

# Chapter 7

## Enhancing Business Processes Using Enterprise Information Systems

7-1

We have this beautiful, elegant, high-I.Q. part of our business that we have been working hard on for many years.”

***Jeff Bezos, Founder  
and CEO of  
Amazon.com***



# Learning Objectives

7-2



**1.** Explain core business processes that are common in organizations.

**2.** Describe what enterprise systems are and how they have evolved.

**3.** Describe enterprise resource planning systems and how they help to improve internal business processes.

**4.** Understand and utilize the keys to successfully implementing enterprise systems.

# Learning Objectives

7-3



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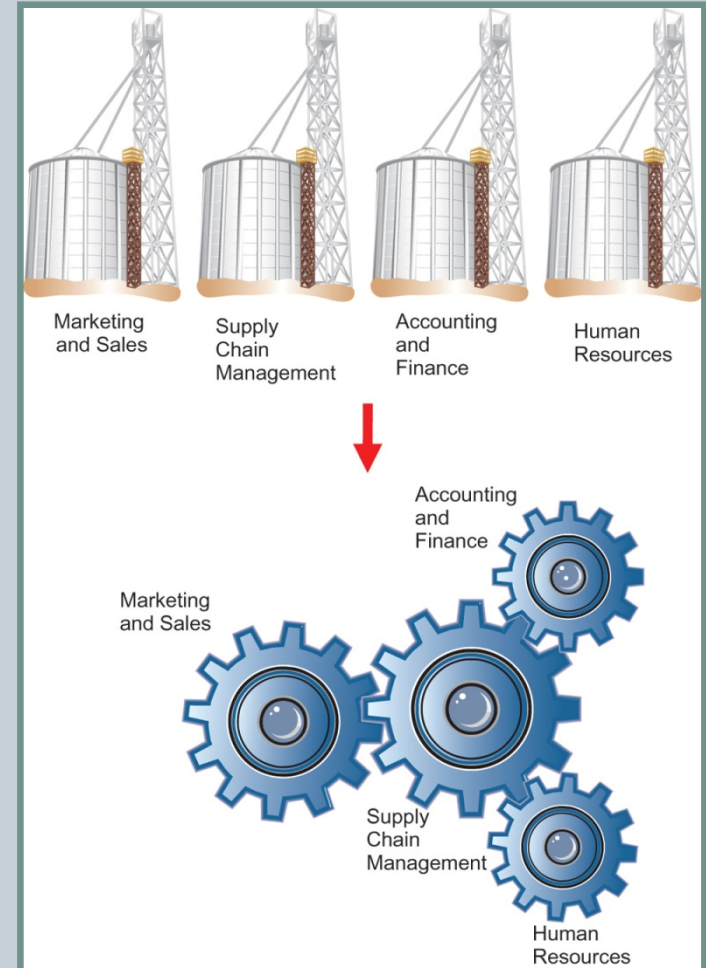
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# Core Business Processes

7-4

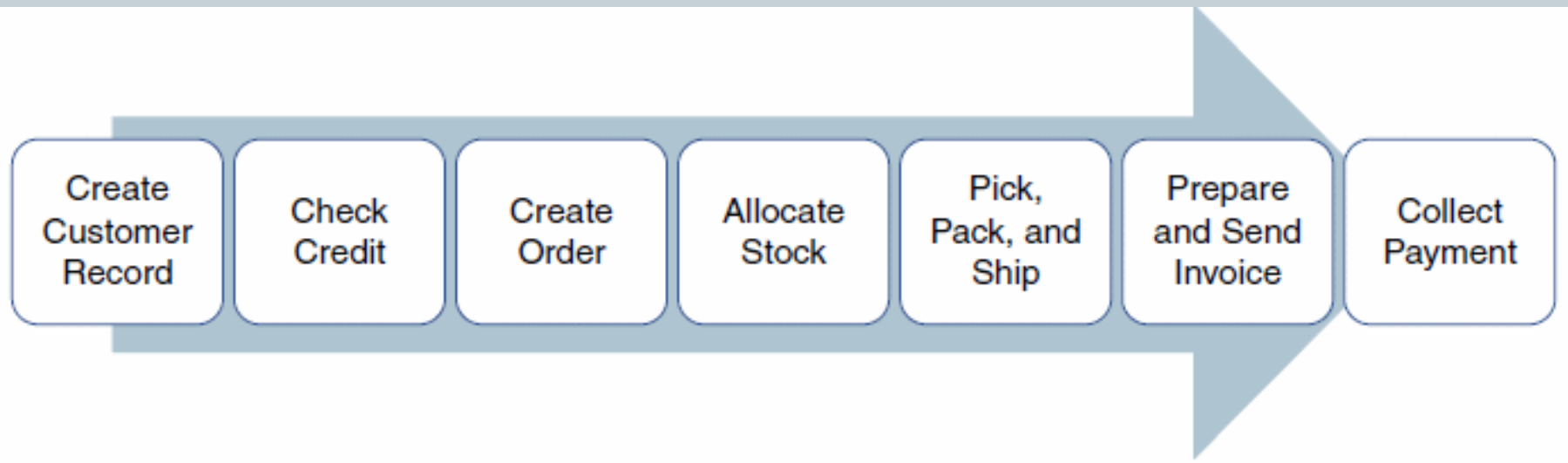
- **Traditional business functions:**
  - Marketing and sales
  - Supply chain management
  - Accounting and finance
  - Human resources
- **Not distinct independent silos, but instead highly interrelated**
- **Business processes cross boundaries of business functions.**



