

# E-Business: Use of Information Systems

Reading:

Laudon & Laudon  
chapter 2

Additional Reading:

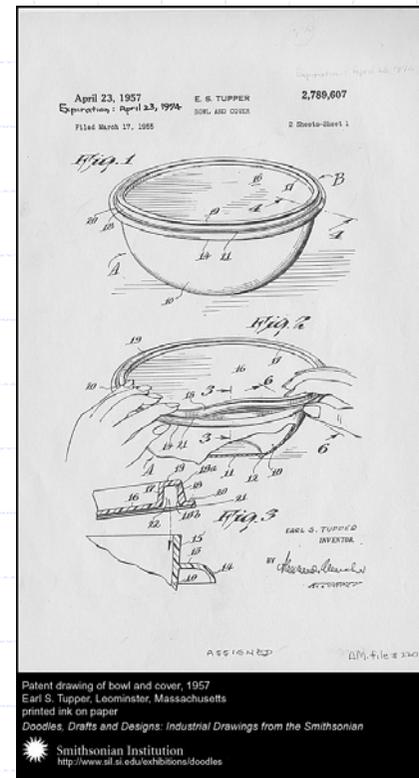
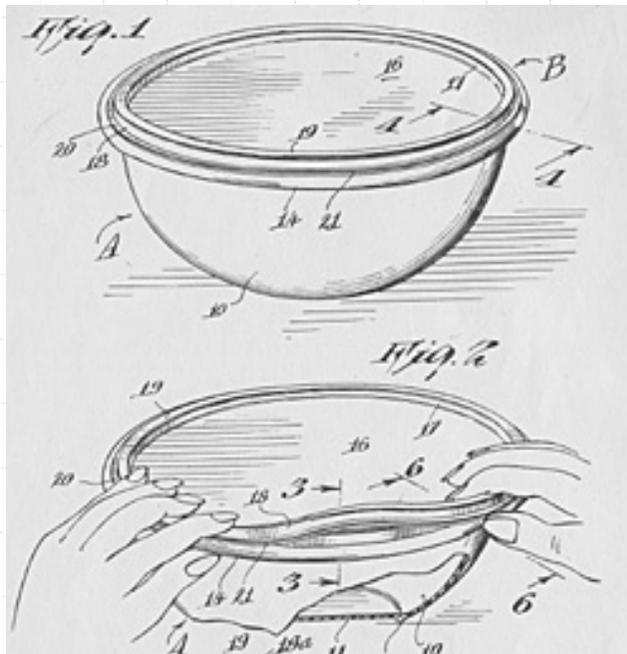
Brien & Marakas  
chapter 1

# Outline

- ❑ **Components of Business**
  - ❑ Business Process
  - ❑ Managing Business and Firm Hierarchies
  - ❑ The Business Environment
  - ❑ The Role of Information Systems in Business
  
- ❑ **Types of Business Information Systems**
  - ❑ Functional Perspectives
  - ❑ Constituency Perspective
  - ❑ Relationship Among Systems
  
- ❑ **Systems that Span the Enterprise**
  - ❑ Enterprise Applications
  - ❑ Intranets and Extranets
  - ❑ E-Business, E-Commerce and E-Government
  
- ❑ **The Information Systems Function in Business**
  - ❑ The Information Systems Department
  - ❑ Organizing the Information Systems Function

# IS in Tupperware Party

- In 1947, Earl S. Tupper, Leominster, Massachusetts came up with the unique, air-tight, water-tight **Tupper Seal** → Kept food fresh and prevented spills



- 1958, Mr. Tupper was able to sell his company for approximately sixteen million dollars and retire for life

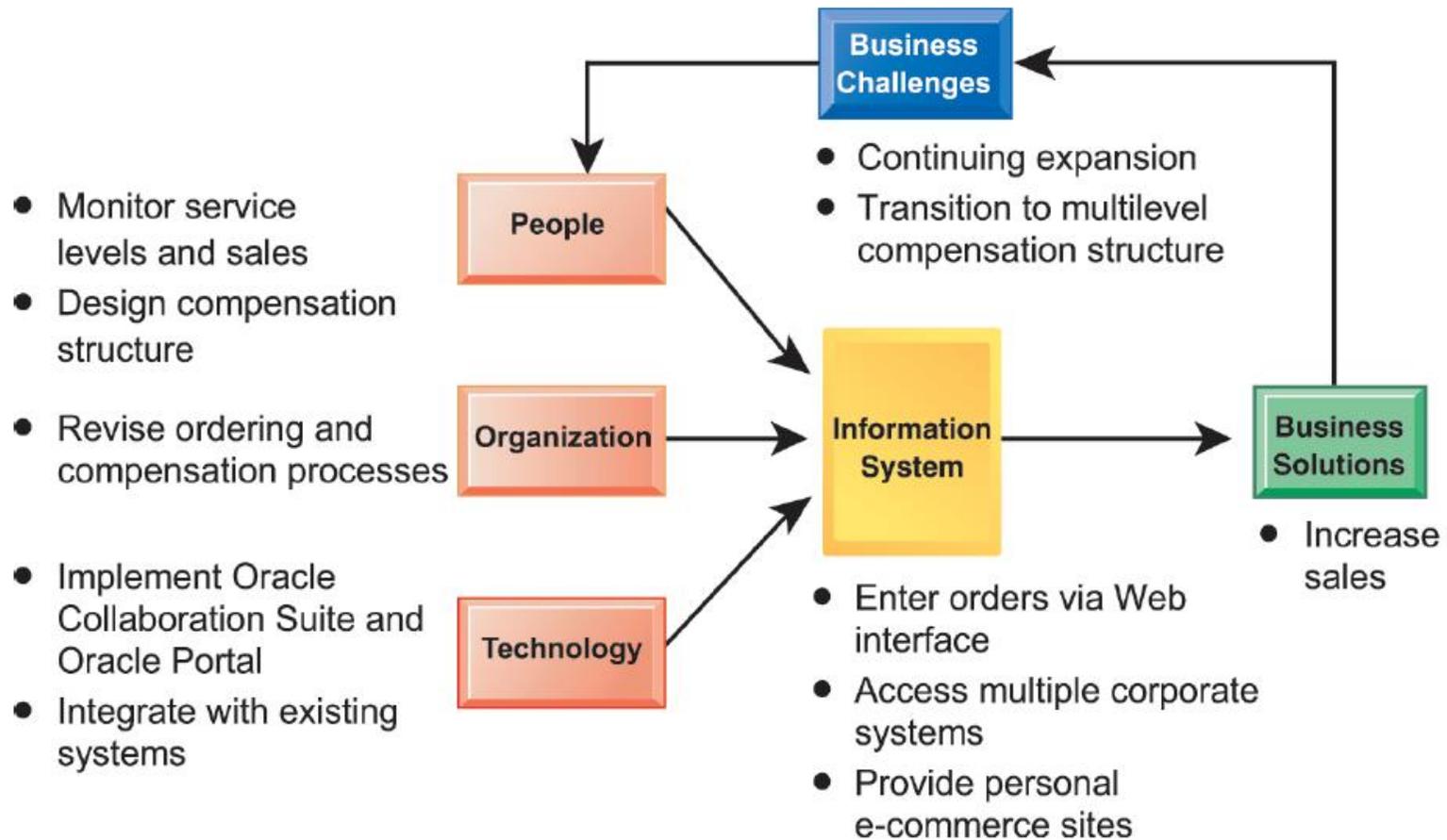
# IS in Tupperware Party



## ➤ Business Model

- New Problems for Sales Consultant
- Solution → Web based Management System
  - ◆ Oracle Collaboration Suite & Oracle Portal
  - ◆ Importance of IS in driving growth and profitability

