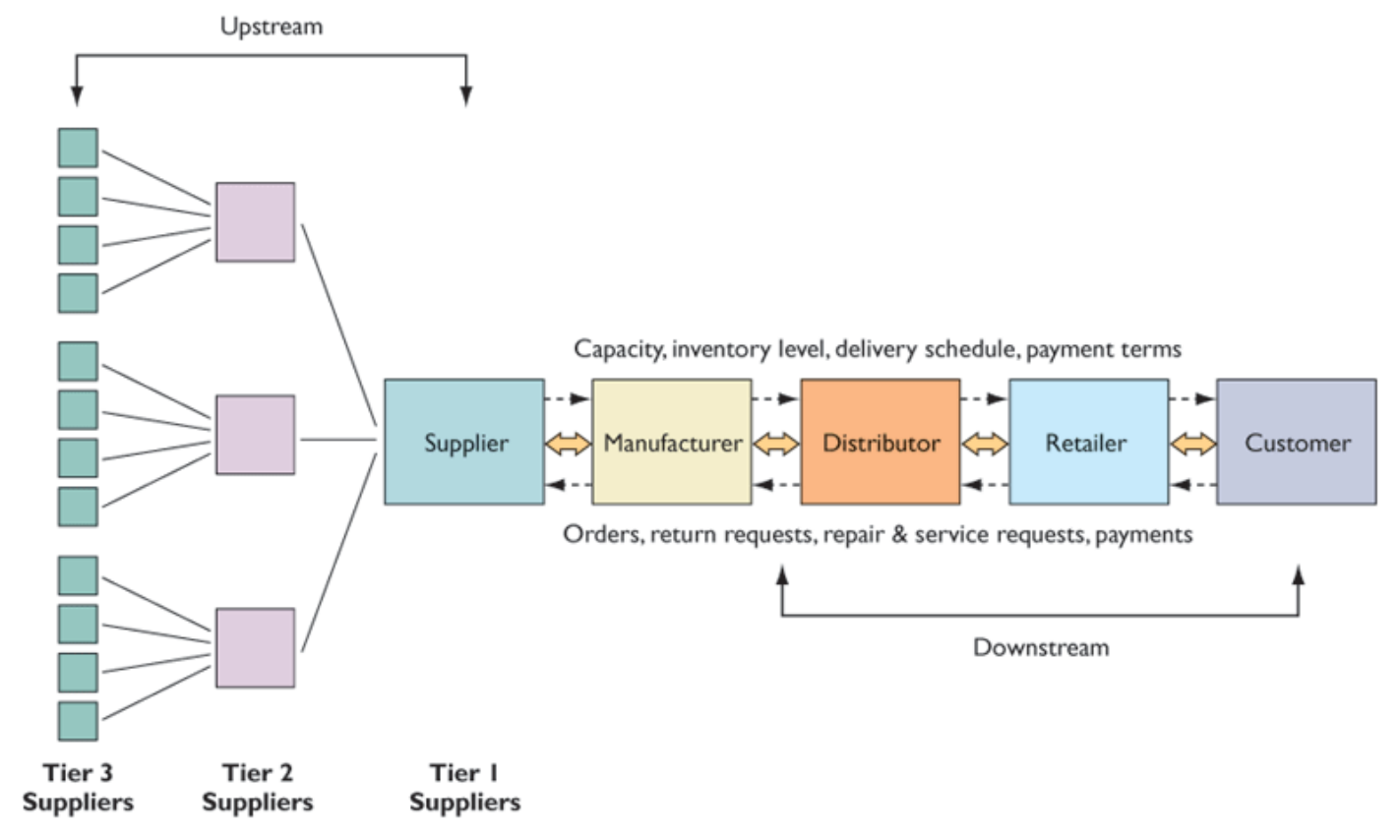

Figure 2-16

Supply Chain Management and Collaborative Commerce

Information Systems Can Help Supply Chain Participants:

- Decide when and what to produce, store, and move
- Rapidly communicate orders
- Track status of orders
- Check and monitor inventory
- Reduce inventory, transportation, warehousing costs
- Track shipments
- Plan production based on actual customer demand
- Rapidly communicate changes in product design

