



Chapter 2

Global E-Business: How Businesses Use Information Systems

ดร.มนตรี วิบูลย์รัตน์

Montri Wiboonrat Ph.D.



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Chapter 2 Global E-Business: How Businesses Use Information Systems

LEARNING OBJECTIVES

- **Define and describe business processes and their relationship to information systems.**
- **Evaluate the role played by systems serving the various levels of management in a business and their relationship to each other.**
- **Explain how enterprise applications, collaboration and communication systems, and intranets improve organizational performance.**



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LEARNING OBJECTIVES (Continued)

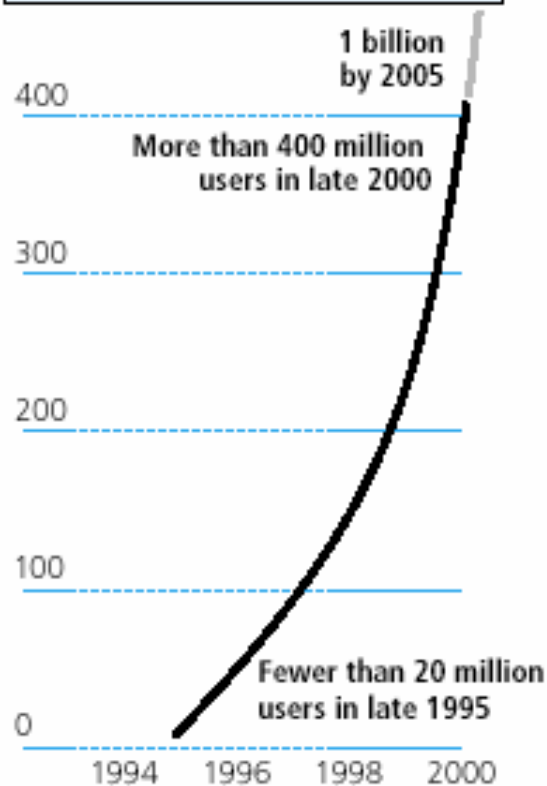
- **Explain the difference between e-business, e-commerce, and e-government.**
- **Assess the role of the information systems function in a business.**



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Future Trends of Information and Communication Technology (ICT)

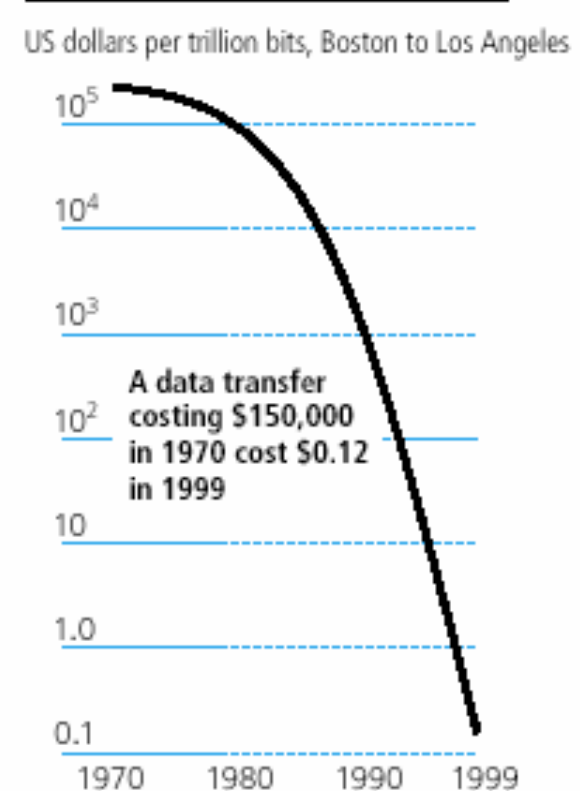
More people have access . . .
Millions of Internet users



. . . to more information . . .
Number of Websites



. . . at a lower cost
Transmission cost



HUMAN DEVELOPMENT REPORT 2001



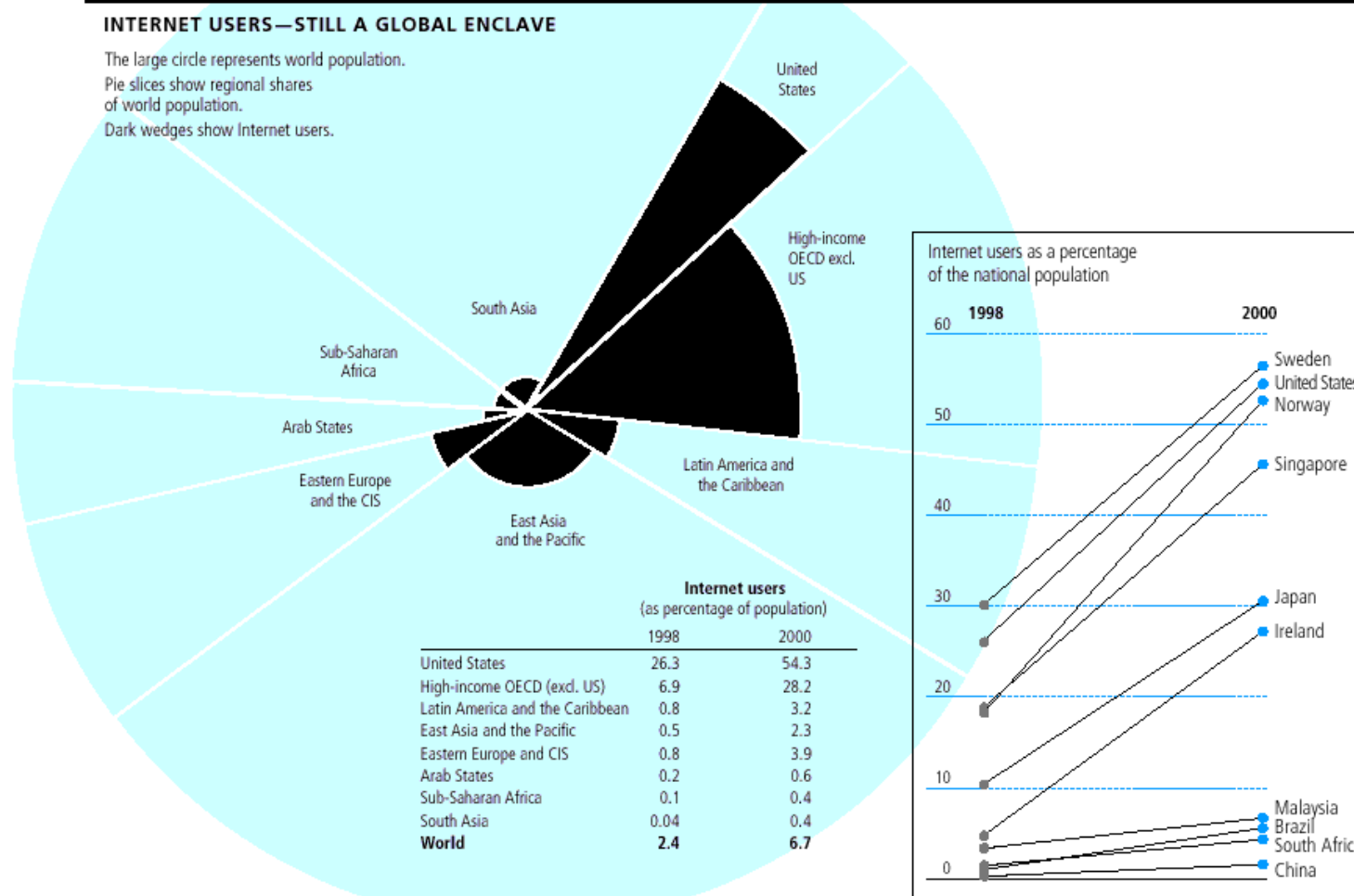
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Future Trend of Internet