# IS in Tupperware Party



# Components of Business

## ➤ What is Business?

*Formal Organization → Produce products, provide service for profit*

## ➤ Organizing Business

- Basic Business Functions
  - ◆ Manufacturing and production
  - ◆ Sales and marketing
  - ◆ Finance and accounting
  - ◆ Human resources
- Five Business Entities
  - ◆ Suppliers
  - ◆ Customers
  - ◆ Employees
  - ◆ Invoices/Payments
  - ◆ Products and Services

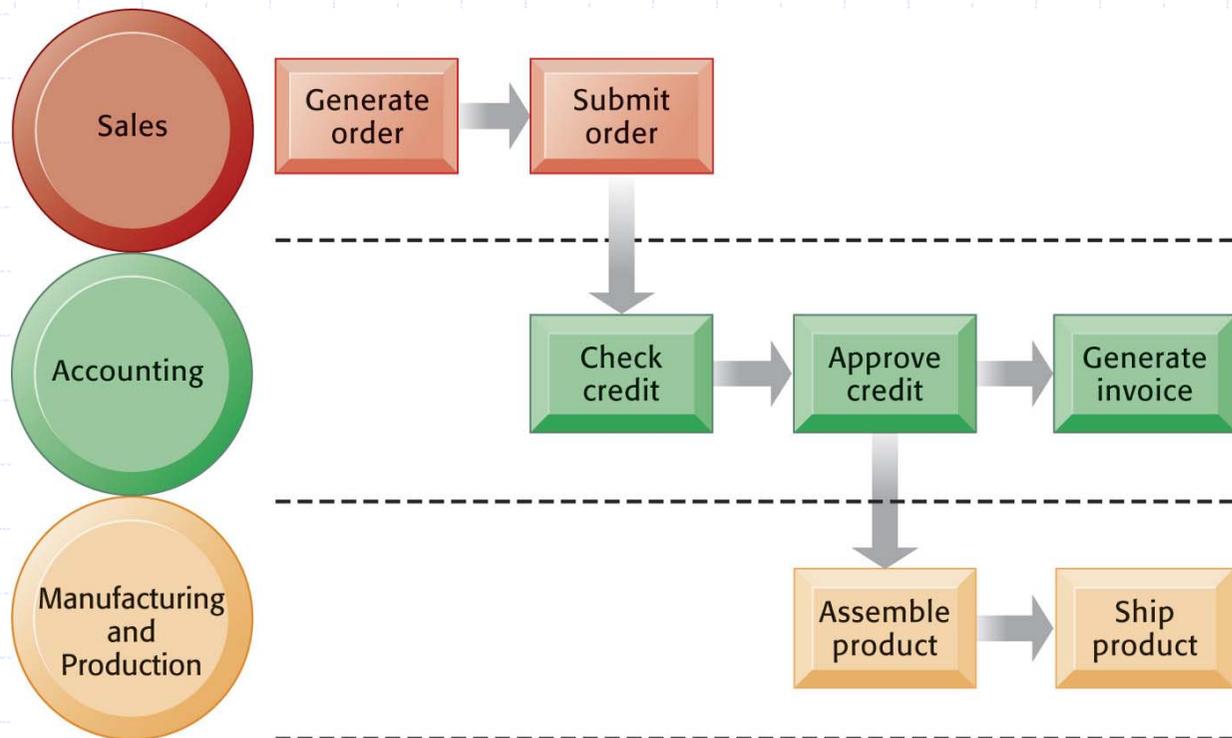


# Business Process

- Logically related set of tasks
- How specific business tasks are performed
  - The list of tasks each employee performs
  - Order, Schedule of these tasks
- Some process are tied to functional area
  - Sales and marketing: Identifying customers
- Some process are cross functional
  - Fulfilling customer order

# Business Process

## ➤ The Order Fulfillment Process



- Complex set of steps
- Coordination of Sales, Accounting, Manufacturing

# Organizations

## Case Study – Toyota as Number One

### ➤ Questions

- What are the basic principles of Toyota's production system? To which areas of the organization do these principles apply?
- How is TPS interconnected with the culture at Toyota? Are TPS and Toyota's culture interdependent? Could one exist without the other?
- Describe how information systems support each of the business processes described in this case

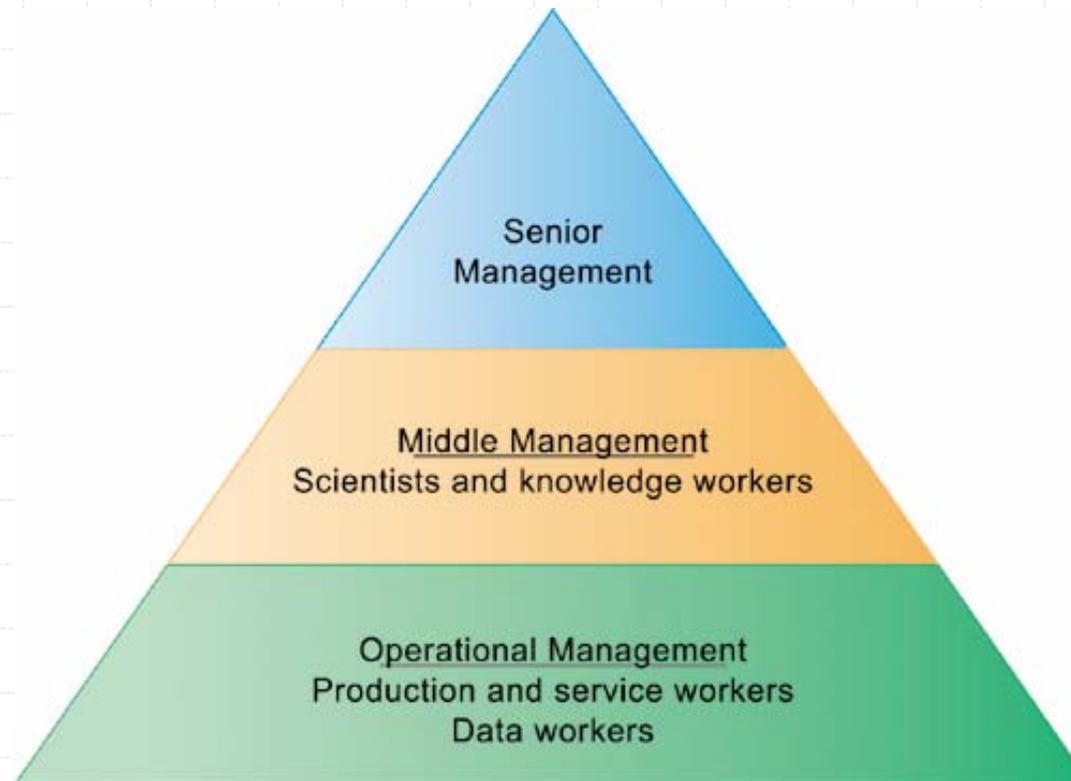
# Components of Business

## ➤ Business and Firm Hierarchies

- Coordinate and Control
  - ◆ Four Major functions/departments
  - ◆ Business process
  