Supply Chain Management and Collaborative Commerce

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

Enterprise Applications

Collaborative commerce

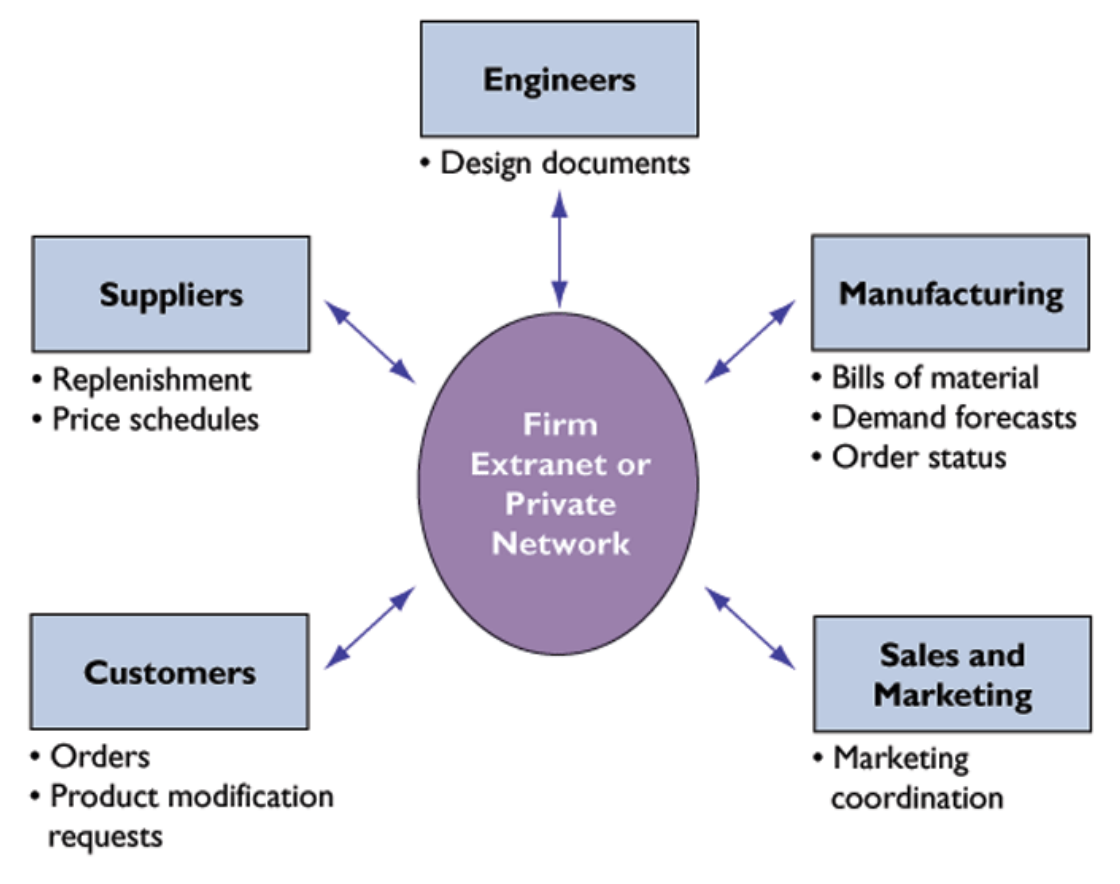

Figure 2-17

Supply Chain Management and Collaborative Commerce

- Collaborative planning, forecasting, and replenishment (CPFR)
  Collaboration between partners to formulate demand forecasts, develop production plans, coordinate shipping, warehousing, stocking
- Private industrial networks
  Web-enabled networks for coordinating transorganizational business processes

Window on Technology

Diageo plc Collaborates in Real-Time

- What are the business benefits of using CPFR?
- How does Diageo's system for CPFR provide value for the company and for its suppliers and distributors?