# Order-to-Cash Process

7-5

- The processes associated with selling a product or service



# Procure-to-Pay Process

7-6

- The processes associated with procuring goods from external vendors

Negotiate  
Price and  
Terms

Issue Purchase  
Order

Receive Goods

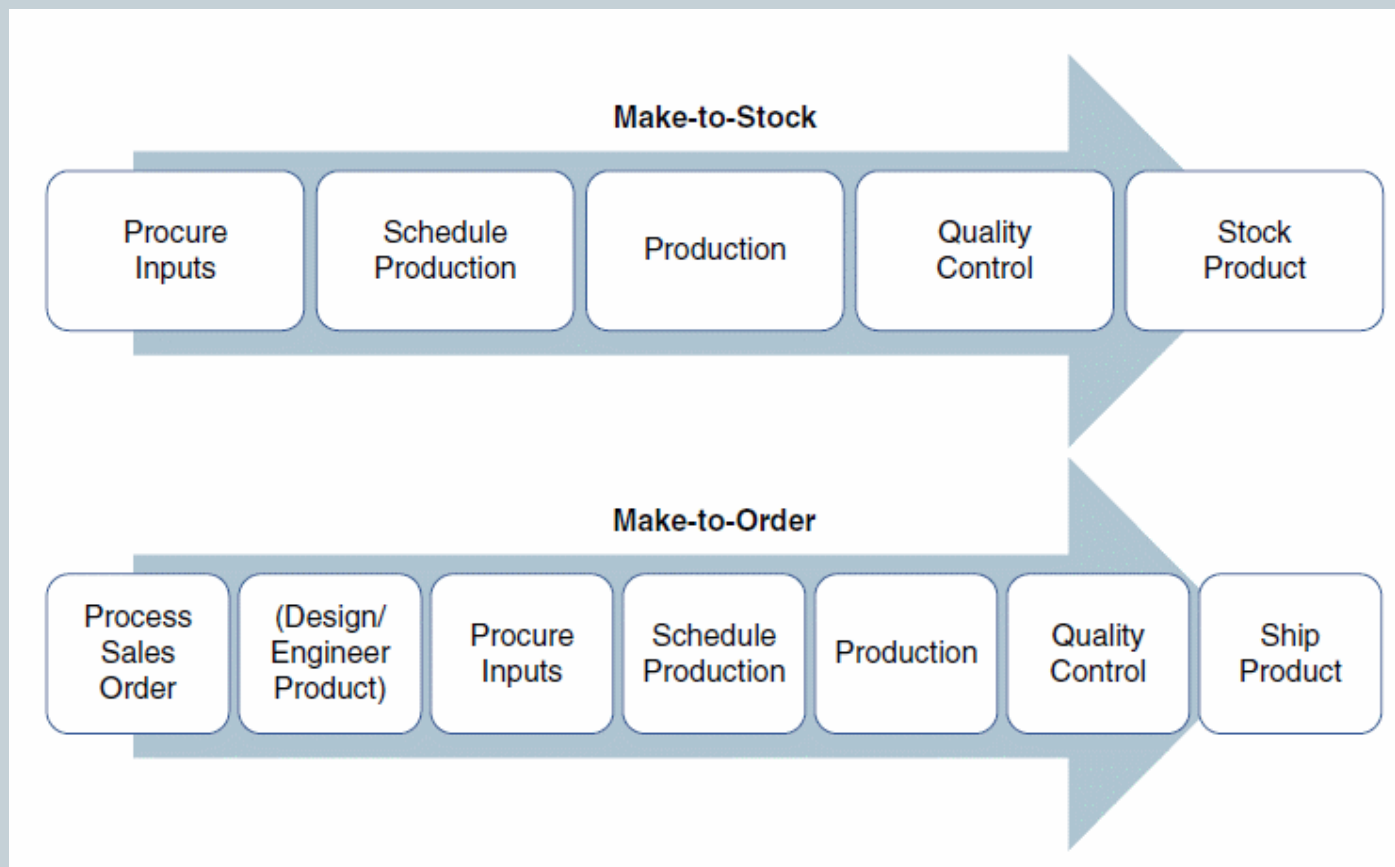
Receive  
Invoice

Settle Payment

# Make-to-Stock / Make-to-Order Process

7-7

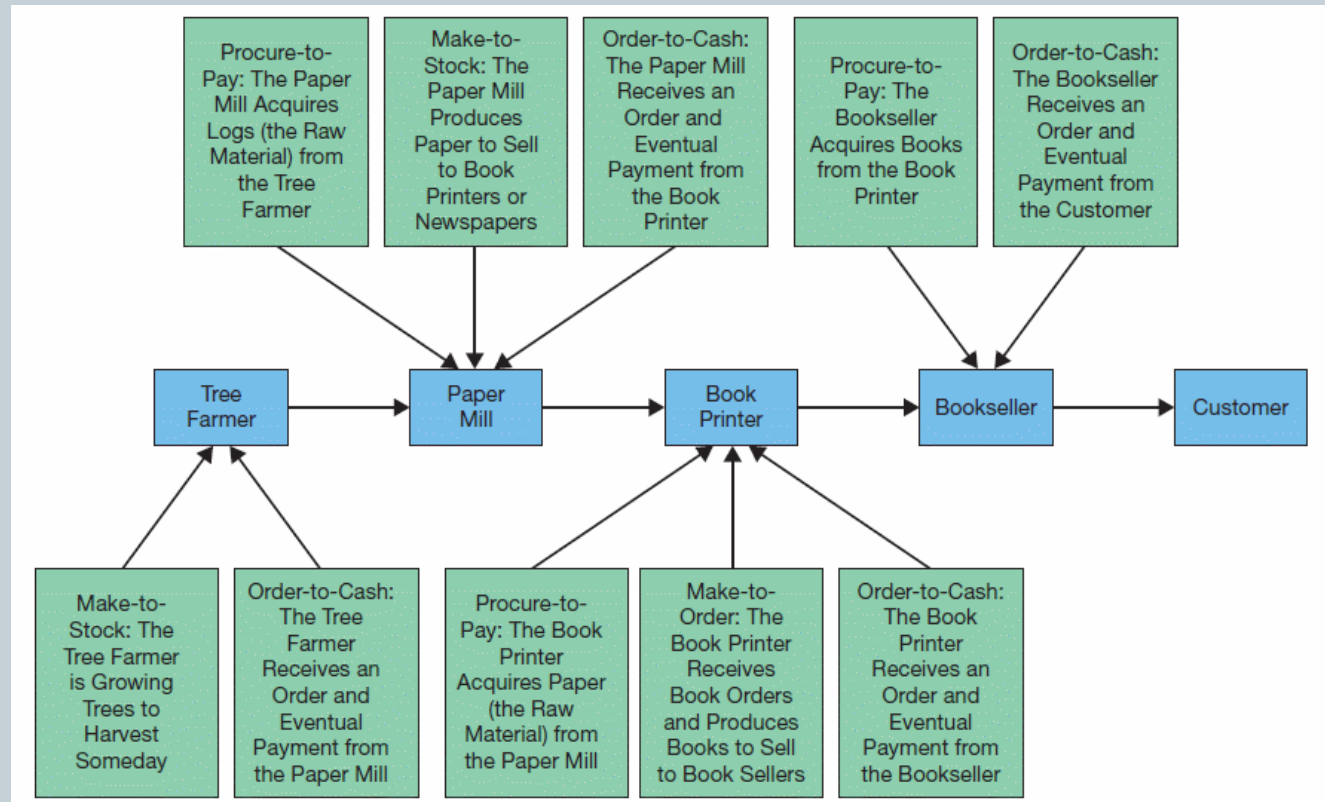
- The processes associated with producing goods



# Supply Chain

7-8

- Core business processes enable the creation of supply chains.
- Resembles a river
  - Start at source
  - Move downstream





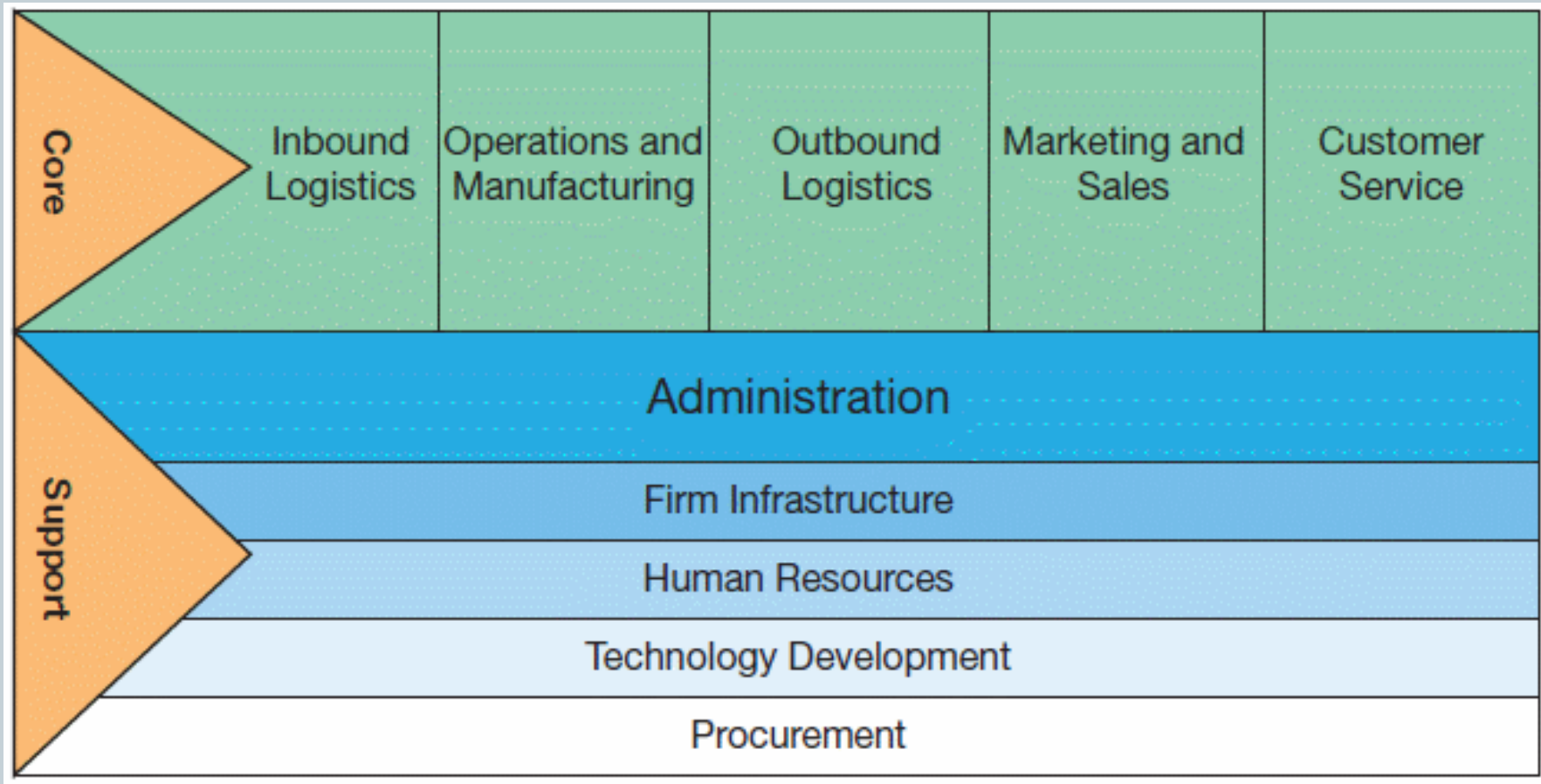
# Value Chain

7-9

- **Value Chain**—The set of business activities that add value to the end product.
- **Information flows through a set of business activities.**
  - **Core activities**—functional areas that process inputs and produce outputs.
  - **Support activities**—enable core activities to take place.