- Hierarchy
  - ◆ Senior management
  - ◆ Middle management
  - ◆ Operational management
  - ◆ Knowledge workers
  - ◆ Data workers
  - ◆ Production or service workers
  
- Each group has different need for information

# Components of Business

## ➤ Levels in Firm



# Business Environment

## ➤ Global Environment Factors

- Technology and science
- Economy
- Politics
- International change

## ➤ Immediate Environment Factors

- Customers
- Suppliers
- Competitors
- Regulations
- Stockholders



# Business: Role of Information Systems

## ➤ Why Invest in Information Systems?

- Operational Excellence
  - ◆ Productivity
  - ◆ Efficiency
  - ◆ Agility
- Develop New Product and Services
- Attain Customer Intimacy and Service
- Improve Decision Making
  - ◆ Accuracy
  - ◆ Speed
- Promote Competitive Advantage
- Ensure Survival

# Types of Business Information Systems

- Complex Situation → PCs, Hundreds of Systems
- All different Systems from two Perspective
  - Functional Perspective
  - Constituency Perspective
- Systems from Functional Perspective
  - Sales and marketing systems
  - Manufacturing and production systems
  - Finance and accounting systems
  - Human resources systems

# Systems from Functional Perspective

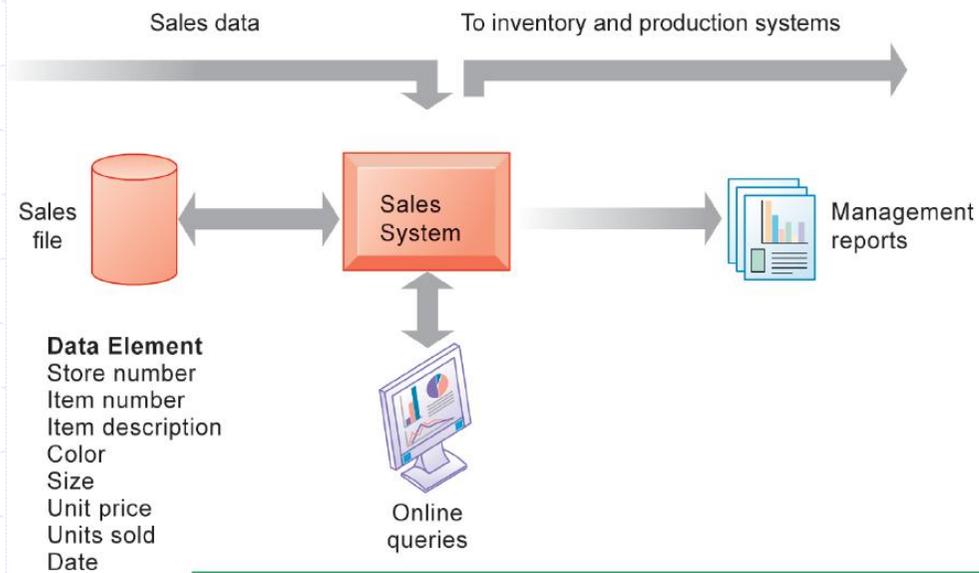
## ➤ Sales and Marketing Systems

- Selling and marketing firm's products/services
- Senior Management
  - ◆ Monitor trends affecting products and sales, planning for new products and services, monitor performance of competitors
- Middle Management
  - ◆ Support market research, analyze marketing campaigns, pricing decisions, sales performance
- Operational Management and Employees
  - ◆ Locating and contacting prospective customers, process orders, provide customer service support

# Systems from Functional Perspective

## ➤ Example

### ■ Sales Information System



Sales Report: Week Ending 2/7/08						
Item No.	Description	Color	Size	Unit Price	Units Sold	Total Sales
294	Sports bag	Black	Small	10.00	10,451	\$104,510
295	Sports bag	Black	Medium	20.00	21,800	\$436,000
394	Sports bag	Red	Small	10.00	5,331	\$53,310

# Systems from Functional Perspective

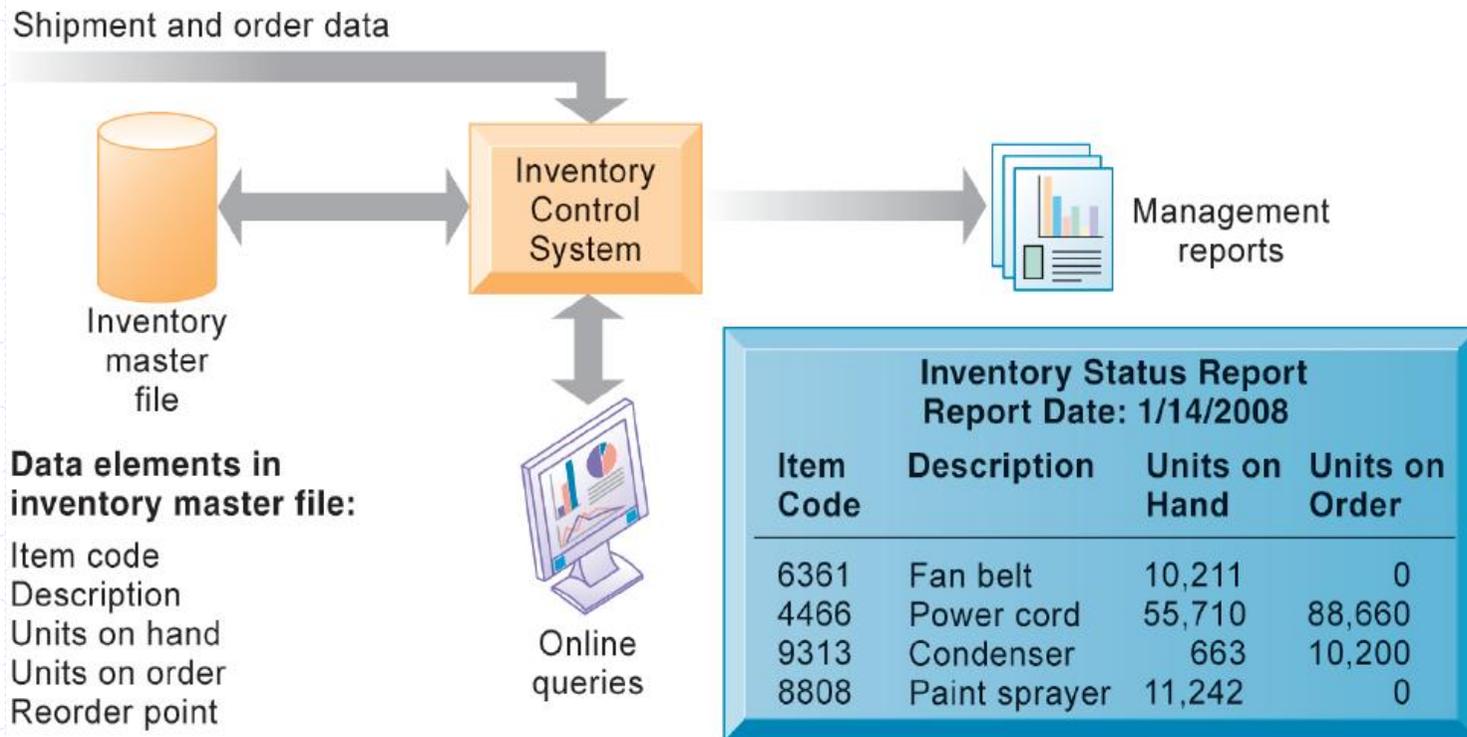
## ➤ Manufacturing and Production Systems

