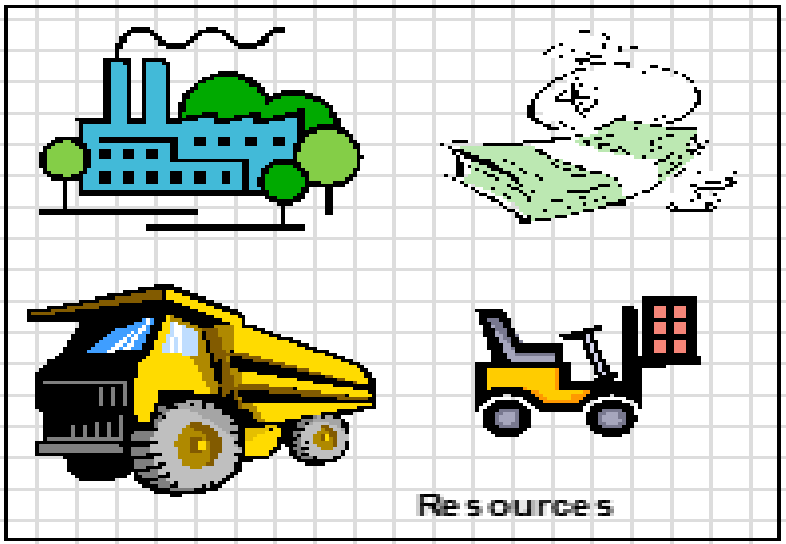
Chapter One - Contents

- An Overview of Enterprise & Traditional Organization
- Business Function
- Business Process
  - Integrating Business Functions and Business Processes
- Enterprise System Basics
  - Key Characteristics of ES
  - Challenges
  - Advantages & Disadvantages
- Enterprise Application Integration [EAI]

What is an Enterprise?

- An enterprise is a group of people with a common goal, which has certain resources (people, money, energy, materials, space, time) at its disposal to achieve this goal.
- Examples: IBM, Ford, Tata Motors, Accenture, Microsoft, Indian Railways, Ramu's Teashop, etc.
- The enterprise acts as a single entity.
- The resources are considered the inputs, and the attainment of the goals the output of the process.
- The degree of success of the enterprise is often measured by the ratio between the outputs and inputs. This ratio is called productivity.