# Value Chain Framework

7-10



# Core Activities

7-11

- **Inbound logistics activities**
  - Receiving and stocking raw materials, parts, and products
  - Amazon.com—receipt of books, e-book readers, other products, packaging materials, shipping labels
- **Operations and manufacturing activities**
  - Order processing and/or manufacturing of end products
  - Dell—component parts assembled to make products
- **Outbound logistics activities**
  - Distribution of end products
  - Amazon.com—delivery of books to customers

# Core Activities (cont'd)

7-12

- **Marketing and Sales activities**
  - Presale marketing activities (e.g., creating marketing literature)
  - United—use of IS to update prices and schedules
- **Customer service activities**
  - Post-sale activities
  - Amazon.com—customers can view their order status or can view and print invoices of current and past orders

# Support Activities

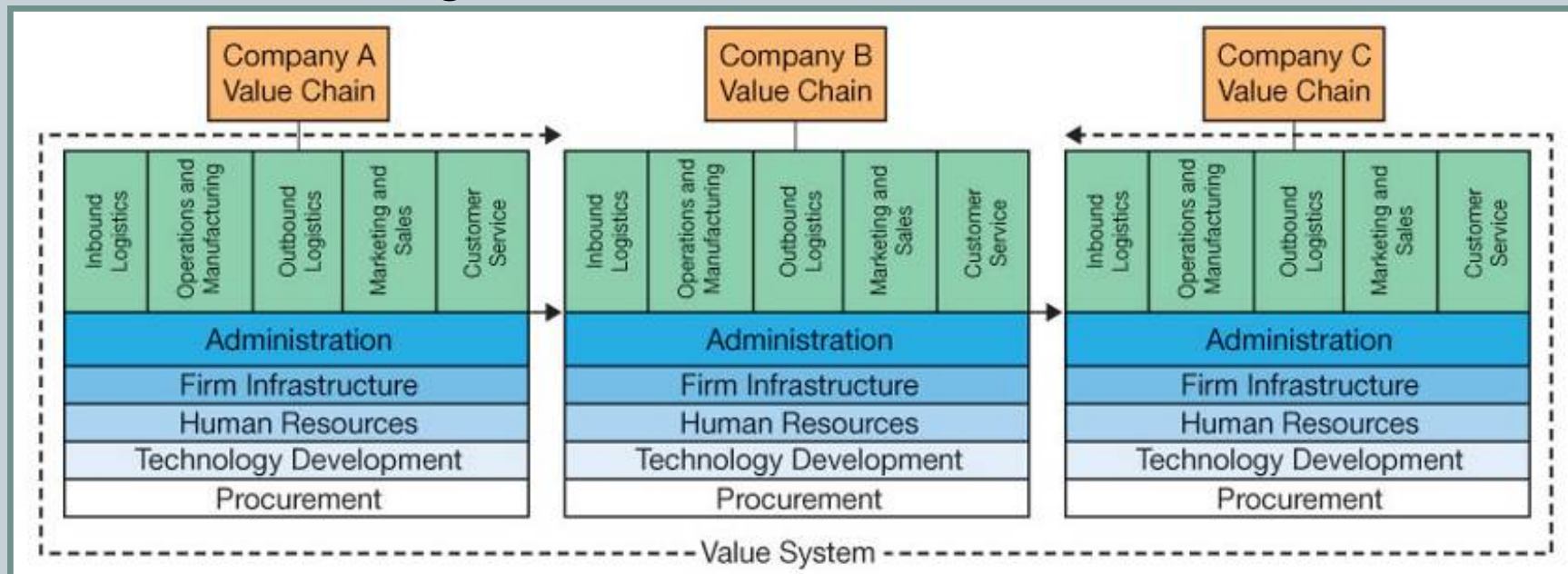
7-13

- **Administrative activities**
  - ✦ Support of day-to-day operations (for all functional areas)
- **Infrastructure activities**
  - ✦ Implement hardware and software needed
- **Human resource activities**
  - ✦ Employee management (interviews, hiring, payroll, benefits)
- **Technology development activities**
  - ✦ Design and development of applications to support the primary activities
- **Procurement activities**
  - ✦ Purchasing of goods and services (inputs into the primary activities)

# Externally Focused Applications—Value System


7-14

- Coordination of organizational value chains
- Information Flows in a Value System
  - Upstream information flow—information received from another company
  - Downstream information flow—information produced by a company and sent to another organization



# Learning Objectives

7-15

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  - 2.** Describe what enterprise systems are and how they have evolved.
  - 3.** Describe enterprise resource planning systems and how they help to improve internal business processes.
  - 4.** Understand and utilize the keys to successfully implementing enterprise systems.

# The Rise of Enterprise Systems

7-16

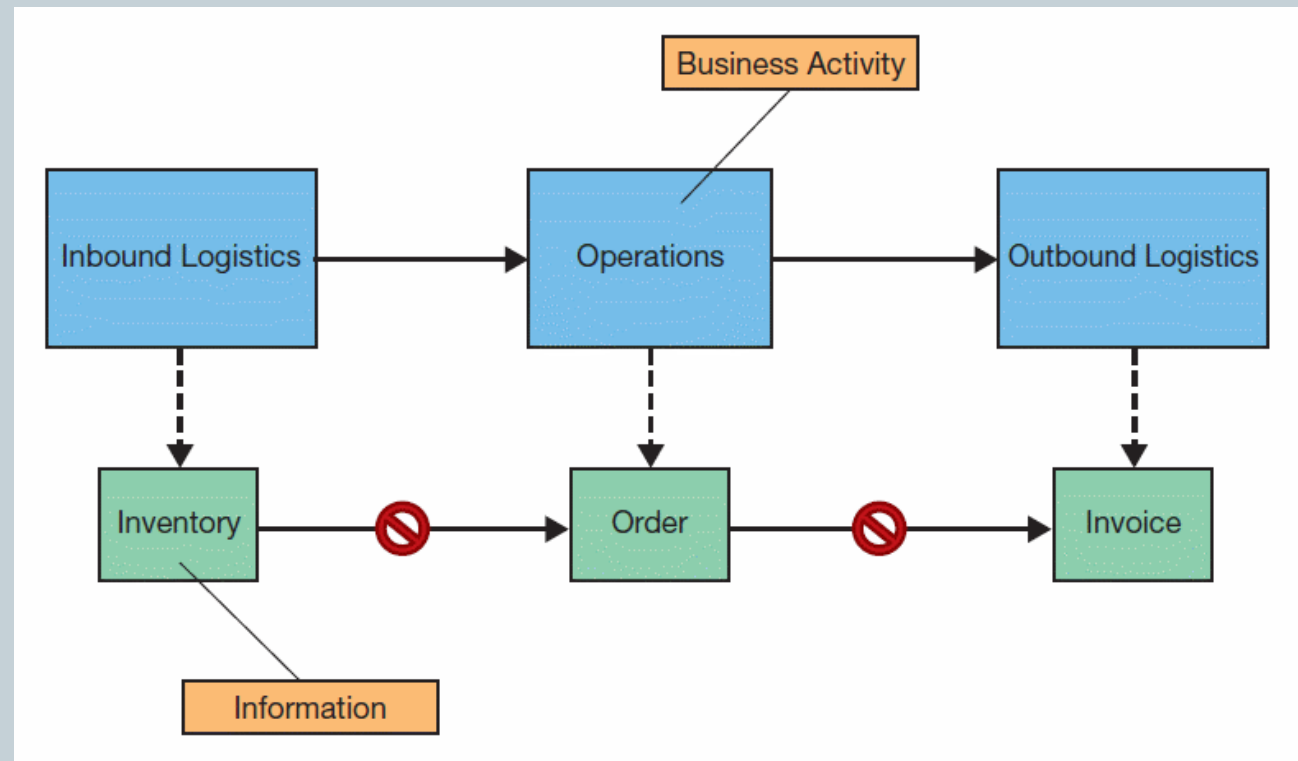
- **Stand-alone applications**
  - Not designed to communicate with other system
  - Variety of computing hardware platforms
  - Enable departments to conduct daily business activities
  - Not helpful for other areas in the firm
- **Proprietary systems**
  - From vendors
  - Not designed to share with other vendors' systems
  - Problem of knitting together (hodgepodge portfolio of discordant proprietary applications)
  - Lack of integration



# Legacy Systems

7-17

- Each department has its own system.
- Infrastructure specific
- Inefficient processes
- Potential for inaccuracies
- Too many “rocks in the river”

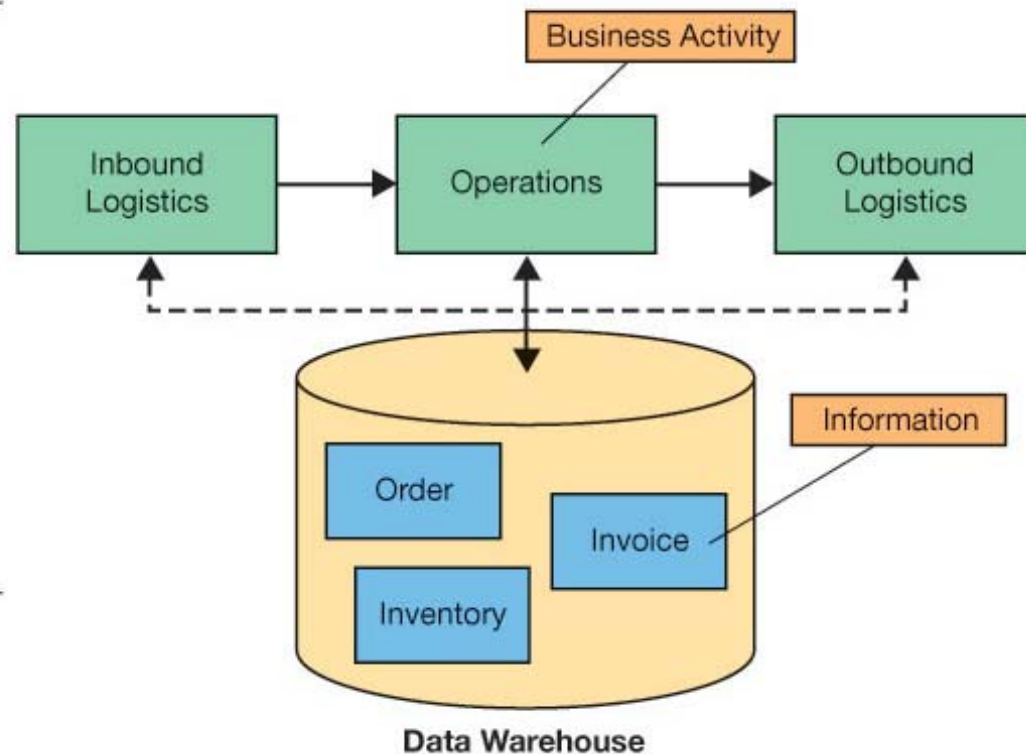


# Enterprise System Approach

7-18

- Integrated suite of business applications for virtually every department, process, and industry