- Producing firm's products/services
- Senior Management
  - ◆ Help plan long-term manufacturing goals, such as technology investments and locating new plants
- Middle Management
  - ◆ Analyze and monitor manufacturing and production costs and resources
- Operational Management
  - ◆ Manage status of production tasks

# Systems from Functional Perspective

## ➤ Example

### ■ Inventory System



# Systems from Functional Perspective

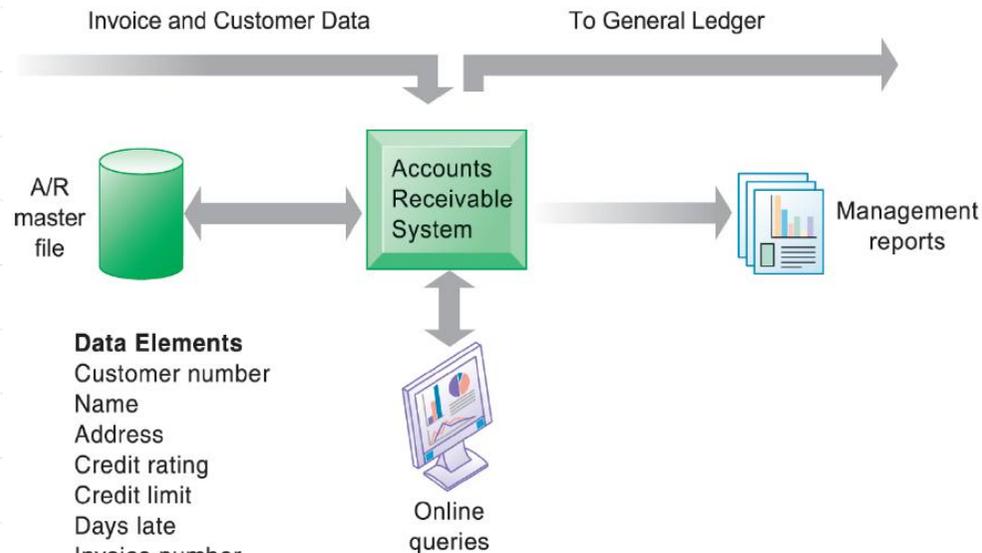
## ➤ Finance and Accounting Systems

- Managing financial assets, firm's capitalization, and financial records
- Senior Management
  - ◆ Establish long-term investment goals and provide long-range forecasts of firm's financial performance
- Middle Management
  - ◆ Oversee and control firm's financial resources
- Operational Management
  - ◆ Track flow of funds in firm through transactions (paychecks, payments, securities reports, receipts, *etc.*)

# Systems from Functional Perspective

## ➤ Example

### ■ An Accounts Receivable System



#### Data Elements

Customer number  
Name  
Address  
Credit rating  
Credit limit  
Days late  
Invoice number  
Amount paid  
Balance

Accounts Receivable Aging Report						
Cust. No.	Name	Current Balance	1-30 Days Past Due	31-60 Days Past Due	61+ Days Past Due	Total
5043	Myers Co.	0	500.00			500.00
6219	JT Garden	1,500.00		700.00		2,200.00
6932	Best Home	1,000.00				1,000.00