UNEVEN DIFFUSION OF TECHNOLOGY—OLD AND NEW . . .

INTERNET USERS—STILL A GLOBAL ENCLAVE

The large circle represents world population.
Pie slices show regional shares of world population.
Dark wedges show Internet users.



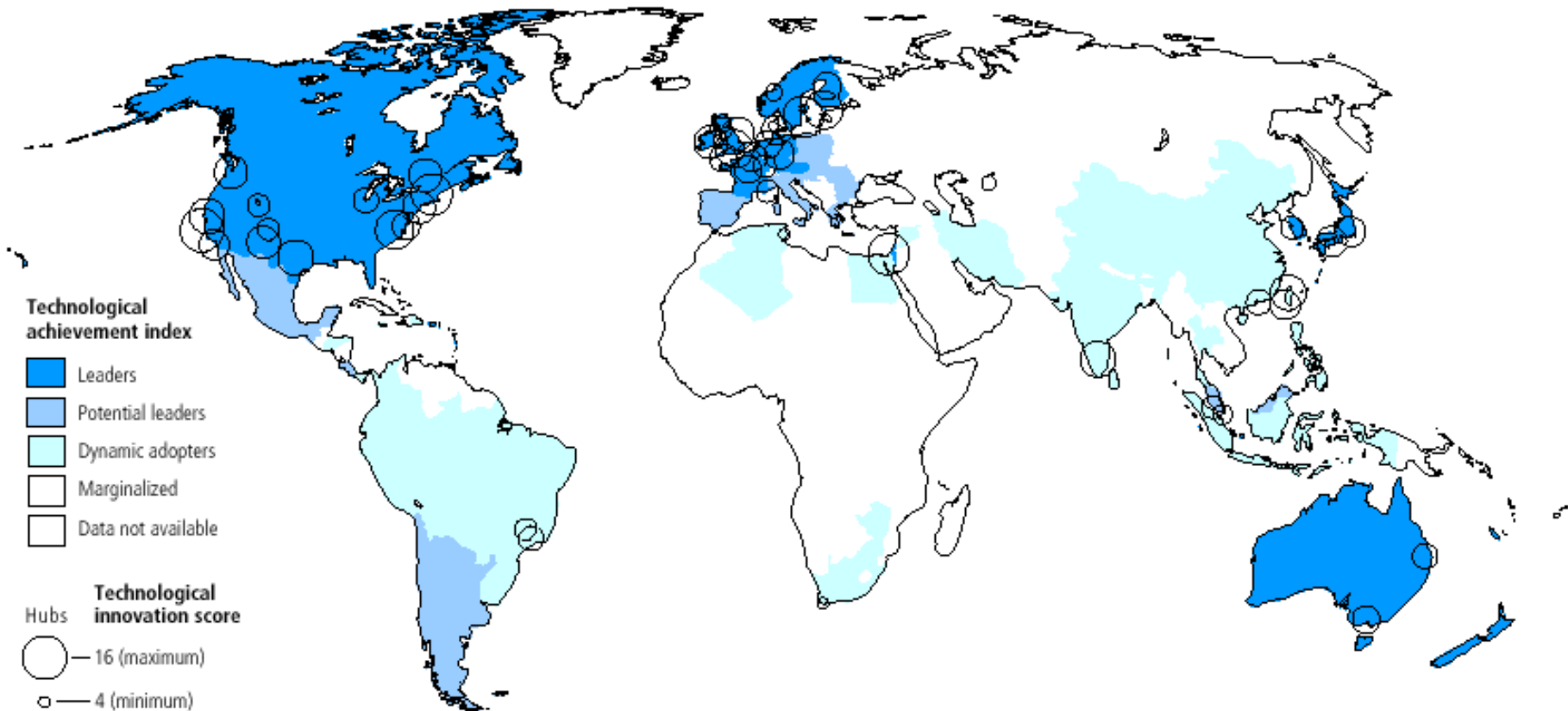
Source: Human Development Report Office calculations based on data supplied by Nua Publish 2001 and UN 2001c.



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Hope for the Future

THE GEOGRAPHY OF TECHNOLOGICAL INNOVATION AND ACHIEVEMENT.



Global hubs of technological innovation In 2000 *Wired* magazine consulted local sources in government, industry and the media to find the locations that matter most in the new digital geography. Each was rated from 1 to 4 in four areas: the ability of area universities and research facilities to train skilled workers or develop new technologies, the presence of established companies and multinational corporations to provide expertise and economic stability, the population's entrepreneurial drive to start new ventures and the availability of venture capital to ensure that the ideas make it to market. Forty-six locations were identified as technology hubs, shown on the map as black circles



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The Tata Nano Makes History Using Digital Manufacturing

- **Problem:** Outdated manufacturing processes, time-consuming manual labor.
- **Solutions:** Digital manufacturing systems allowed Tata to create a \$2,500 car without sacrificing safety or value.
- **Dassault Systems' Digital Enterprise Lean Manufacturing Interactive Application** drastically reduced development cycle.
- Demonstrates IT's role in fostering innovation and improving efficiency.
- Illustrates the benefits of updating manufacturing-related business processes.