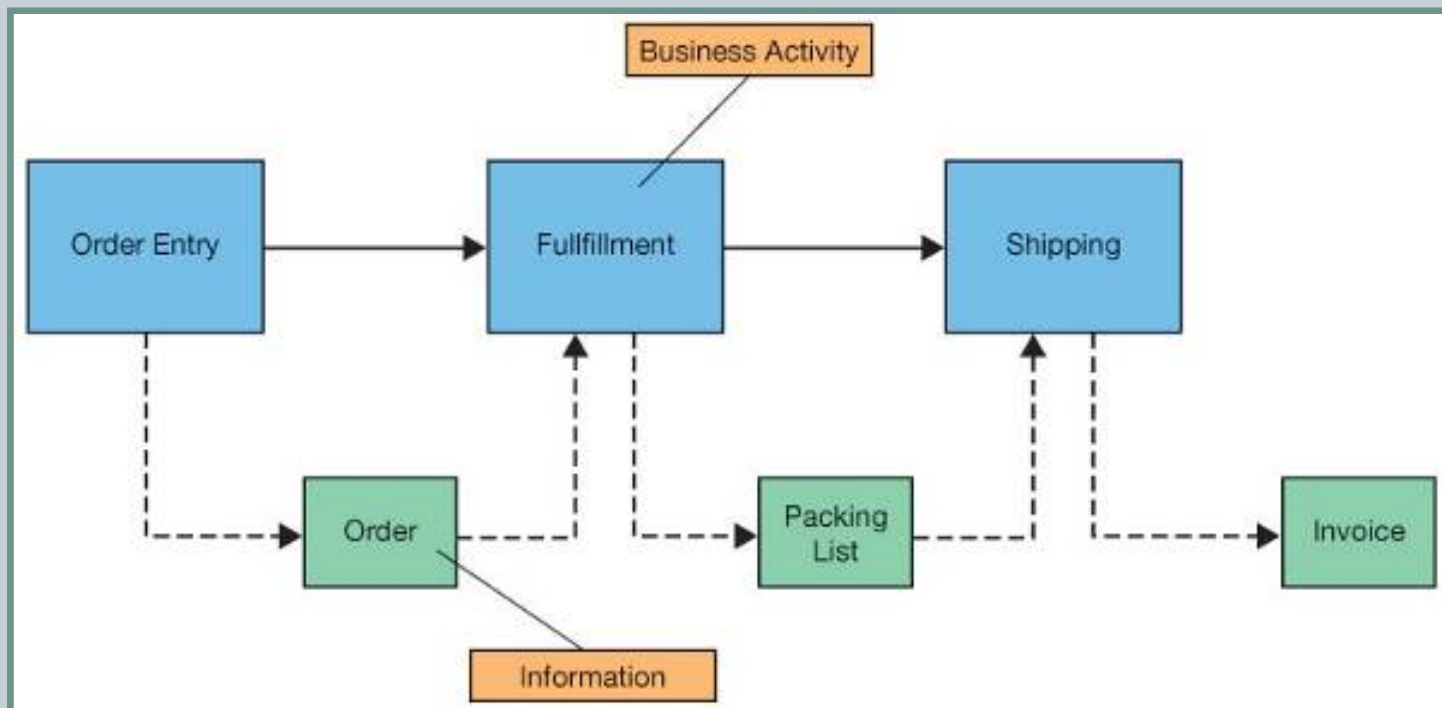
**Enterprise systems approach:**  
Consolidated information storage for different business activities.



# Supporting Business Processes

7-19

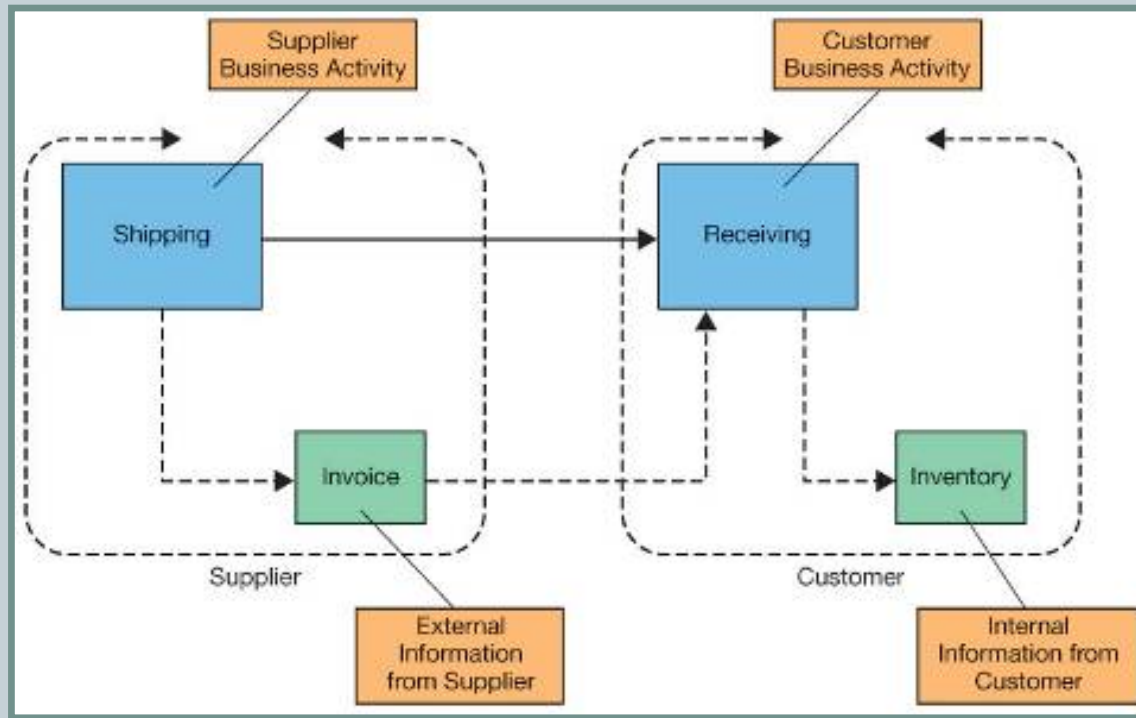
- Internally focused systems
  - Support functional areas, business processes, and decision making within an organization
  - New information (value) is added at every step.



# Supporting Business Processes

7-20

- **Externally focused systems (interorganizational systems)**
  - Coordinate business activities with customers, suppliers, business partners, and others who operate outside the organization
  - Streamline the flow of information between companies



# The Need for Integrated Enterprise Systems

7-21

- **Advantages of integrated systems**
  - Centralized point of access
    - ✦ Conversion of information from legacy systems needed
- **Enterprise Resource Planning (ERP) vendors offer different modules.**
  - Components that can be selectively implemented
  - Example: Modules of mySAP business suite