Enterprise

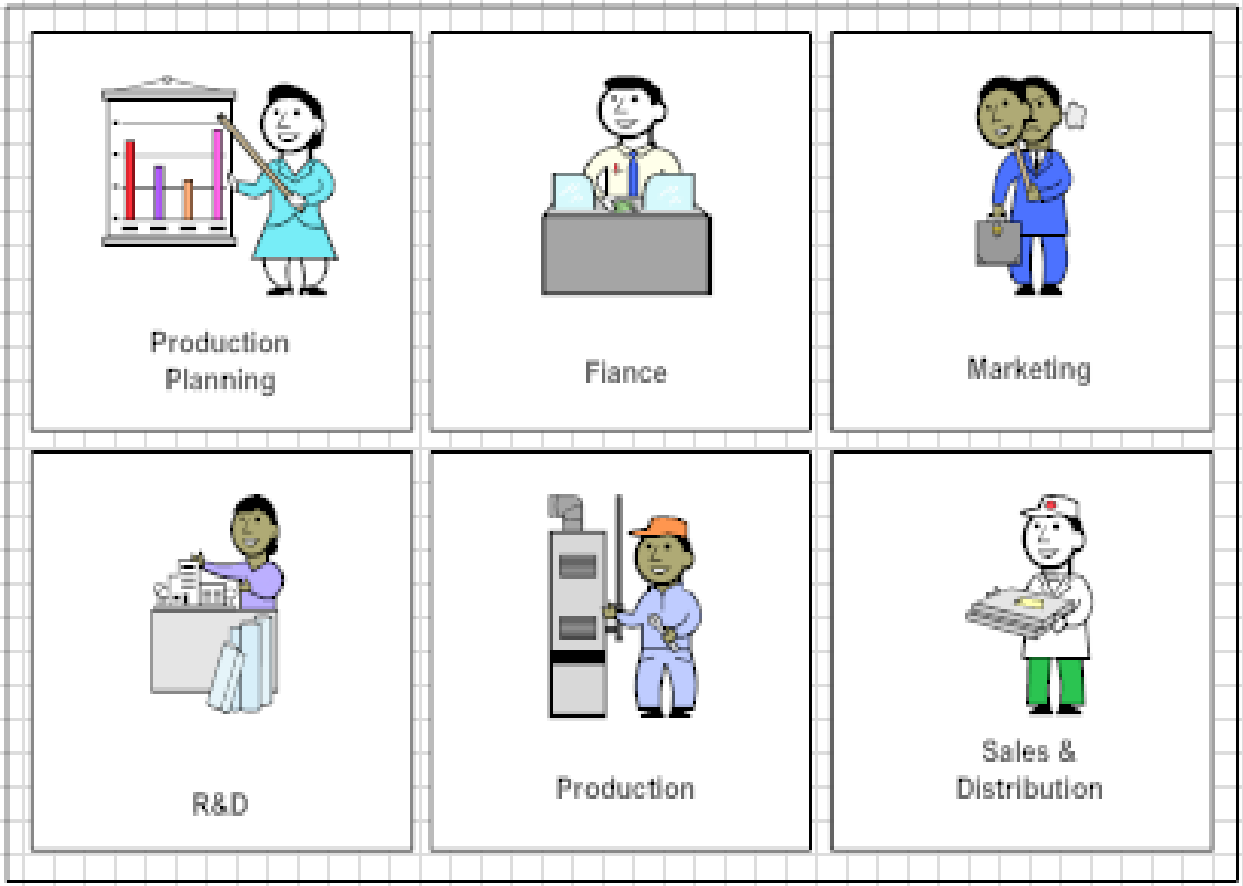


The Enterprise

Traditional Organization

- The organization is divided into different units based on the functions they perform— finance, manufacturing, production planning, purchasing, sales and distribution, R&D, HR, etc.
- The various departments have their own goals.
- The different departments function in isolation and have their own data collection & analysis systems.
- The result is that, instead of taking the organization towards the common goal the various departments end up pulling it in different directions as one department does not know what the other does and for what purpose.
- So unless all the departments know what the others are doing and for what purpose, the inter-departmental conflicts will arise thus disrupting the normal functioning of the organization.
- The solution is to have a centralized information storage and management facility.

Traditional Organization

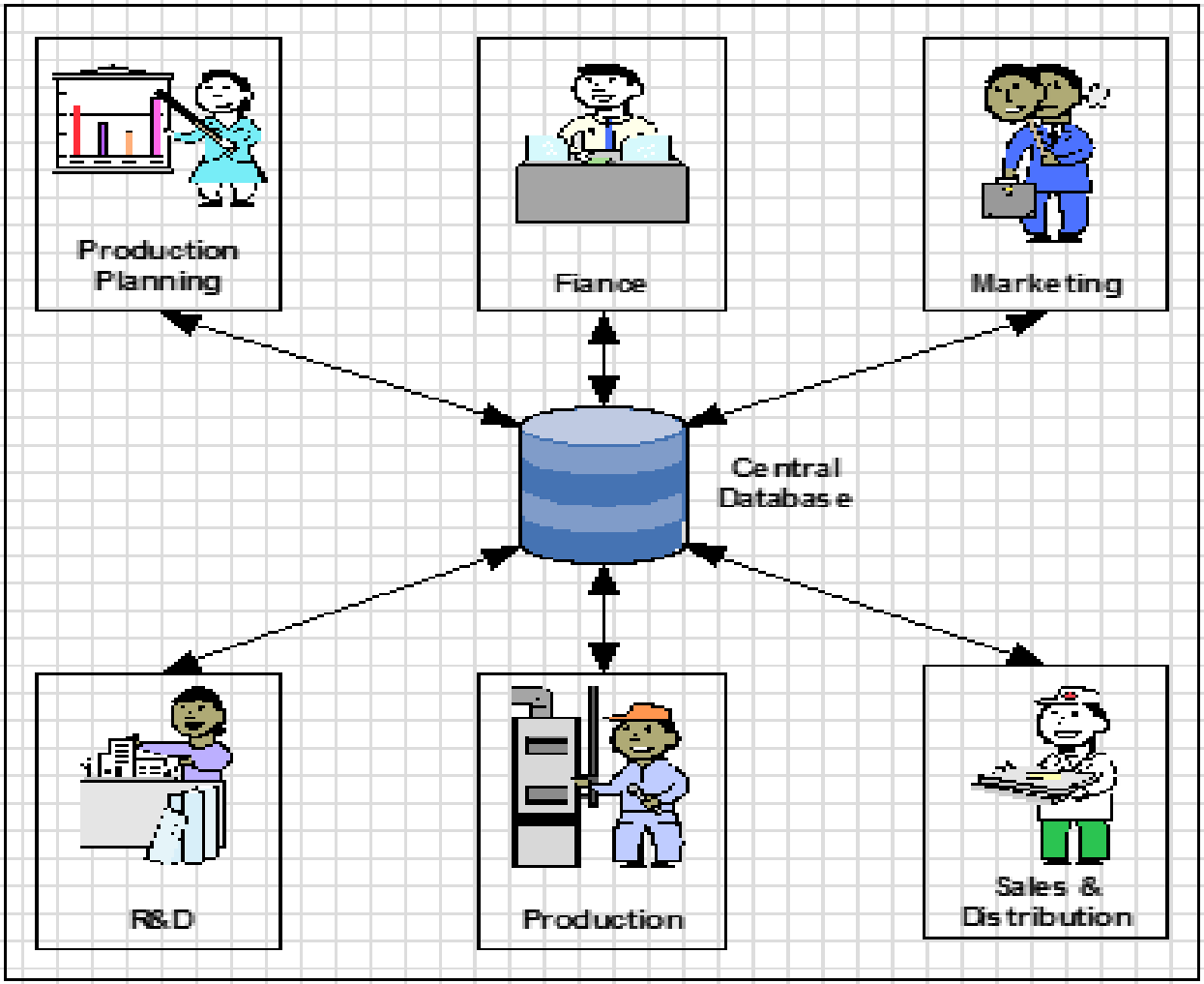


Organization where there is no or little Communication between Departments

Enterprise Way…

- In the enterprise way, the entire organization is considered as a single system.
- Information about all the aspects of the organization is stored centrally and is available to all departments, thus avoiding conflicts.
- ERP systems help to make this task easier by integrating the information systems, enabling smooth and seamless flow of information across departmental barriers, and automating business process and functions.
- ERP systems help the organization to work and move forward as a single entity.