# Systems from Functional Perspective

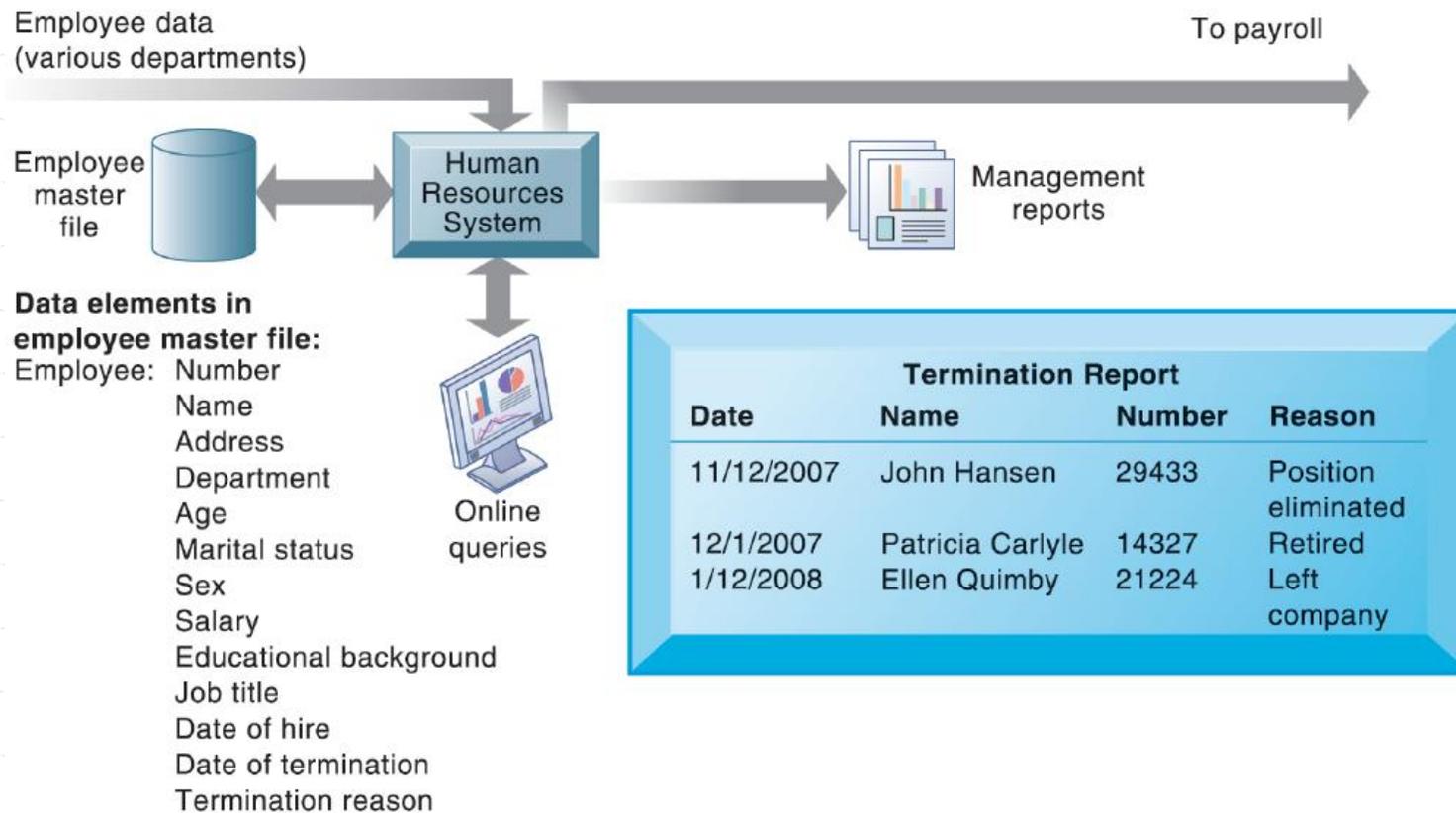
## ➤ Human Resources Systems

- Attracting, developing, maintaining firm's workforce
- Senior Management
  - ◆ Identify manpower requirements (skill, education level, types and numbers of positions, etc.) for meeting long-term business plans
- Middle Management
  - ◆ Monitor and analyze recruitment, allocation, and compensation of employees
- Operational Management
  - ◆ Track recruitment and placement of employees

# Systems from Functional Perspective

## ➤ Example

### ■ An Employee Record Keeping System



# Case Study

## Google's New Search for Best and the Brightest

### ➤ Questions

- Did Google's traditional hiring practices create business problems?
- Is Google's quantitative approach to hiring a good solution to its employee recruiting problems? Why or why not?
- What role does culture play in Google's hiring preferences?
- What kind of system or systems described in this chapter are discussed in this case? What are the inputs, process, and outputs?

# Case Study

## Google's New Search for Best and the Brightest

### ➤ Questions

- Create a list of ten questions that you think might be appropriate for Google's job applicant survey. Justify each question with a short explanation of why the answer would be useful.
- If you were applying for a job at Google, how would you want to be evaluated? Which evaluation techniques do you think favor your strengths? Which techniques might expose your weaknesses?

# Systems from Constituency Perspective

## ➤ Constituency

### ■ Transaction Processing Systems

- ◆ Keep track of basic activities and transactions of organization (e.g. sales, receipts, cash deposits, payroll, credit decisions, flow of materials in a factory)

### ■ Management Information Systems *and* Decision-Support Systems

- ◆ Help with monitoring, controlling, decision-making, and administrative activities

### ■ Executive Support Systems

- ◆ Help address strategic issues and long-term trends, both in firm and in external environment

# Systems from Constituency Perspective

## ➤ Transaction Processing Systems

- Serve Operational Managers
  - ◆ Answer Routine Questions
  - ◆ Track flow of Transactions
- Monitor Status of Internal Operation and External Environment
- Major Producer of Information for Other Systems
- Highly Central to Business Operations and Functioning

# Systems from Constituency Perspective

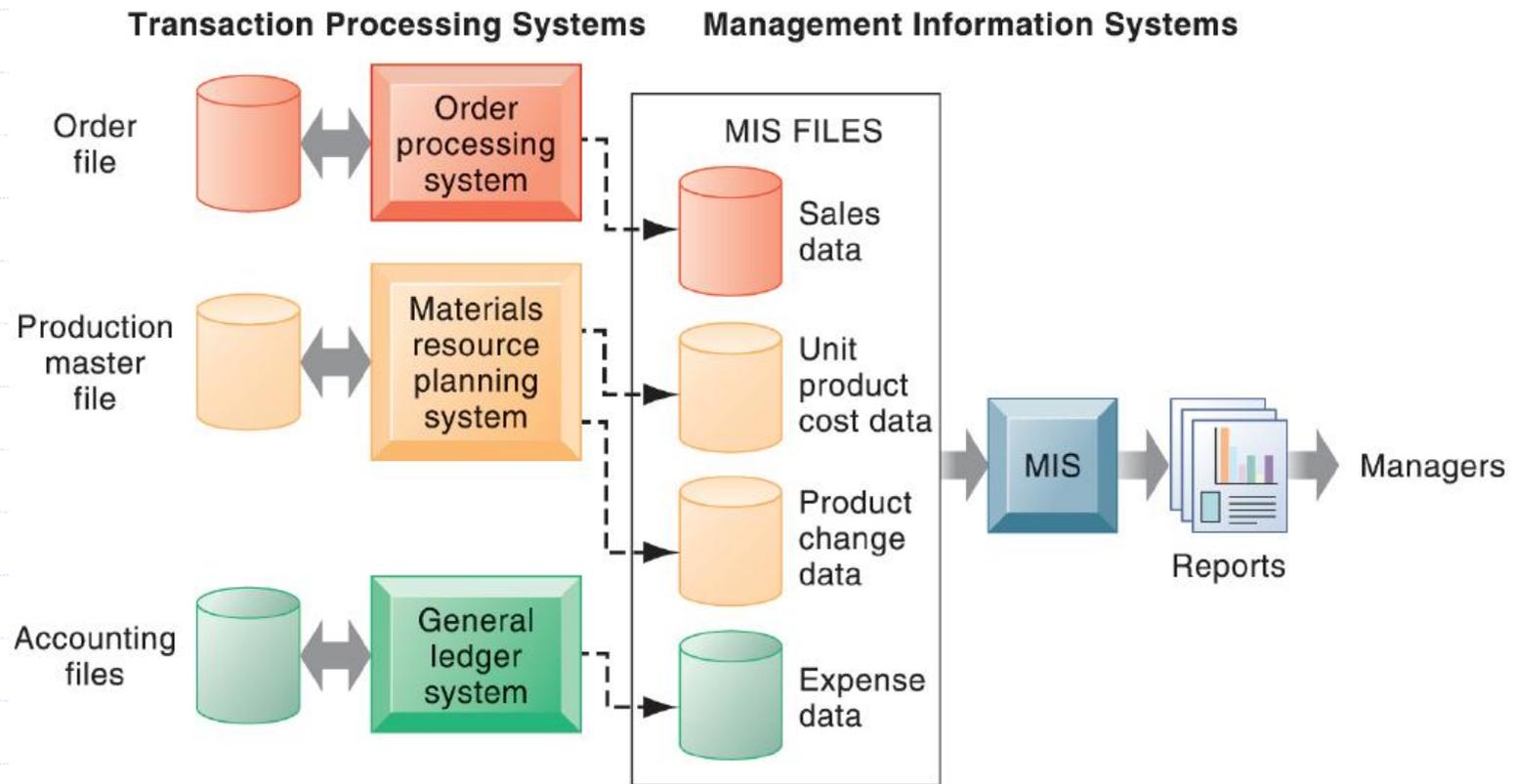
## ➤ Management Information Systems

- Middle Managers Report on firm's Performance
  - ◆ Monitor
  - ◆ Help Predict Future Performance
- Summarize and Report on Basic Operations (using Data from TPS)
- Weekly, Monthly, Annual Results
  - ◆ Daily or Hourly if Required
- Generally not Very Flexible with Limited Analytic Capability

# Systems from Constituency Perspective

## ➤ Example

### ■ How MIS Obtain Data from TPS



# Systems from Constituency Perspective

## ➤ Example

### ■ Sample MIS Report

Consolidated Consumer Products Corporation Sales by Product and Sales Region: 2008