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Business Processes and Information Systems

- **Business processes:**
 - Workflows of material, information, knowledge
 - Sets of activities, steps
 - May be tied to functional area or be cross-functional
- **Businesses:** Can be seen as collection of business processes
- Business processes may be assets or liabilities



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Business Processes and Information Systems

- **Examples of functional business processes**
 - **Manufacturing and production**
 - Assembling the product
 - **Sales and marketing**
 - Identifying customers
 - **Finance and accounting**
 - Creating financial statements
 - **Human resources**
 - Hiring employees

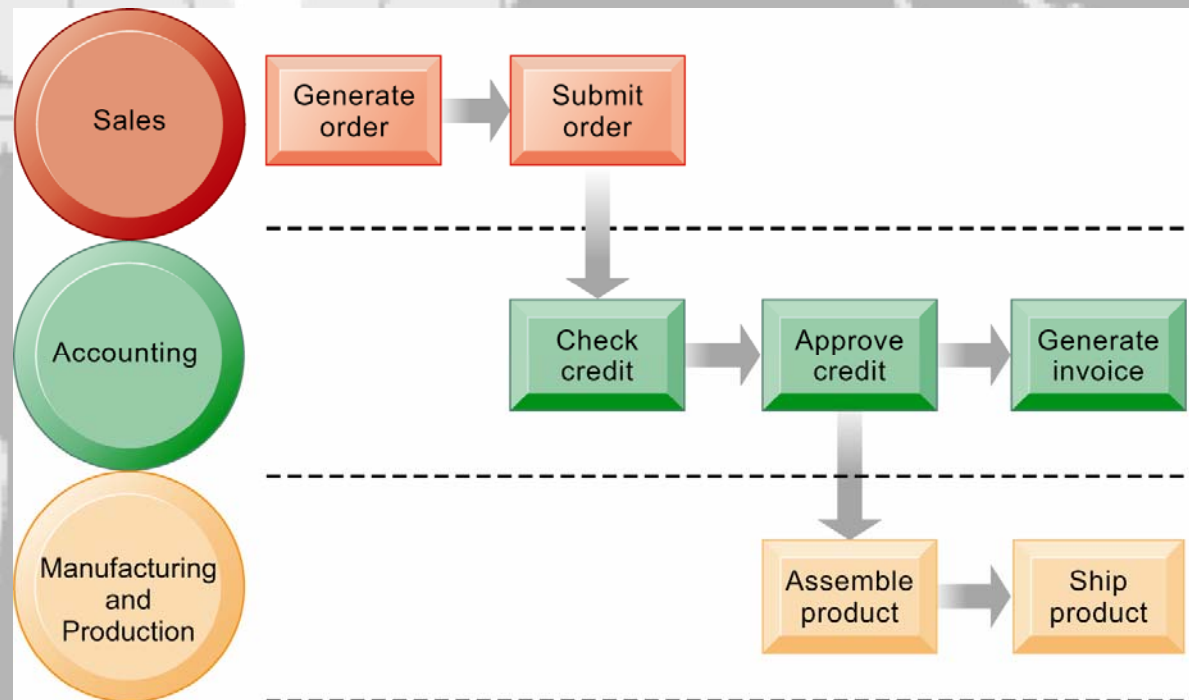


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Business Processes and Information Systems

The Order Fulfillment Process



Fulfilling a customer order involves a complex set of steps that requires the close coordination of the sales, accounting, and manufacturing functions.

Figure 2-1



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Business Processes and Information Systems

- **Information technology enhances business processes in two main ways:**
 - **Increasing efficiency of existing processes**
 - Automating steps that were manual
 - **Enabling entirely new processes that are capable of transforming the businesses**
 - Change flow of information
 - Replace sequential steps with parallel steps
 - Eliminate delays in decision making



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Types of Business Information Systems

- **Transaction processing systems**
 - Perform and record daily routine transactions necessary to conduct business
 - Examples: sales order entry, payroll, shipping
 - Allow managers to monitor status of operations and relations with external environment
 - Serve operational levels
 - Serve predefined, structured goals and decision making

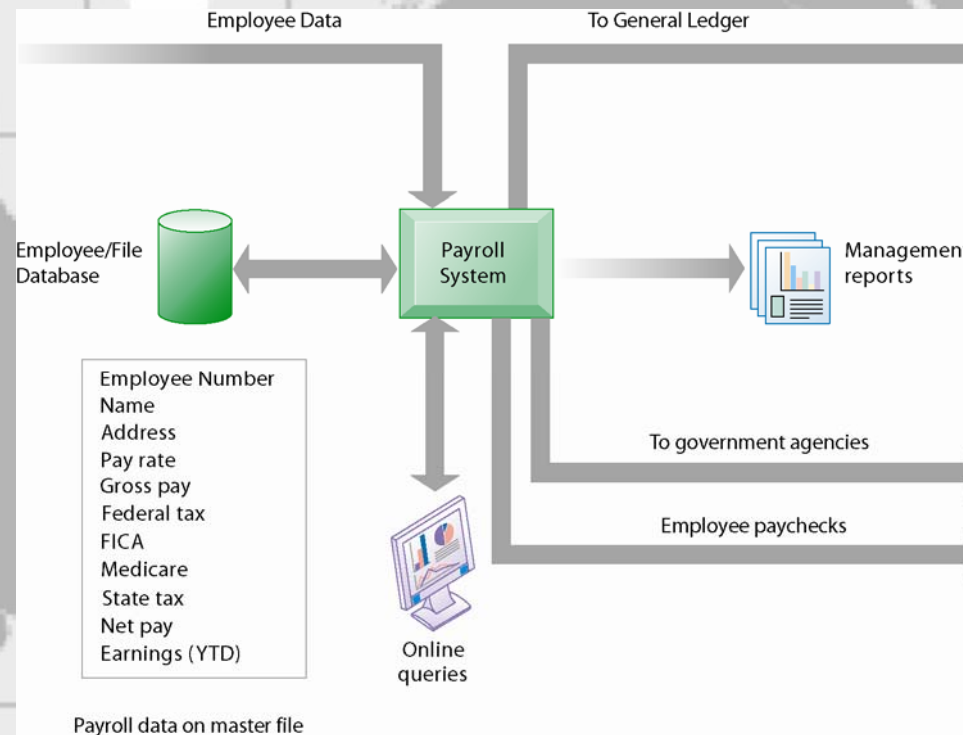


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Types of Business Information Systems

A Payroll TPS



A TPS for payroll processing captures employee payment transaction data (such as a time card). System outputs include online and hard-copy reports for management and employee paychecks.