SAP customer relationship management

SAP enterprise resource planning

SAP product life cycle management

SAP supplier relationship management

SAP supply chain management

# Improving Business Processes Through Enterprise Systems

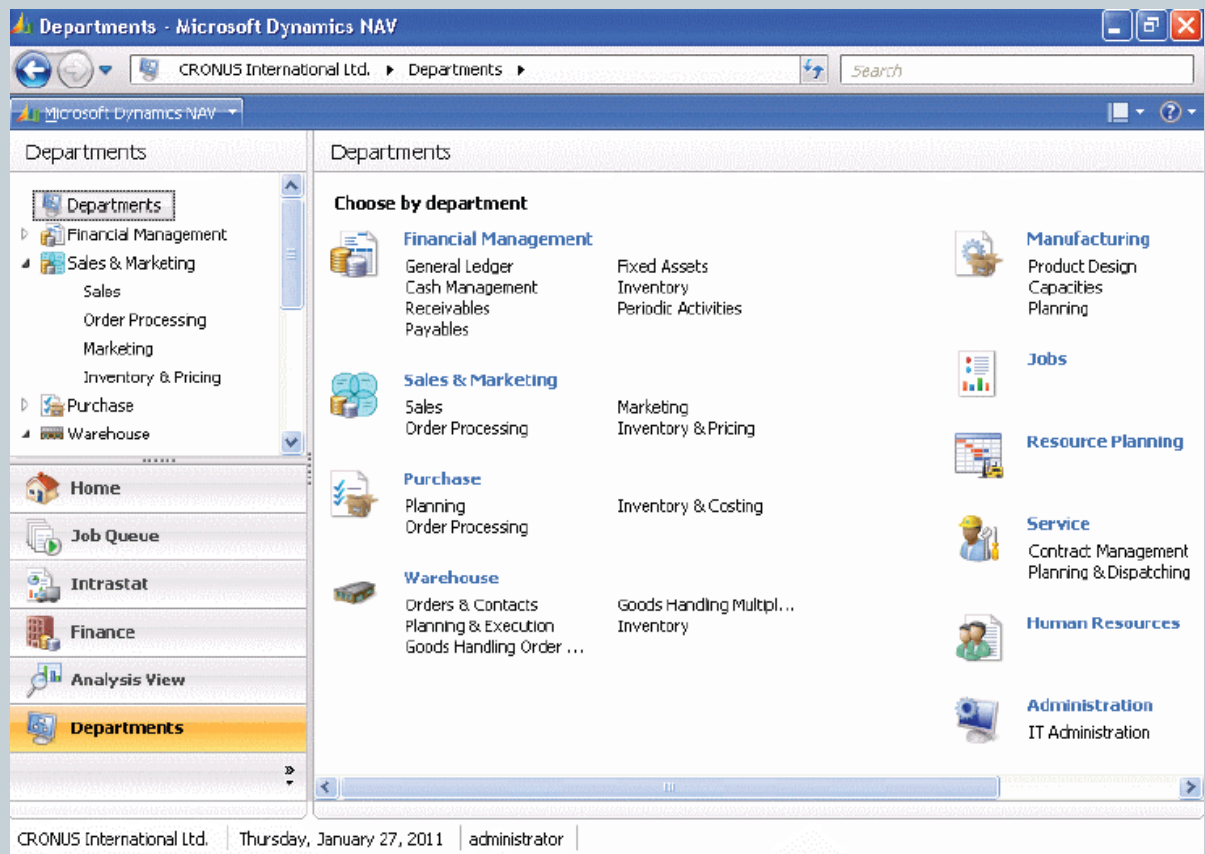
7-22

- **Packaged software**
  - Written by third-party vendors
  - Used by many different organizations
  - Useful for standardized, repetitive tasks
  - Cost effective
  - Example: Microsoft Office
- **Custom software**
  - Developed exclusively for a specific organization
  - Designed for particular business needs
  - Higher development costs

# Modules of Enterprise Systems

7-23

- Each module in an enterprise system replaces a stand-alone legacy system.



# Vanilla Versus Customized Software

7-24

- **Vanilla version**
  - This version contains features and modules that an enterprise system comes with out of the box.
  - Certain processes might not be supported.
- **Customization**
  - This version contains additional software or changes to vanilla version.
  - It always needs to be updated with new versions of vanilla.



# Capabilities of SAP's ERP System

7-25

| Capability               | Explanation  |
|--------------------------|--|
| Financials               | Allows organizations to manage corporate finance functions by automating financial supply chain management, financial accounting, and management accounting  |
| Human capital management | Gives organizations the tools needed to maximize the profitability potential of the workforce, with functionality for employee transaction management and employee life cycle management   |
| Operations               | Empowers organizations to streamline operations with integrated functionality for managing end-to-end logistics processes while expanding collaborative capabilities in supply chain management, product life cycle management, and supplier relationship management |
| Corporate services       | Allows organizations to optimize centralized and decentralized services for managing real estate, corporate travel, and incentives and commissions   |

# Best Practices-Based Software

7-26

- **Most ERP vendors build best practices into their ERP systems.**
  - Identify business processes in need of change
  - Future updates are smoother if businesses change their business processes to fit with ERP systems.
- **Is following the best practices always the best strategy?**
  - If companies have competitive advantage from unique business processes, forcing best practices may actually hurt.

# Business Process Management (BPM)

7-27

- **Systematic and structured improvement approach**
  - All or part of organization is involved.
  - Rethinking and redesign of business processes
- **Became popular in 1990s**
- **IS seen as key enabler for radical change**
- **Processes intended to be cross-functional**
- **Various related terms:**

Business activity modeling

Business activity monitoring

Business architecture modernization

Business process improvement

Business process redesign

Business process reengineering

Functional process improvement

Work flow management

# BPM Steps

7-28

1. Develop a vision for the organization (specify business objectives).
2. Identify critical processes that are to be redesigned.
3. Understand and measure existing processes as a baseline.
4. Identify ways IS can be used for improvement.
5. Design and implement a prototype of the new processes.

# Conditions Leading to a Successful BPM

7-29

- Support by senior management
- Shared vision by all organizational members
- Realistic expectations
- Participants empowered to make changes
- The right people participating
- Sound management practices
- Appropriate funding

# Learning Objectives

7-30



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# Enterprise Resource Planning (ERP) Systems

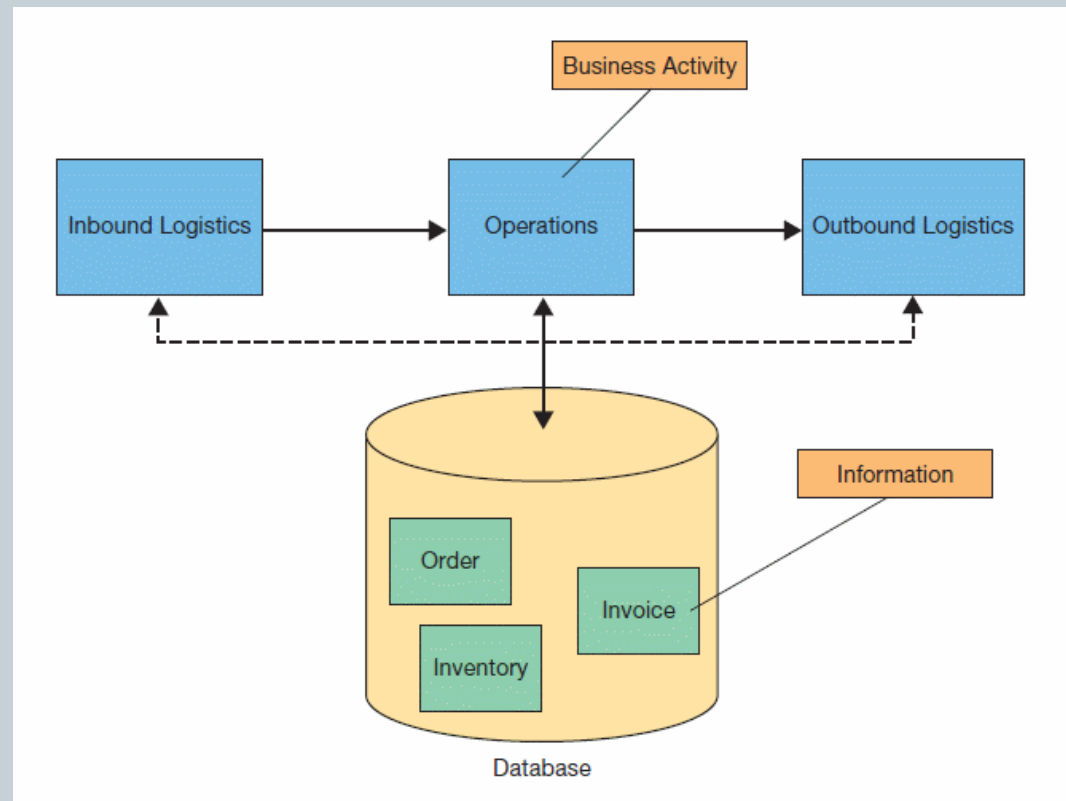
7-31

- Enterprise Resource Planning—Applications that integrate business activities across departmental boundaries.
- ERP evolved during the 1990s from material/manufacturing requirements planning packages.
- Emphasis has since shifted from “resources” and “planning” to “enterprise.”
- Integrate legacy information on a company-wide basis

# Integrating Data to Integrate Applications

7-32

- Central information repository
  - ERP replaces stand-alone applications
  - Modules based on
    - ✦ Common database
    - ✦ Similar application interfaces