PRODUCT CODE	PRODUCT DESCRIPTION	SALES REGION	ACTUAL SALES	PLANNED	ACTUAL versus 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
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

# Systems from Constituency Perspective

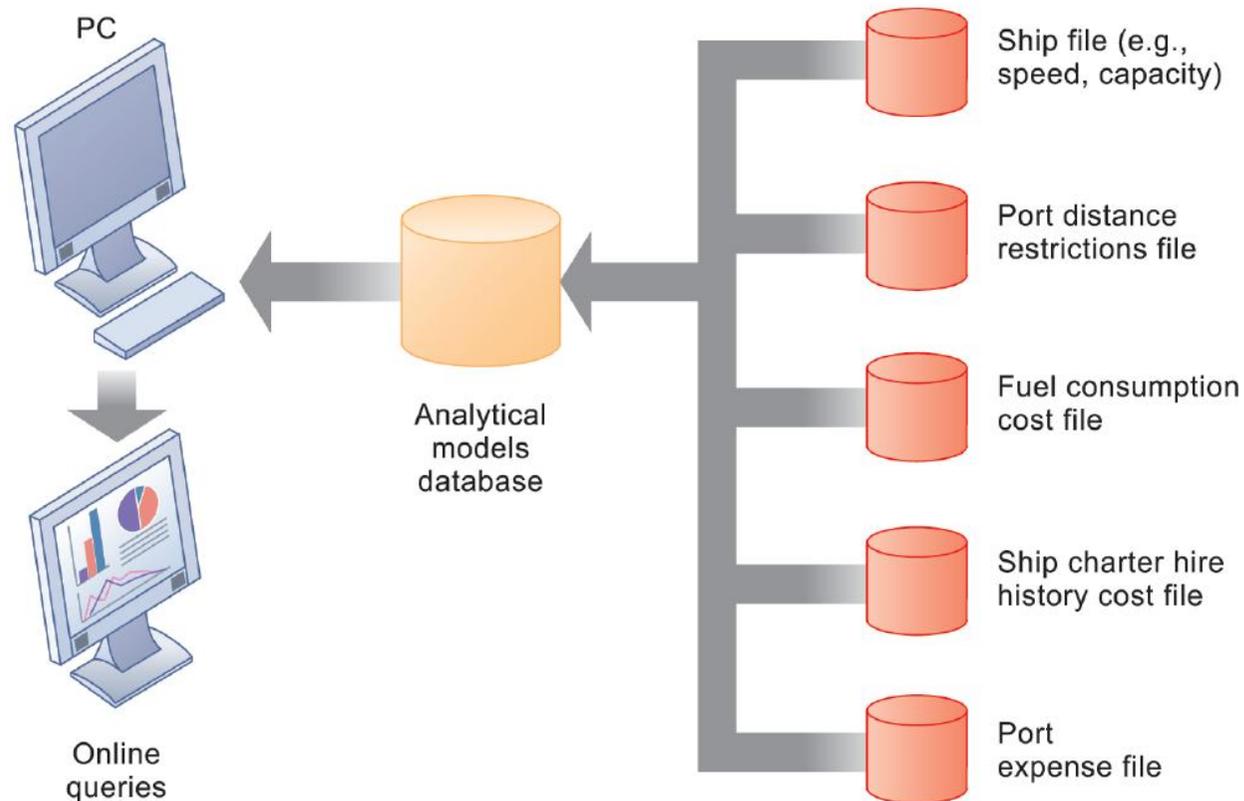
## ➤ Decision Support Systems

- Support Non-Routine Decision Making for Middle Management
  - ◆ Impact of Production Schedule if Sales is Doubled in December?
- Use of Information from
  - ◆ TPS
  - ◆ MIS
  - ◆ External Sources
    - *Product price of competitors, Stock prices, etc.*
- DSS → Business Intelligence Systems