Supply Chain Management and Collaborative Commerce

How Businesses Engage in Collaborative Commerce

- Product design and development
- Service and support
- Supply chain coordination
- Logistics
- Sales support and training
- Channel management

Customer Relationship Management (CRM)

- Manages ways used to deal with existing and potential customers
- Both a business and technology discipline
- Uses information systems to coordinate all customer interaction processes in sales, marketing, and service.

Customer Relationship Management (CRM)

Customer Relationship Management Systems

- Track all customer interactions
- Analyze data to optimize revenue, profitability, customer satisfaction, customer retention

Enterprise Applications

Customer Relationship Management (CRM)

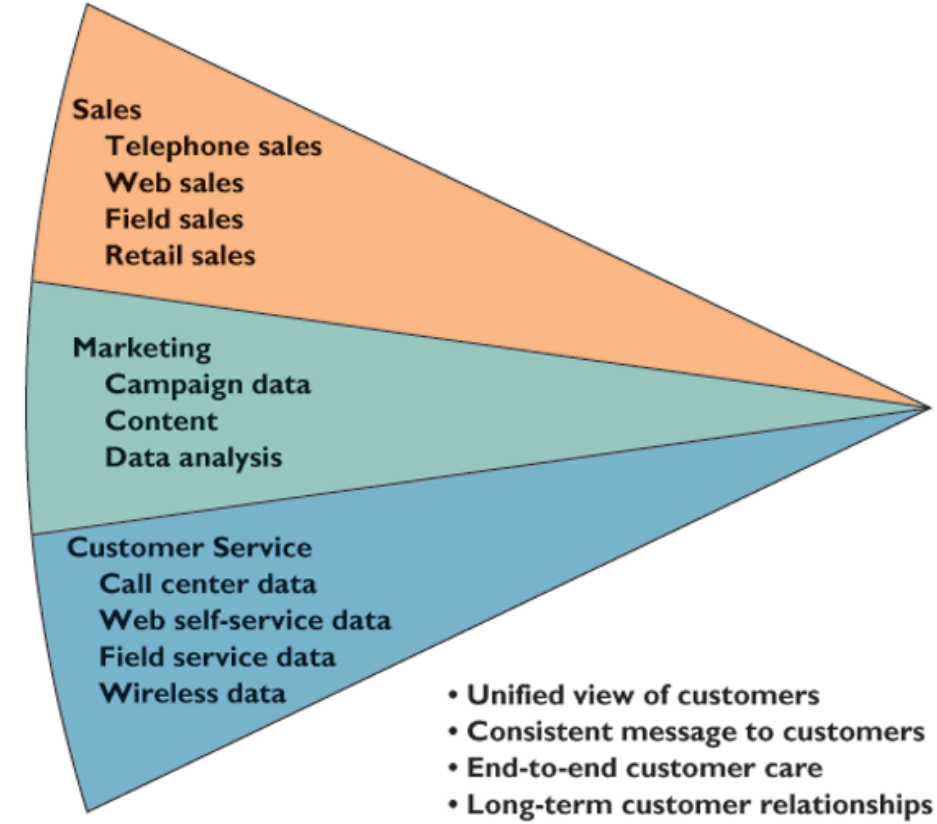

Figure 2-18

Knowledge Management Systems in the Enterprise

Knowledge Management Systems (KMS)

- Collect relevant knowledge and experience in firm to support business processes and management decisions
- Manage and distribute documents and other digital knowledge objects

Knowledge Management Systems in the Enterprise

Role of Knowledge Management Systems

- Acquire knowledge
- Store knowledge
- Distribute knowledge
- Apply knowledge

Forms of Global Business Organization

Four Main Ways of Organizing Businesses Internationally

- Domestic exporter
- Multinational
- Franchiser
- Transnational

International Information Systems

Global business organization and systems configurations

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

Figure 2-19

Chapter 2 Case Study

Can Zara Keep Up with Speed Chic?

1. Summarize Zara's current competitive situation.
2. How are information systems related to the way Zara runs its business?
3. How do Zara's information systems provide value to the company?

Chapter 2 Case Study

Can Zara Keep Up with Speed Chic?

4. Identify the management, organization, and technology issues that affect the future of this company.

5. Does Zara have a viable business model? Why or why not?