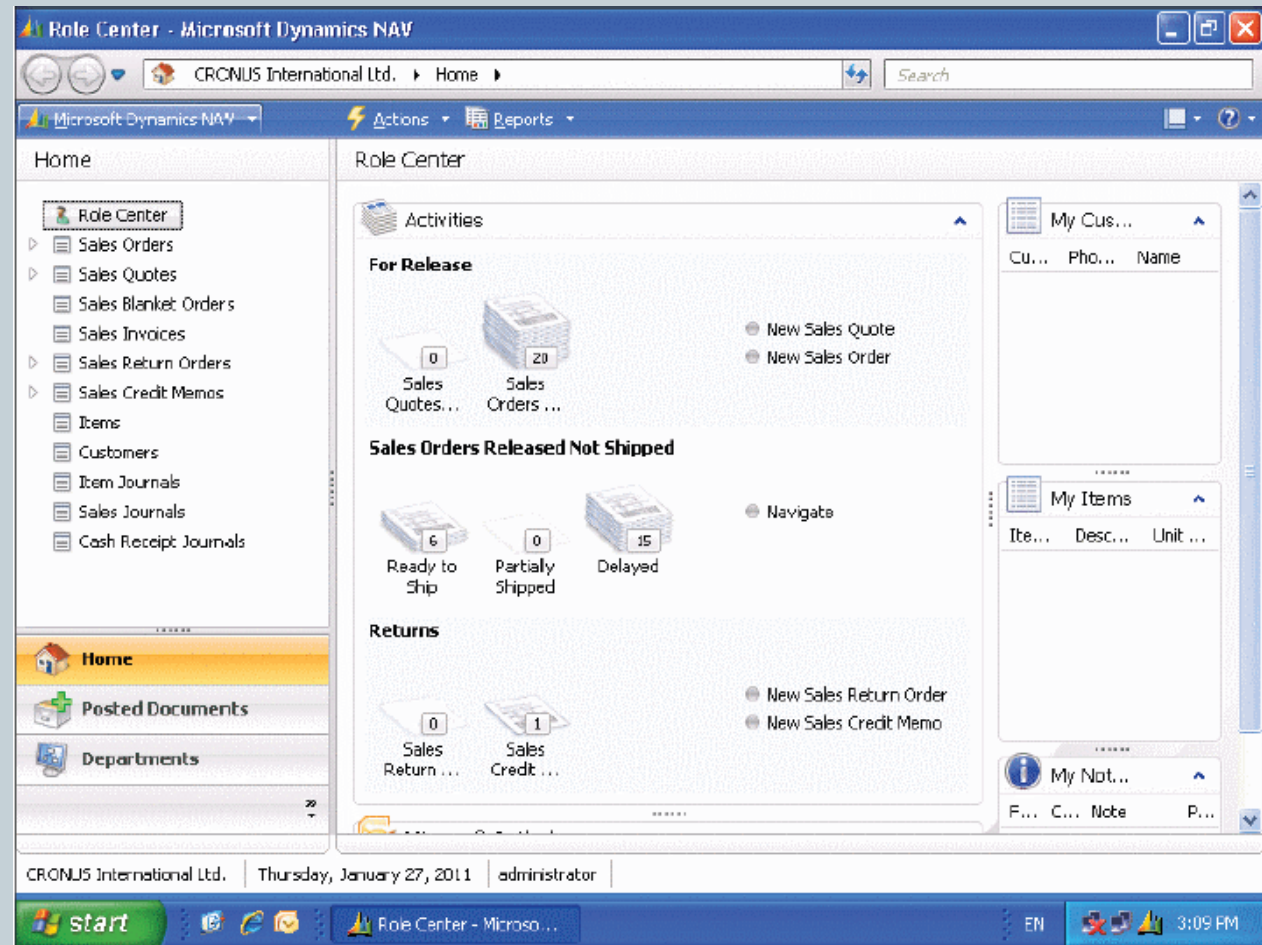




# Example ERP Screen

7-33

- An ERP system can provide employees with relevant, up-to-date information.



# Factors for Choosing an ERP System

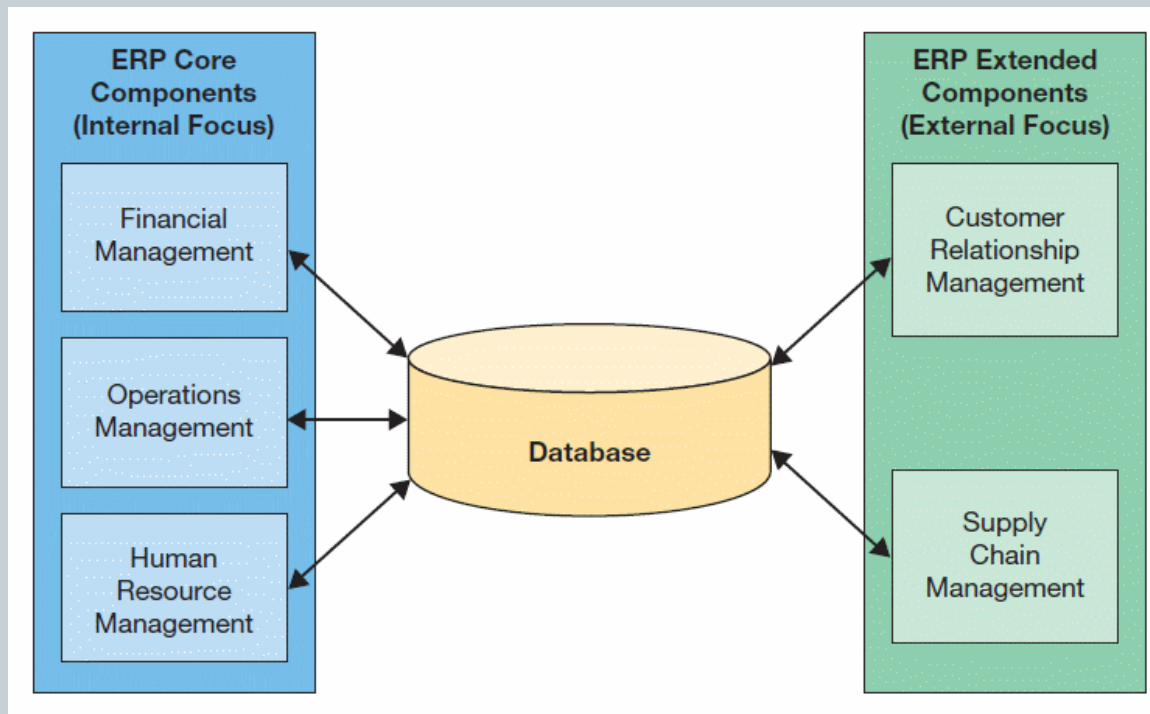
7-34

- **ERP Control**
  - Centralized control vs. control within specific business units
  - Level of detail provided to management
  - Consistency of policies and procedures
- **ERP Business requirements**
  - Selection of modules
  - Core and extended components

# Core and Extended ERP Components

7-35

- Core components—support primary internal activities.
- Extended components—support primary external activities.



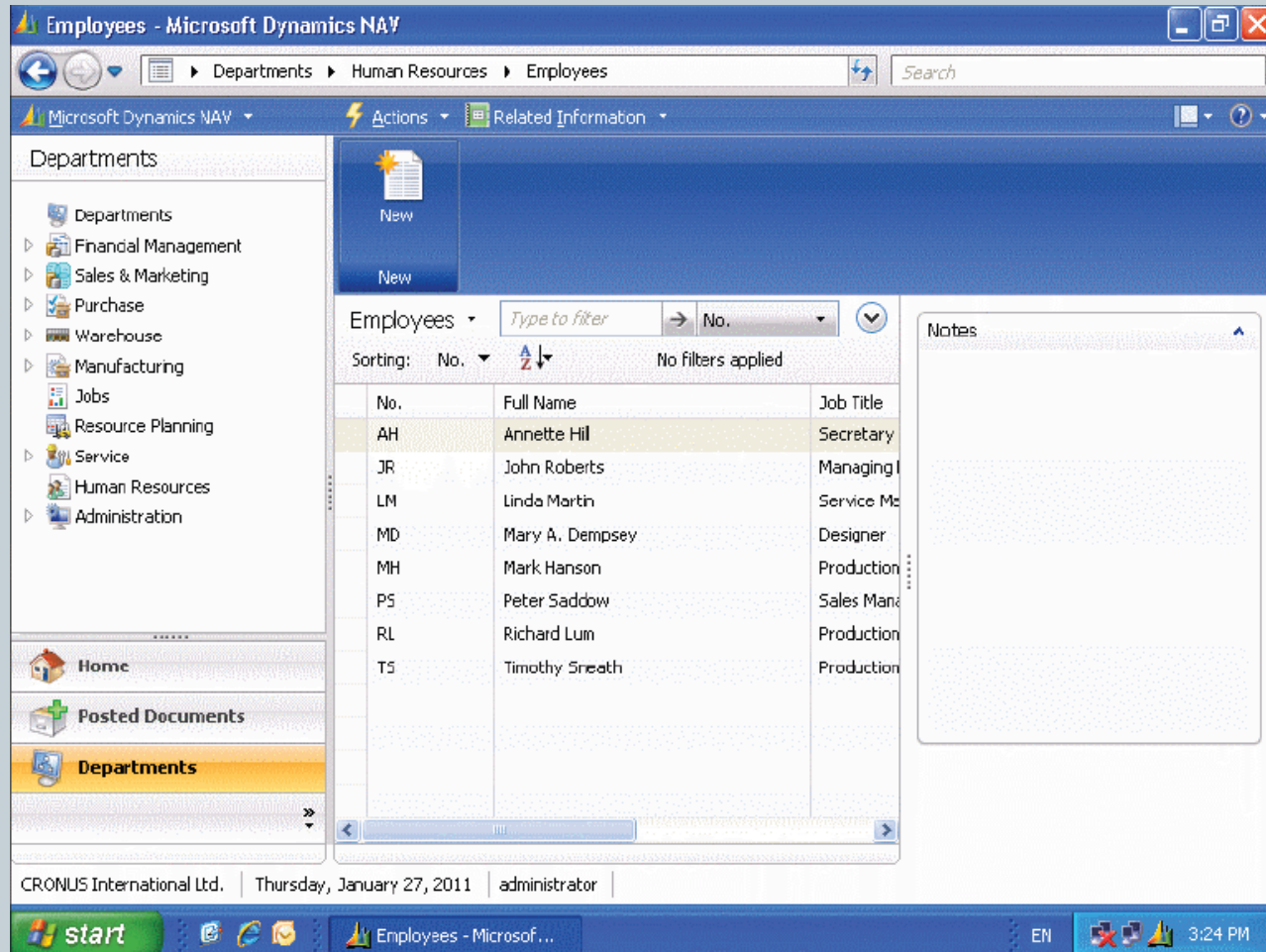
# ERP Core Components

7-36

- **Financial Management**
  - accounting, financial reporting, performance management, corporate governance
- **Operations Management**
  - simplify, standardize, and automate business processes for inbound/outbound logistics, product development, manufacturing, sales and service
- **Human Resource Management**
  - employee recruitment, assignment tracking, performance reviews, payroll, regulatory requirements