Figure 2-2



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Types of Business Information Systems

- **Management information systems**
 - Serve middle management
 - Provide reports on firm's current performance, based on data from TPS
 - Provide answers to routine questions with predefined procedure for answering them
 - Typically have little analytic capability



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Types of Business Information Systems

- **Decision support systems**
 - Serve middle management
 - Support nonroutine decision making
 - Example: What is impact on production schedule if December sales doubled?
 - Often use external information as well from TPS and MIS
 - Model driven DSS
 - Voyage-estimating systems
 - Data driven DSS
 - Intrawest's marketing analysis systems

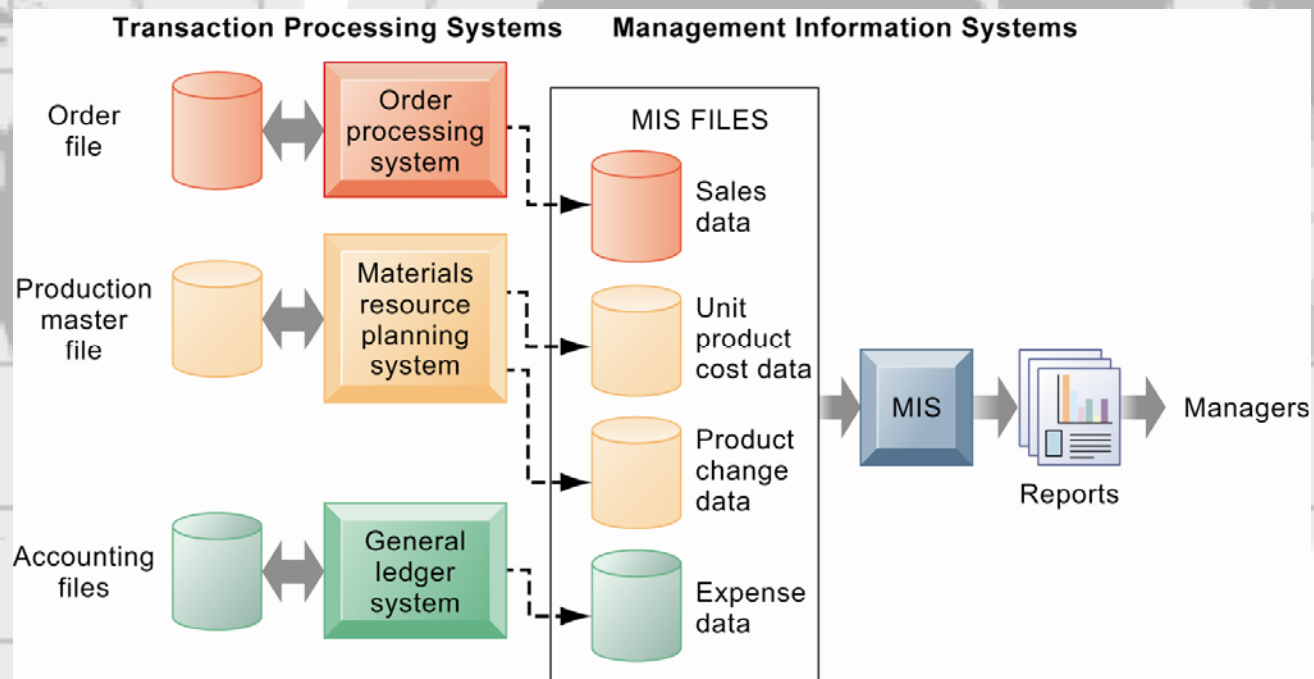


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Types of Business Information Systems

How Management Information Systems Obtain Their Data from the Organization's TPS



In the system illustrated by this diagram, three TPS supply summarized transaction data to the MIS reporting system at the end of the time period. Managers gain access to the organizational data through the MIS, which provides them with the appropriate reports.

Figure 2-3



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Types of Business Information Systems

Sample MIS Report

Consolidated Consumer Products Corporation Sales by Product and Sales Region: 2009

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

This report, showing summarized annual sales data, was produced by the MIS in Figure 2-3.

Figure 2-4

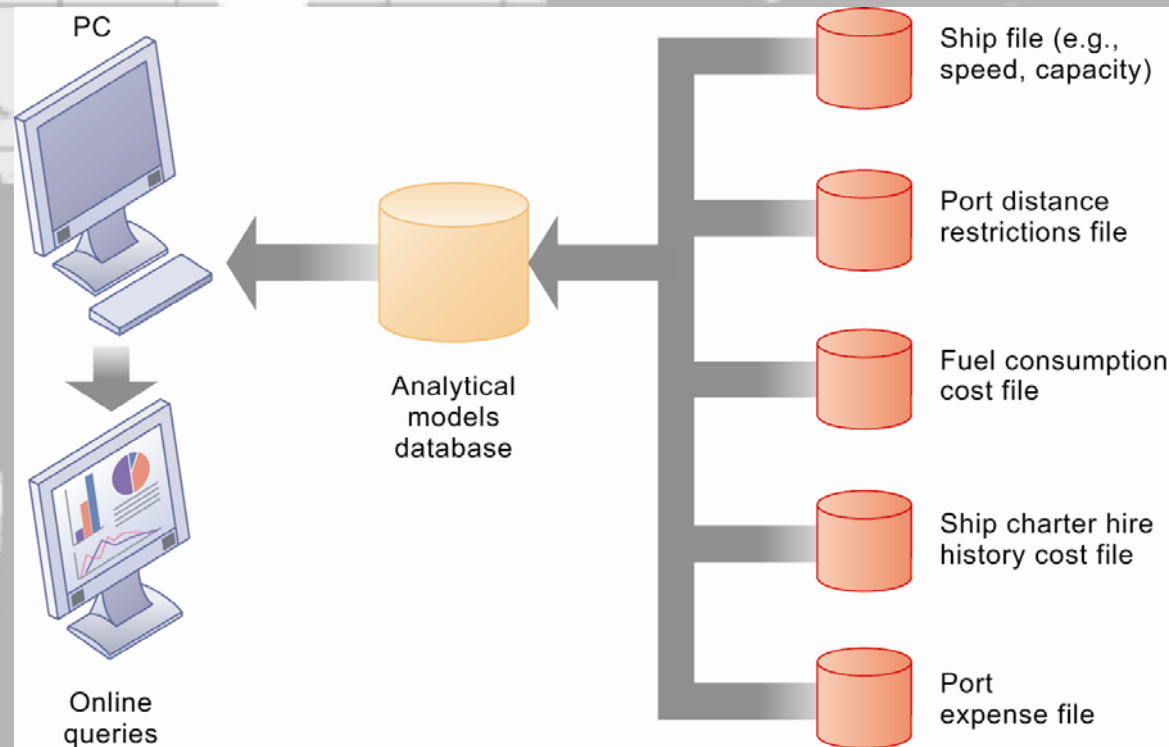


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Types of Business Information Systems

Voyage-Estimating Decision Support System



This DSS operates on a powerful PC. It is used daily by managers who must develop bids on shipping contracts.