# Systems from Constituency Perspective

## ➤ Decision Support Systems

### ■ Voyage-Estimating Decision Support System



# Systems from Constituency Perspective

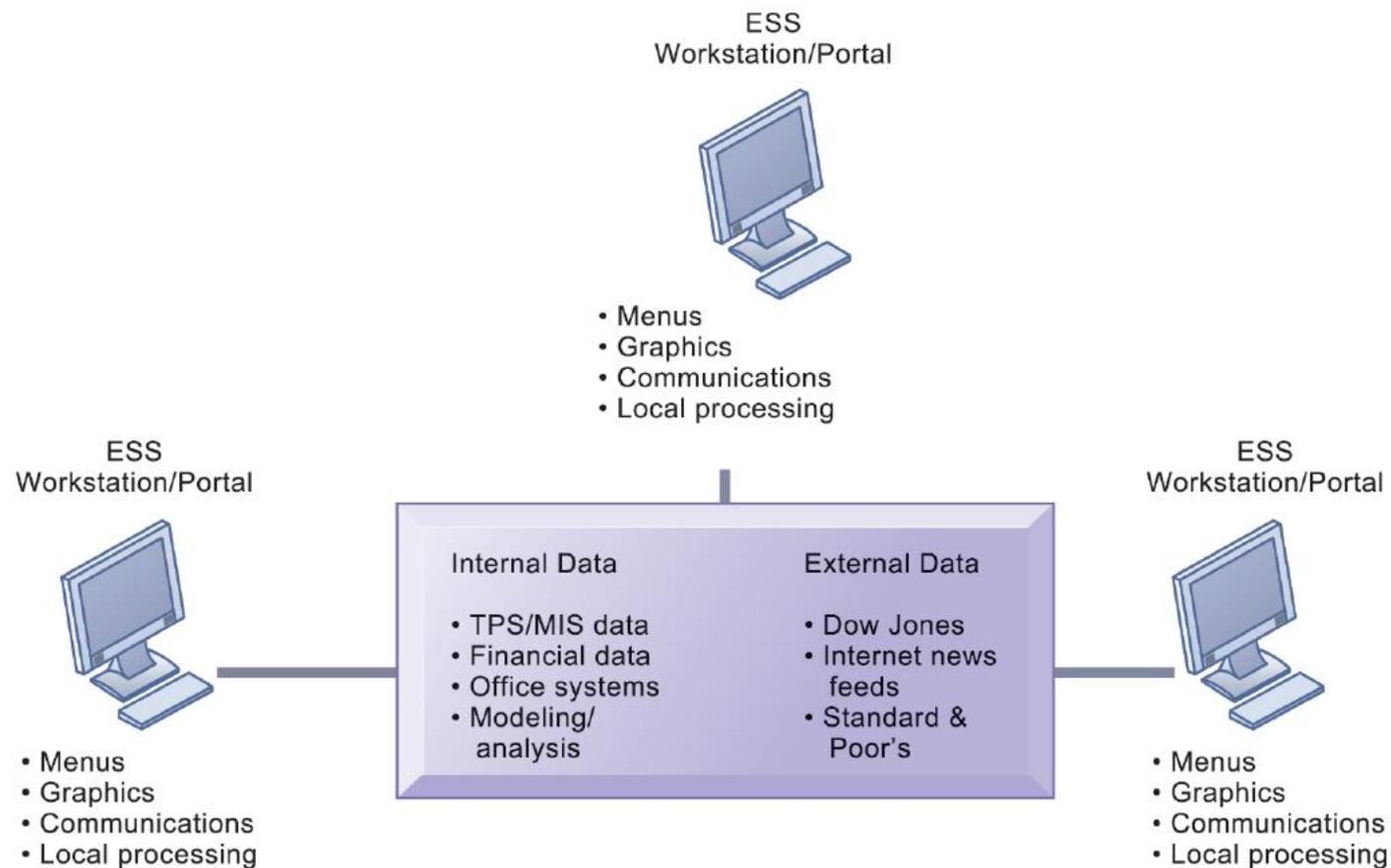
## ➤ Executive Support Systems

- Support *Senior Managers*, Non-Routine Decisions Requiring Judgment, Evaluation, Insight (why?)
  - ◆ Products should we make in 5 years?
  - ◆ Long term Industry cost trends?
  - ◆ Employment levels in 5 years?
- Generalized computing capacity that can be applied to changing array of problems
- Draw summarized information from MIS, DSS and data from external events (e.g. new tax laws)
- Portal with Web interface to present content

# Systems from Constituency Perspective

## ➤ Executive Support Systems

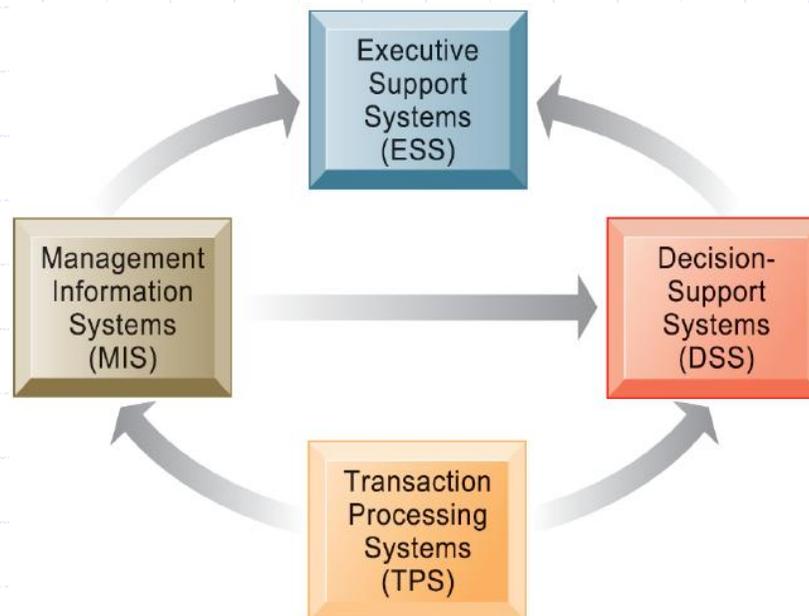
### ■ Typical Model of ESS



# Systems from Constituency Perspective

## ➤ Relationship of System to One Another

- TPS: Major source of data for other systems
- ESS: Primarily receives data from lower-level systems
- Other systems may exchange data as well
- In most organizations, systems are loosely integrated



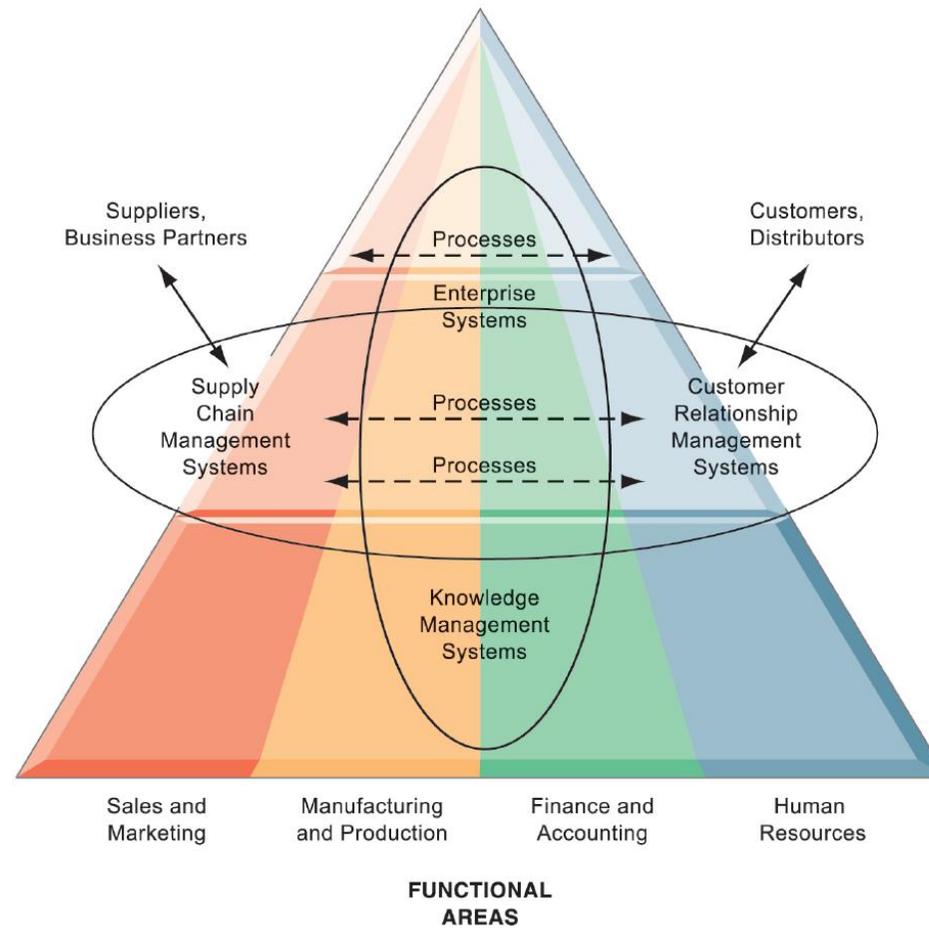
# Systems that Span Enterprise

## ➤ Enterprise Applications

- So many different systems, maintenance
- Automate process for multiple business functions and organizational areas
  - ◆ Enterprise systems
  - ◆ Supply chain management systems
  - ◆ Customer relationship management systems
  - ◆ Knowledge management systems