# Human Resources Management

7-37



The screenshot shows the Microsoft Dynamics NAV interface for the 'Employees' table. The breadcrumb navigation is 'Departments > Human Resources > Employees'. The left-hand navigation pane shows a tree view of departments, with 'Human Resources' selected. The main area displays a list of employees with columns for 'No.', 'Full Name', and 'Job Title'. A 'Notes' pane is visible on the right side of the list.

| No. | Full Name       | Job Title  |
|-----|-----------------|------------|
| AH  | Annette Hill    | Secretary  |
| JR  | John Roberts    | Managing I |
| LM  | Linda Martin    | Service Me |
| MD  | Mary A. Dempsey | Designer   |
| MH  | Mark Hanson     | Production |
| PS  | Peter Saddow    | Sales Man  |
| RL  | Richard Lum     | Production |
| TS  | Timothy Sreath  | Production |

CRONUS International Ltd. | Thursday, January 27, 2011 | administrator |

# Order-to-Cash

7-38

The screenshot displays the Microsoft Dynamics NAV interface for 'Shipped Not Invoiced' sales orders. The main window shows a list of sales orders with columns for 'No.', 'Sell-to Cust...', and 'Sell-to Customer Name'. Two orders are visible: 101005 (Customer 30000, John Haddock Insurance Co.) and 101016 (Customer 10000, The Cannon Group PLC). To the right, the 'Customer Statistics' pane shows financial data for Customer No. 30000, including a balance of 349,615.40 and sales YTD of 6,142.90. The 'Customer Details' pane shows contact information for John Haddock.

| No.    | Sell-to Cust... | Sell-to Customer Name      |
|--------|-----------------|----------------------------|
| 101005 | 30000           | John Haddock Insurance Co. |
| 101016 | 10000           | The Cannon Group PLC       |

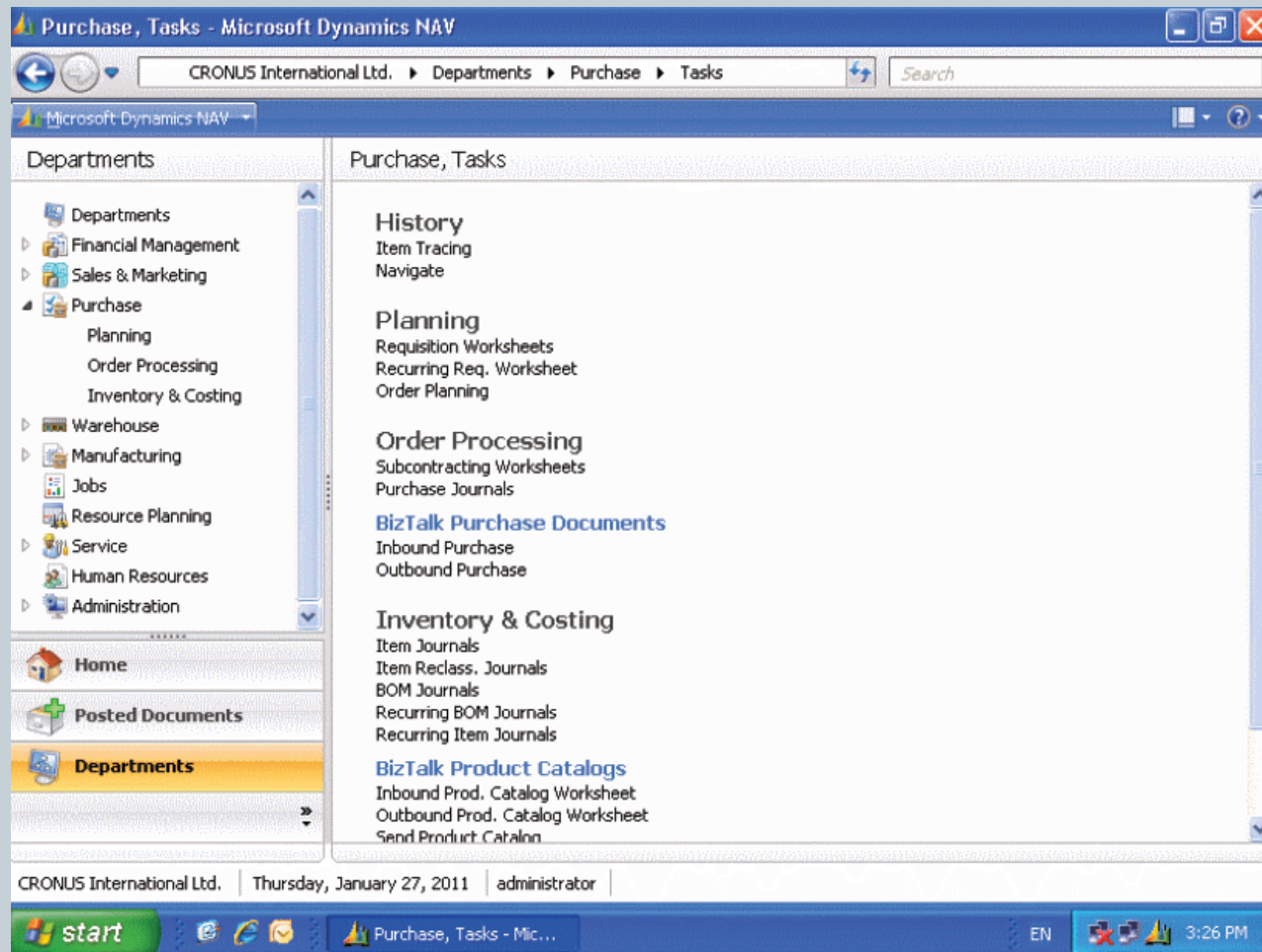
| Customer Statistics - ... |            |
|---------------------------|------------|
| Customer No.:             | 30000      |
| Balance (LCY):            | 349,615.40 |
| Outstanding O...:         | 9,502.16   |
| Shipped Not In...:        | 1,996.90   |
| Outstanding S...:         | 10.65      |
| Shipped Not In...:        | 1,996.90   |
| Outstanding In...:        | 0.00       |
| Total (LCY):              | 361,114.46 |
| Credit Limit (LC...):     | 0.00       |
| Overdue Amou...:          | 110,020.08 |
| Sales YTD (LCY):          | 6,142.90   |

| Customer Details      |                 |
|-----------------------|-----------------|
| Customer No.:         | 30000           |
| Phone No.:            |                 |
| E-Mail:               | john.haddock... |
| Fax No.:              |                 |
| Credit Limit (LC...): | 0.00            |
| Payment Term...:      | CM              |



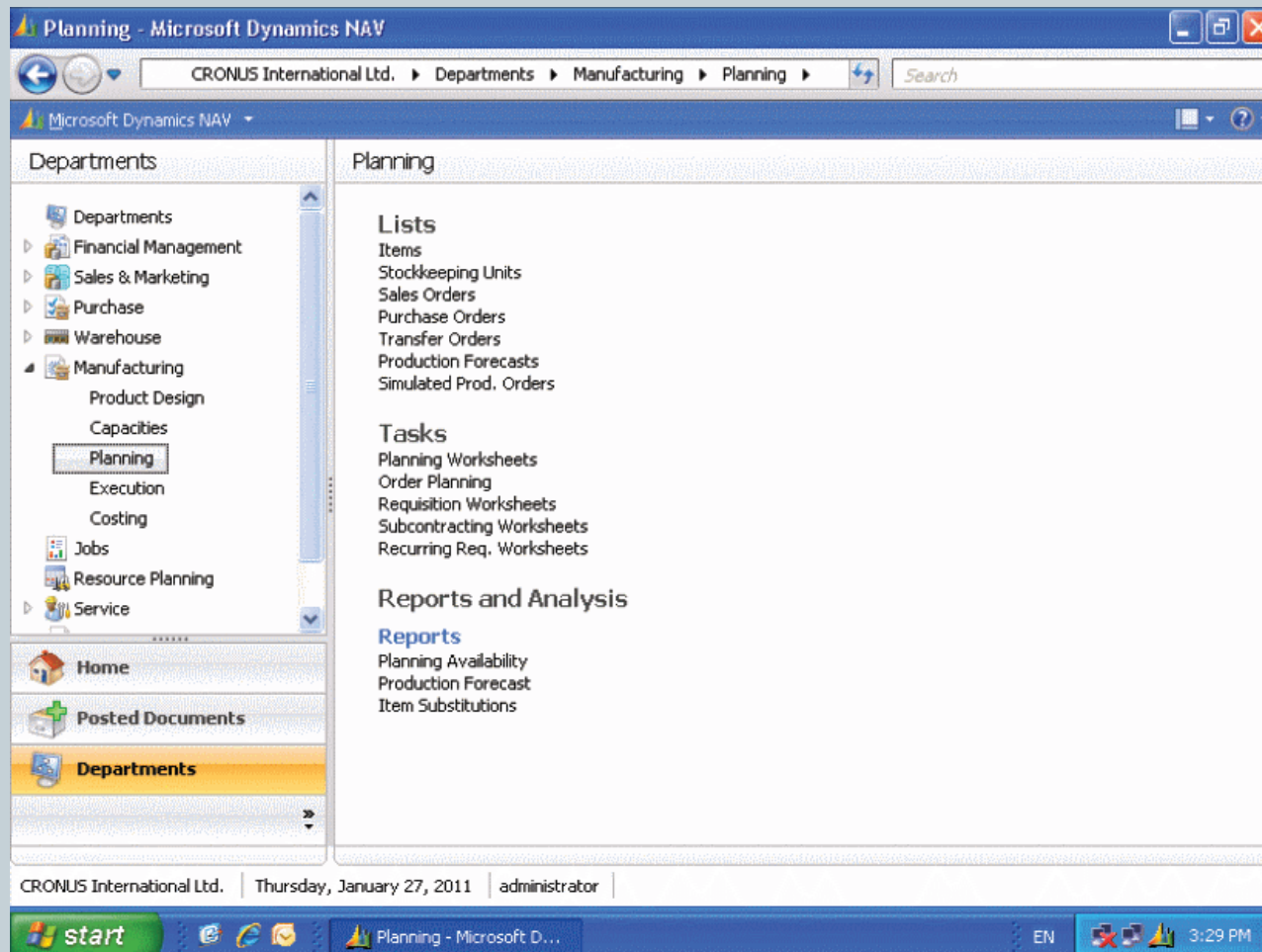
# Procure-to-Pay

7-39



# Production

7-40





# ERP Installation

7-41

- Configuration of the ERP systems is performed during any ERP implementation.
- System must be configured to reflect business processes and associated business rules.
- Organizations have to make countless decisions on how to configure thousands of database tables to fit the business's needs.
- Organizations hire experienced business analysts or outside consultants to assist with implementation.