Figure 2-5



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Types of Business Information Systems

Air Canada Takes off with Maintenix

- **Read the Interactive Session: Technology, and then discuss the following questions:**
 - **What problems does Air Canada hope that Maintenix will solve?**
 - **How does Maintenix improve operational efficiency and decision-making?**
 - **Give examples of three decisions supported by the Maintenix system. What information do the Maintenix modules provide to support each of these decisions?**



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Types of Business Information Systems

- **Executive support systems**
 - Support senior management
 - Address nonroutine decisions requiring judgment, evaluation, and insight
 - Incorporate data about external events (e.g. new tax laws or competitors) as well as summarized information from internal MIS and DSS
 - Example: ESS that provides minute-to-minute view of firm's financial performance as measured by working capital, accounts receivable, accounts payable, cash flow, and inventory



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Types of Business Information Systems

Model of an Executive Support System

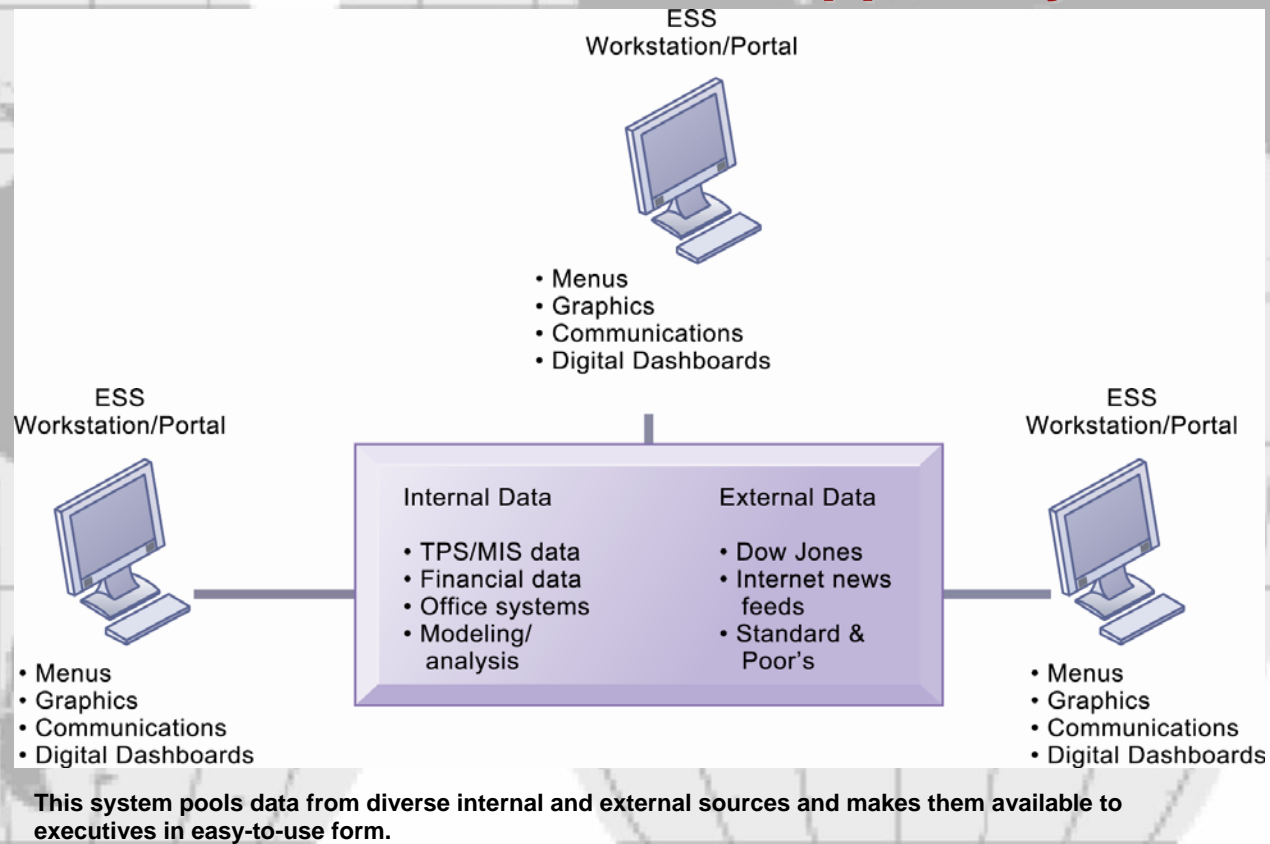


Figure 2-6



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Types of Business Information Systems

- **Systems from a constituency perspective**
 - **Transaction processing systems: supporting operational level employees**
 - **Management information systems and decision-support systems: supporting managers**
 - **Executive support systems: supporting executives**



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Types of Business Information Systems

- **Relationship of systems to one another**
 - TPS: Major source of data for other systems
 - ESS: Recipient of data from lower-level systems
 - Data may be exchanged between systems
 - In reality, most businesses' systems only loosely integrated



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Types of Business Information Systems

“Fresh, Hot, Fast” – Can Information Systems Help Johnny’s Lunch Go National?

- **Read the Interactive Session: Organizations, and then discuss the following questions:**
 - **Describe Johnny’s Lunch’s business model and business strategy. What challenges does Johnny’s Lunch face as it begins its expansion?**
 - **What systems has the company used or planned to use to overcome these challenge? What types of systems are they? What role will each play in helping Johnny’s Lunch overcome these challenge?**
 - **What other kinds of systems described in this chapter might help Johnny’s Lunch as it expands?**
 - **Do you believe Johnny’s Lunch will be successful in its attempts to expand nationally? Why or why not?**



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Systems That Span the Enterprise

- **Enterprise applications**
 - Span functional areas
 - Execute business processes across firm
 - Include all levels of management
 - Four major applications:
 - Enterprise systems
 - Supply chain management systems
 - Customer relationship management systems
 - Knowledge management systems

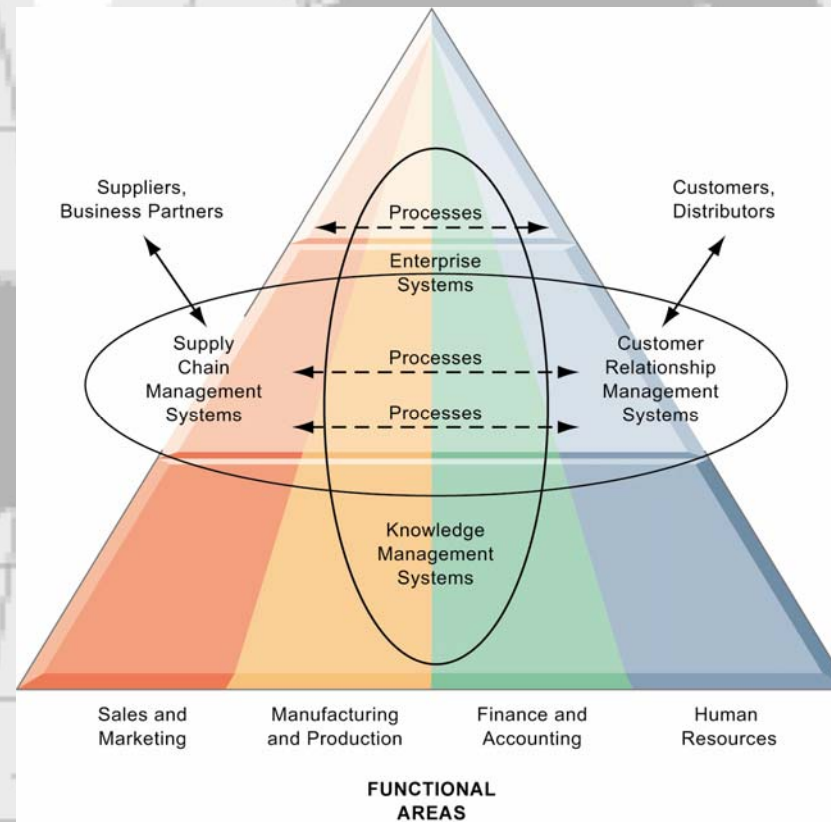


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Systems That Span the Enterprise

Enterprise Application Architecture



Enterprise applications automate processes that span multiple business functions and organizational levels and may extend outside the organization.