# Systems that Span Enterprise

## ➤ Enterprise Applications



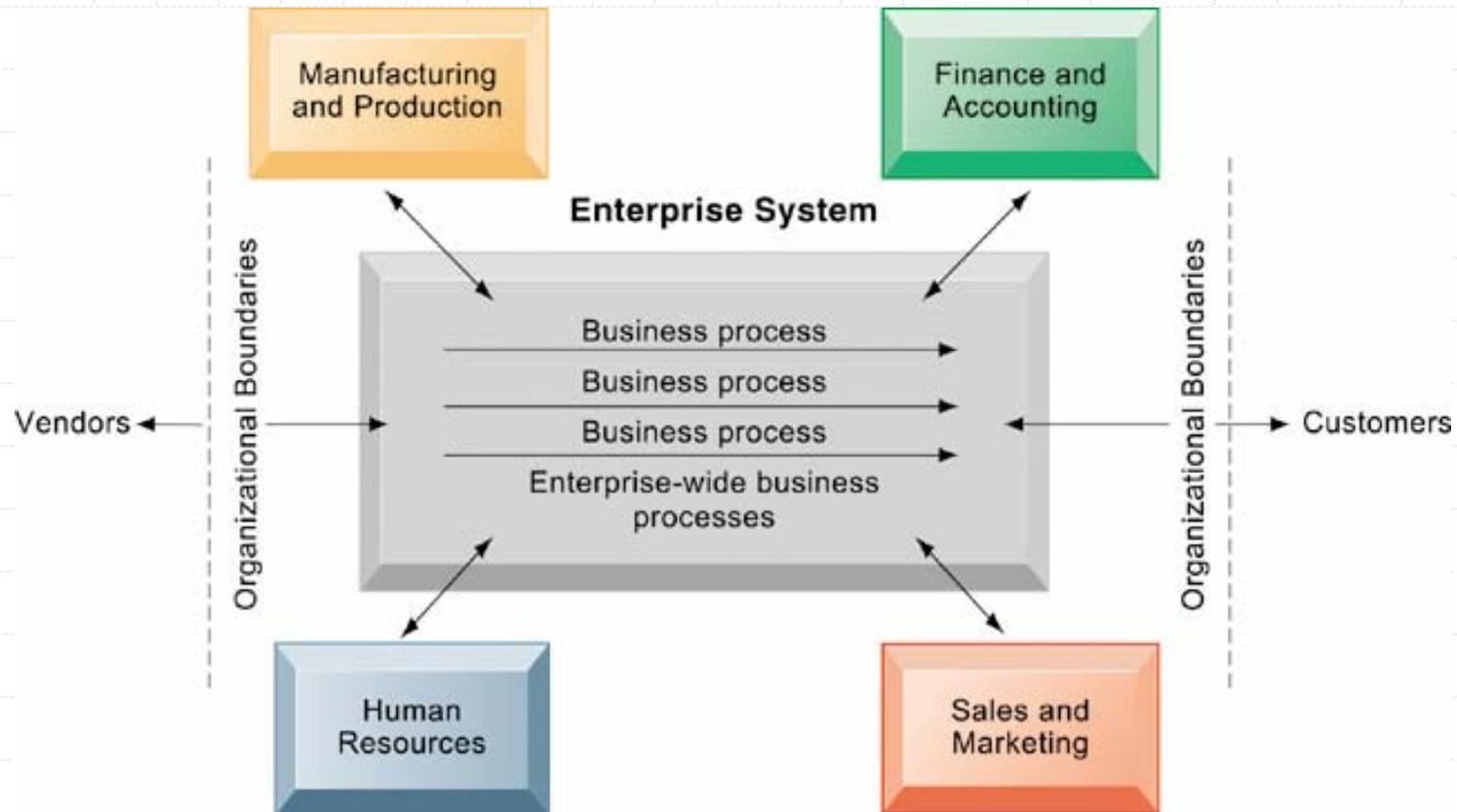
# Systems that Span Enterprise

## ➤ Enterprise Systems

- Why Needed?
- Integrate data from key business processes
- Single central data repository
- Speed communication of information throughout firm
- Enable greater flexibility in responding to customer requests, greater accuracy in order fulfillment
- Enable managers of large firms to assemble overall view of operations
- Alcoa used ERP to eliminate redundancies and inefficiencies in its disparate systems on firm's Performance

# Systems that Span Enterprise

## ➤ Enterprise Systems



# Systems that Span Enterprise

## ➤ Supply Chain Management System

- Manage relationships with suppliers, purchasing firms, distributors, and logistics companies
- Manage shared information about orders, production, inventory levels, etc.
- Goal is to move *correct amount* of product from source to point of consumption *quickly* and at *lowest cost*
- Type of inter-organizational system
  - ◆ Automating flow of information across organizational boundaries

# Systems that Span Enterprise

## ➤ Customer Relationship Management System

- Manages relationships with customers
- Coordinate all business processes that deal with customers to *optimize revenue* and *customer satisfaction*, and *increase sales*
- Combine *sales, marketing, and service* record data from multiple communication channels to provide unified view of customer, *eliminate duplicate efforts*
- Example → Saab CRM applications to achieve 360° view of customers resulted in greater follow-up rate on sales leads and increased customer satisfaction

# Systems that Span Enterprise

## ➤ Knowledge Management System

- Intangible knowledge assets
  - ◆ Knowledge about producing and delivering products
  - ◆ Source of value and advantage for firms
- Knowledge management systems
  - ◆ Help capture, storage, distribute, and apply knowledge so that it can be leveraged for strategic benefit
- Include systems for
  - ◆ Managing and distributing documents, graphics, other digital knowledge objects
  - ◆ Creating knowledge directories of employees with specialized expertise
  - ◆ Distributing knowledge

# Information Integration

## ➤ Intranets and Extranets

- Companies that *do not have resources* to invest in Enterprise applications
- Technology platforms that increase integration and expedite the flow of information
- Intranets
  - ◆ Internal distribution of information to employees
  - ◆ Internal networks based on Internet standards
  - ◆ Typically utilize a portal
- Extranets
  - ◆ Intranets *extended for authorized use outside the company* for partners, customers
  - ◆ Facilitate collaboration

# Interaction in Global Economy

## ➤ Collaboration and Communication Systems

### ■ Interaction jobs

- ◆ Primary value-adding activities are talking, e-mailing, presenting, persuading
- ◆ 41% of U.S. labor force
- ◆ 70% of new jobs since 1998

### ■ Enterprise-wide information system solutions

- ◆ Internet-based collaboration environments
- ◆ E-mail and instant messaging (IM)
- ◆ Cell phones and wireless handhelds
- ◆ Social networking
- ◆ Wikis
- ◆ Virtual worlds

# Interaction in Global Economy

## ➤ E-Business

- Use of digital technology and Internet to drive major business processes

## ➤ E-Commerce

- Subset of e-business
- Buying and selling goods and services through Internet
- Advertising, Marketing, Transactions, Security, Delivery, Payment, Customer Support

## ➤ E-Government

- Using Internet technology to deliver information and services to citizens, employees, and businesses
- Operational Efficiency ↑, Example → Online IRD Tax Payment

# Information System Department

## ➤ Programmers

## ➤ System Analysts

- Principle liaisons to rest of firm

## ➤ Information Systems Managers

- Leaders of teams of programmers and analysts, project managers, physical facility managers, telecom managers, database specialists, managers of computer operations and data entry staff

## ➤ Senior Managers: CIO, CSO, CKO

- CIO → Strong Business & IS Background, Oversee use of IS/T
- CSO → Enforce information security policy, Breakdowns, Threats
- CKO → Knowledge Management, Design Programs/Systems; CPO

## ➤ End Users (outside IS group)

# Information System Department

## ➤ Services

- Computing and telecommunications services
- Data management services
- Application software services
- Physical facilities management services
- IT management services
- IT standards services
- IT educational services
- IT research and development services