# ERP Limitations

7-42

- ERP falls short in communicating across organizational boundaries.
- They tend to be not well suited for managing value system activities.
- Other systems can work with ERP to provide these capabilities.

# Learning Objectives

7-43

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# The Formula for Enterprise System Success

7-44

1. **Secure executive sponsorship .**
  - Most failures are due to lack of top-level management support.
2. **Get help from outside experts.**
  - Consultants are specifically trained.
  - Implementation tends to happen faster.
3. **Thoroughly train users.**
  - Training is the most overlooked, underestimated, and poorly budgeted expense.
  - Training can prevent dissatisfaction.
4. **Take a multidisciplinary approach to implementations.**
  - Include end users from all functional areas in the implementation.
5. **Initiate evolving the ERP Architecture.**

# Evolving the ERP Architecture

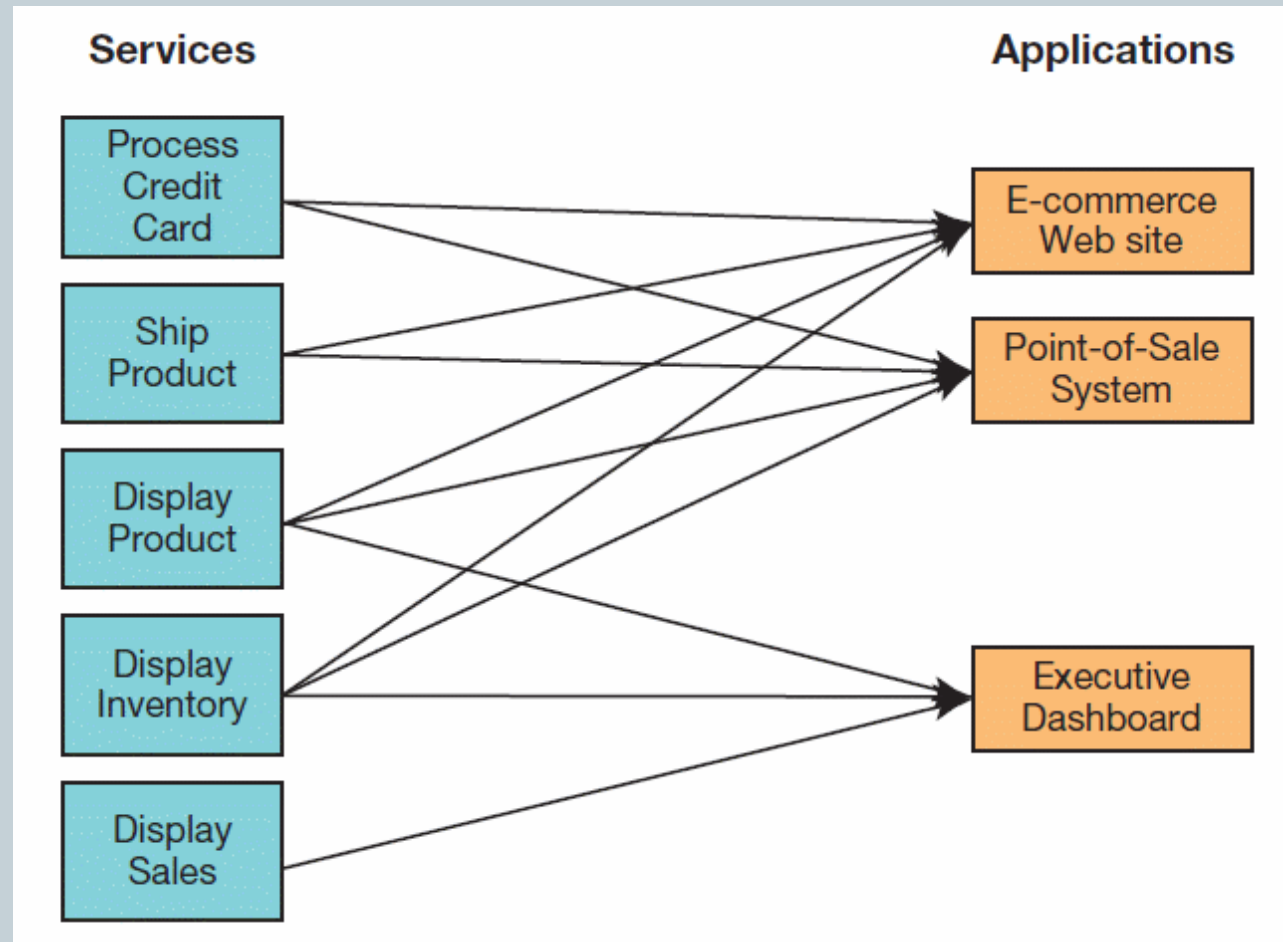
7-45

- ERP systems are difficult to install, maintain, and upgrade.
- Service-oriented architecture (SOA)
  - Business processes are broken down into services.
  - Services are designed to achieve desired results for service consumer.
    - ✦ Example: Oil change
  - SOA approach enables businesses to react more swiftly to changing needs.
- Three principles of services
  - Reusability
  - Interoperability
  - Componentization
- ERP vendors are offering products for transitioning to SOA.

# Service-Oriented Architecture (SOA)

7-46

Multiple applications can access multiple services.



# End of Chapter Content

7-47

# Managing in the Digital World: Amazon.com

7-48

- 2009 sales topped \$24 billion, with 836 million users
- Innovations leading to satisfaction
- Excellent at managing entire supply chain
  - Both acquiring the right products at the right time and shipping the products to the customers are crucial.
  - Amazon has 12 North American and 7 international fulfillment centers
  - Amazon.com manages fulfillment for Target.com as well as other businesses.
  - Independent retailers can use Amazon.com's supply chain infrastructure on an as-needed basis.





## Complexity of Modern Manufacturing: Toyota Automobiles

7-49

- **Complexity of modern manufacturing**
  - Automobiles are sophisticated and complex (GPS, Internet, entertainment, fuel injection, safety, ABS)
  - Toyota Prius ABS software bug (2009–2010) recalled 40,000 cars
  - Use of IS for supply chain management is vital for building modern automobiles
  - Complexity is likely to grow over time



## ETHICAL DILEMMA

# Too Much Intelligence? RFID and Privacy

7-50

- Radio frequency identification (RFID) tags are the latest in technological tracking devices .
- Privacy advocates are concerned about misuse.
- Someone with an RFID reader can possibly identify where you bought the product and how much you paid for it.
- The state of Washington passed a law in 2009 that prohibits anyone from scanning an RFID tag, except the business owner or agency who issued the tag.



NET STATS

## The Changing Value of Social Media in the Workplace

7-51

- Facebook, LinkedIn, and Twitter are increasingly used for connecting, sharing, and collaborating with customers and suppliers.
- Major trends:
  - Social media is increasingly being used for improving decision making.
  - Social media goes beyond networking (intelligence, service).
  - Best practices communities are emerging, easing the search for key human resources.
  - Personnel are attracted to organizations that embrace social media.
  - Personnel place strong value on organizations demonstrating transparency and responsiveness to social media.



COMING ATTRACTIONS

# Power of the Swarm

7-52

- **Swarm intelligence**
  - Ants, bees, termites, and wasps have powerful collective problem-solving skills.
  - Ants use pheromone trails to mark routes; more ants means stronger pheromones leading to more use of a route.
  - AI systems can use swarm intelligence techniques for
    - ✦ Military surveillance and monitoring
    - ✦ Health
    - ✦ Micro-manufacturing
    - ✦ Space exploration
  - Self-replicating agents/robots



## POWERFUL PARTNERSHIPS

SAP—Dietmar Hopp, Hans-Werner Hector, Hasso Plattner, Klaus Tschira, and Claus Wellenreuther

7-53

- Former IBM employees
- 80's—multiple international subsidiaries
- Largest software company
  - 39,300 people
  - Third largest in terms of revenue
- Includes:
  - ERP
  - CRM
  - PLM
  - SCM
  - SRM





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