Figure 2-7



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Systems That Span the Enterprise

- **Enterprise systems**
 - Collects data from different firm functions and stores data in single central data repository
 - Resolves problem of fragmented, redundant data sets and systems
 - Enable:
 - Coordination of daily activities
 - Efficient response to customer orders (production, inventory)
 - Provide valuable information for improving management decision making

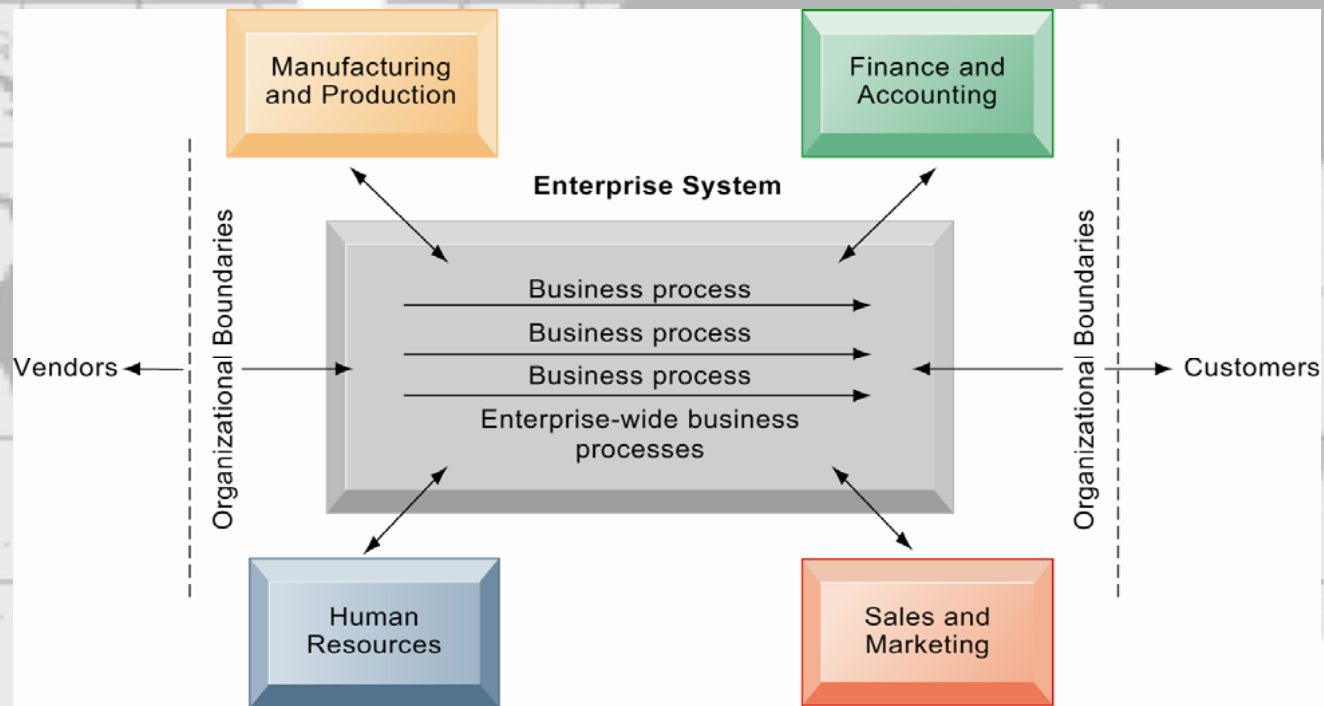


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Types of Business Information Systems

Enterprise Systems



Enterprise systems integrate the key business processes of an entire firm into a single software system that enables information to flow seamlessly throughout the organization. These systems focus primarily on internal processes but may include transactions with customers and vendors.

Figure 2-8



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Systems That Span the Enterprise

- **Supply chain management systems**
 - **Manage firm's relationships with suppliers**
 - **Share information about**
 - **Orders, production, inventory levels, delivery of products and services**
 - **Goal: Right amount of products to destination with least amount of time and lowest cost**

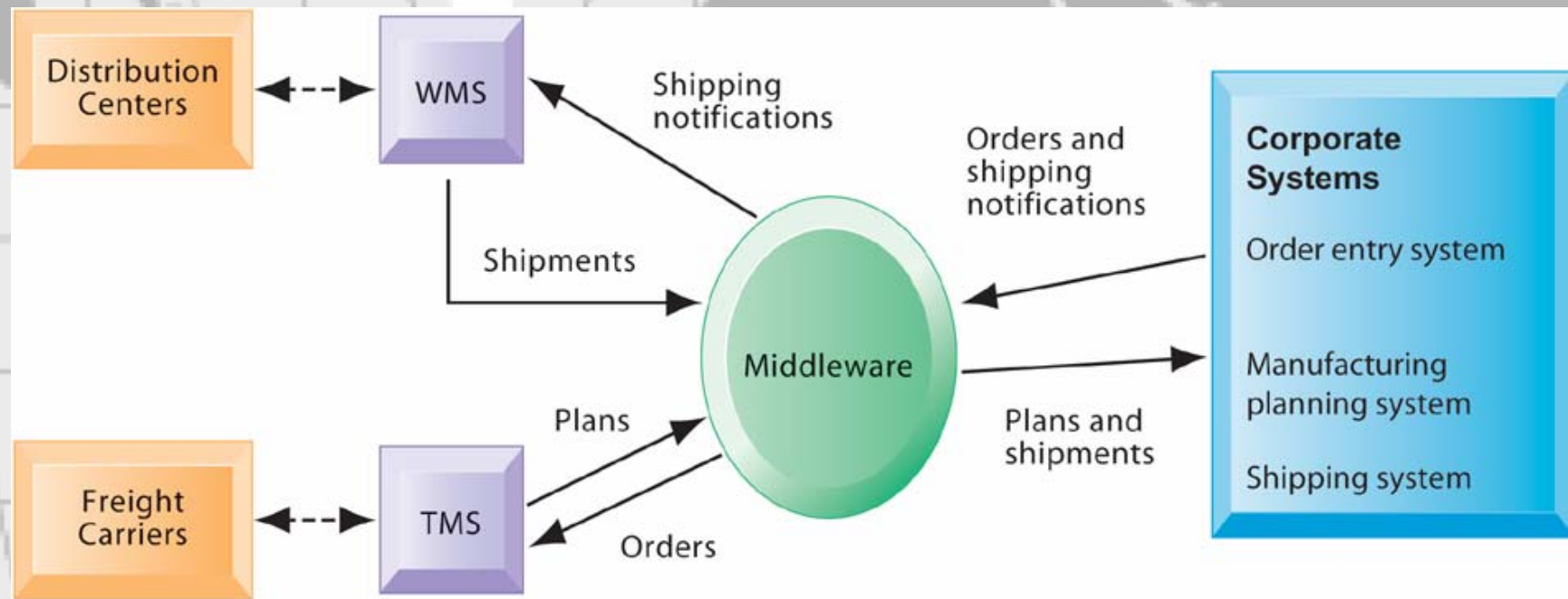


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Types of Business Information Systems

Example of a Supply Chain Management System



Customer orders, shipping notifications, optimized shipping plans, and other supply chain information flow among Haworth's Warehouse Management System (WMS), Transportation Management System (TMS), and its back-end corporate systems.

Figure 2-9



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Systems That Span the Enterprise

- **Customer relationship management systems:**
 - Provide information to coordinate all of the business processes that deal with customers in sales, marketing, and service to optimize revenue, customer satisfaction, and customer retention
 - Integrate firm's customer-related processes and consolidate customer information from multiple communication channels

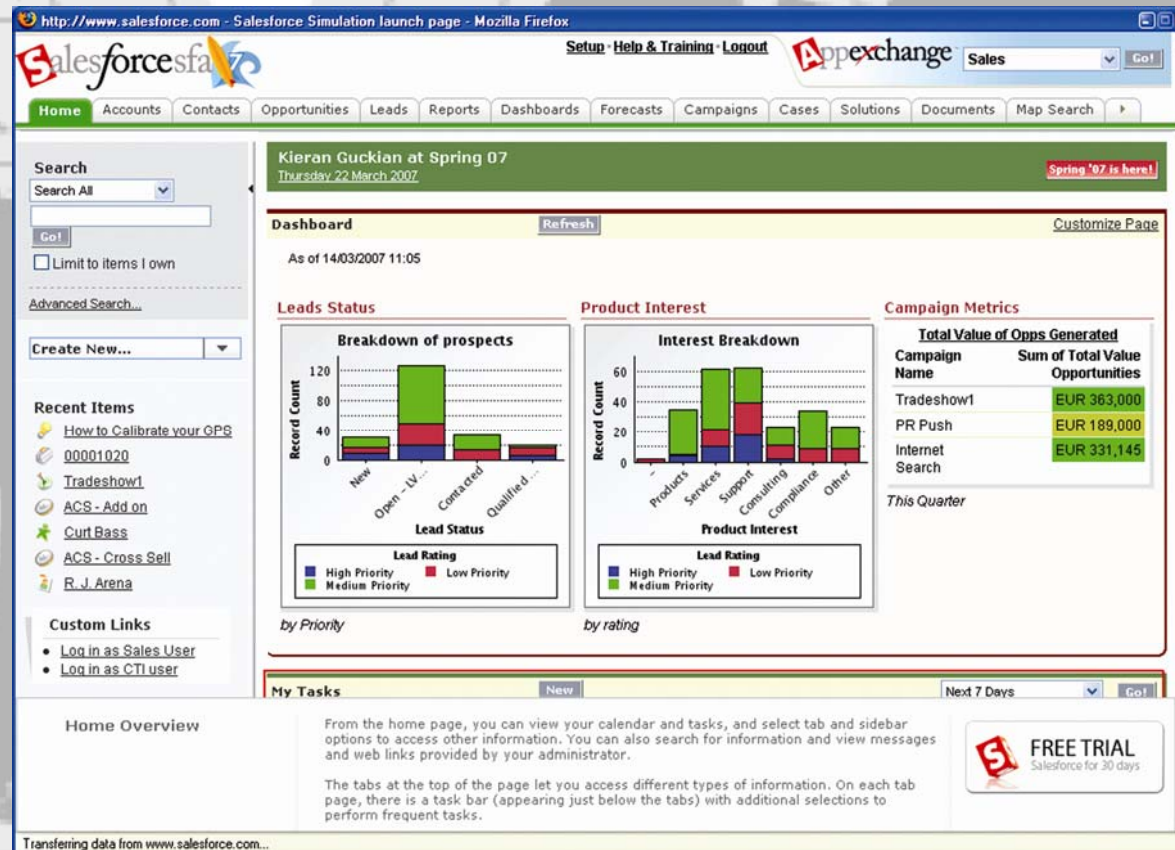


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Types of Business Information Systems

Salesforce.com Executive Team Dashboard



Illustrated here are some of the capabilities of Salesforce.com, a market-leading provider of on-demand customer relationship management (CRM) software. CRM systems integrate information from sales, marketing, and customer service.



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Systems That Span the Enterprise

- **Knowledge management systems**
 - Support processes for acquiring, creating, storing, distributing, applying, integrating knowledge
 - Collect internal knowledge and link to external knowledge
 - Include enterprise-wide systems for:
 - Managing documents, graphics and other digital knowledge objects
 - Directories of employees with expertise



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Systems That Span the Enterprise

- **Intranets:**

- Internal networks built with same tools and standards as Internet
- Used for internal distribution of information to employees
- Typically utilize private portal providing single point of access to several systems
- May connect to company's transaction systems



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Systems That Span the Enterprise

- **Extranets:**

- Intranets extended to authorized users outside the company
- Expedite flow of information between firm and its suppliers and customers
- Can be used to allow different firms to collaborate on product design, marketing, and production



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Systems That Span the Enterprise

- **Collaboration and communication systems**
 - 'Interaction' jobs a major part of global economy
 - Methods include:
 - Internet-based collaboration environments
 - E-mail and instant messaging (IM)
 - Cell phones and smartphones
 - Social networking
 - Wikis
 - Virtual worlds



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Systems That Span the Enterprise

- **E-business (Electronic business):**
 - Use of digital technology and Internet to execute major business processes in the enterprise
 - Includes **e-commerce** (electronic commerce):
 - Buying and selling of goods over Internet
- **E-government:**
 - The application of Internet and networking technologies to digitally enable government and public sector agencies' relationships with citizens, businesses, and other arms of government



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The Information Systems Function in Business

- **Information systems department:**
 - Formal organizational unit responsible for information technology services
 - Includes programmers, systems analysts, project leaders, information systems managers
 - Often headed by chief information officer (CIO), also includes chief security officer (CSO) and chief knowledge officer (CKO)
- **End-users:**
 - Representatives of other departments, for whom applications are developed



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The Information Systems Function in Business

- Small firm may not have formal information systems group
- Larger companies typically have separate department which may be organized along one of several different lines:
 - Decentralized (within each functional area)
 - Separate department under central control
 - Each division has separate group but all under central control

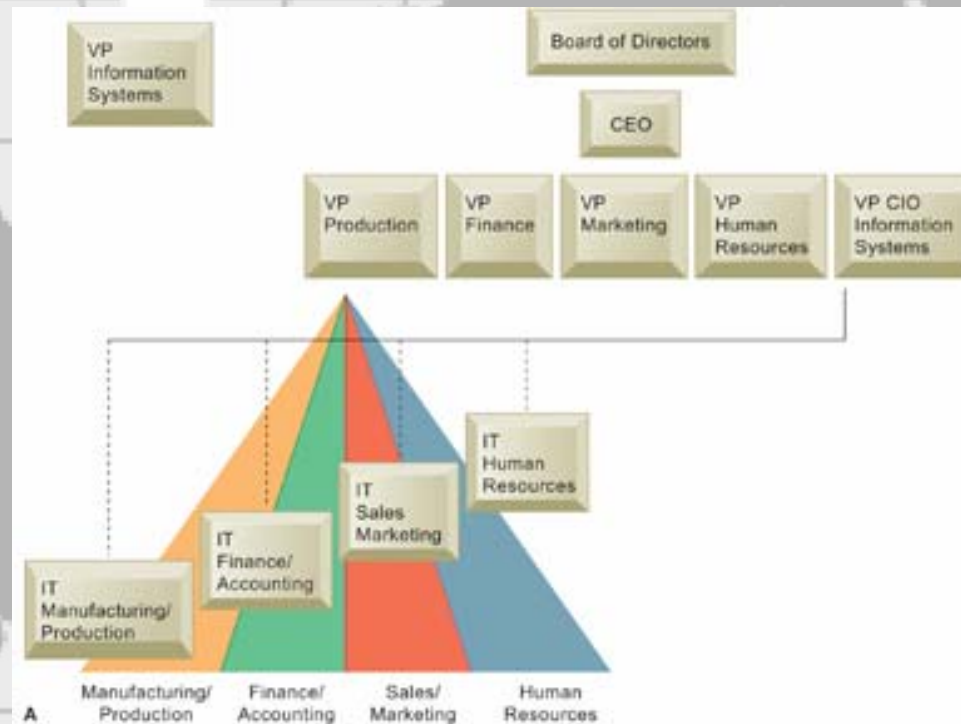


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Types of Business Information Systems

Organization of the Information Systems Function



There are alternative ways of organizing the information systems function within the business: within each functional area (A), as a separate department under central control (B), or represented in each division of a large multidivisional company but under centralized control (C).

Figure 2-10

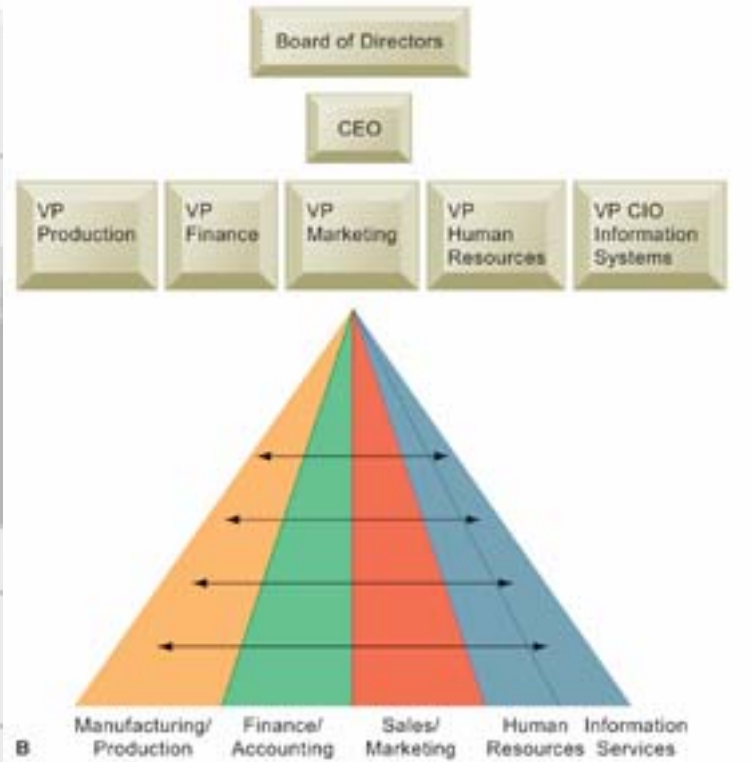


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Types of Business Information Systems

Organization of the Information Systems Function



B: A separate department under central control

Figure 2-10 (cont)

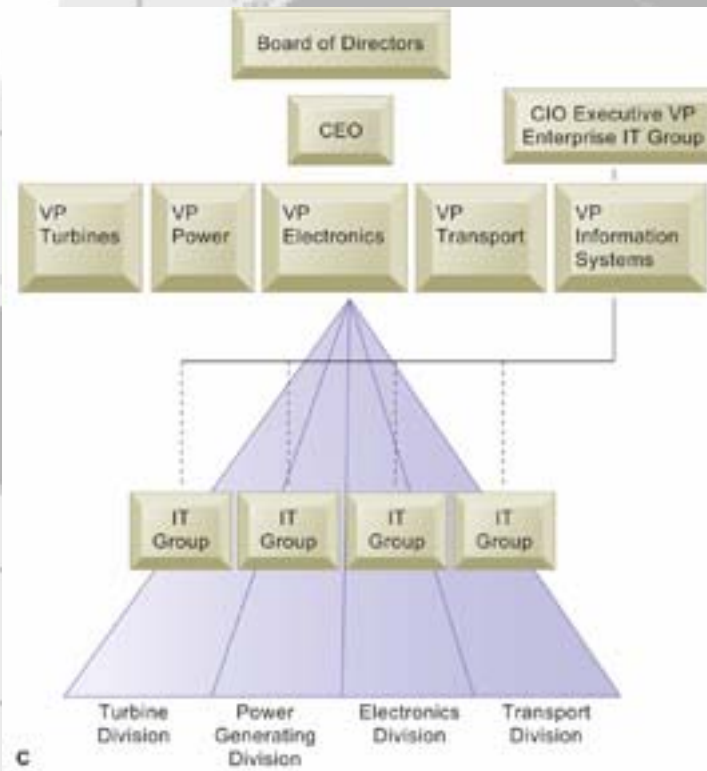


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Types of Business Information Systems

Organization of the Information Systems Function



C: Represented in each division of a large multidivisional company but under centralized control

Figure 2-10 (cont)