Enterprise Way…

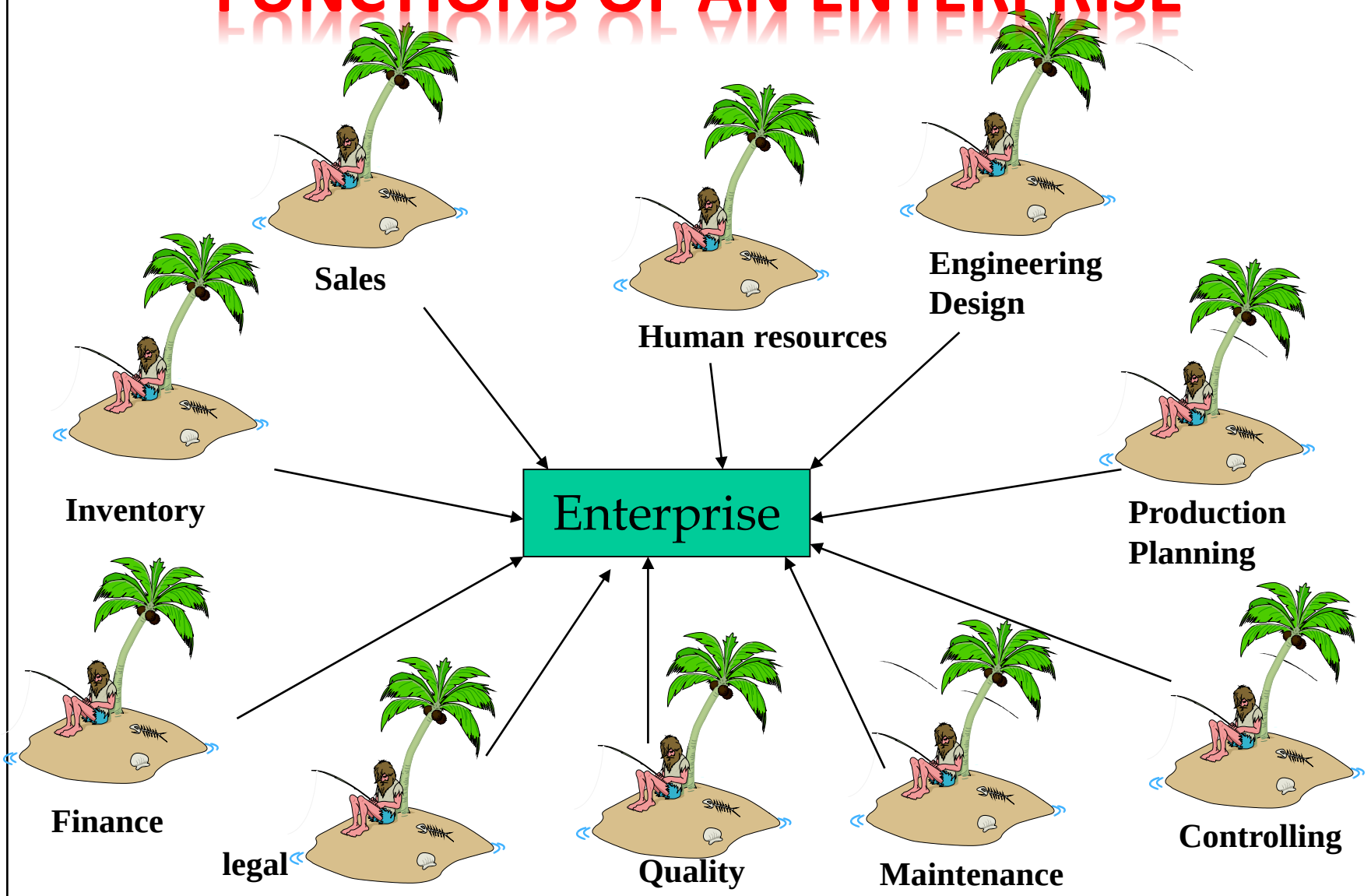


An Enterprise where all Departments Know what others are Doing

Business Function…

- Organizations that make products to sell have the following functional areas of operation—purchasing, production and materials management, marketing and sales, accounting and finance, human resources, etc.
- Each functional area comprises a variety of business functions and business activities within that functional area of operation.
- Earlier business systems functioned in isolation. What happens in one functional area was not communicated with other functions.
- The information system of one function had no impact other functional areas.
- This mode of functioning caused many problems including disruption of the functioning of the organization.

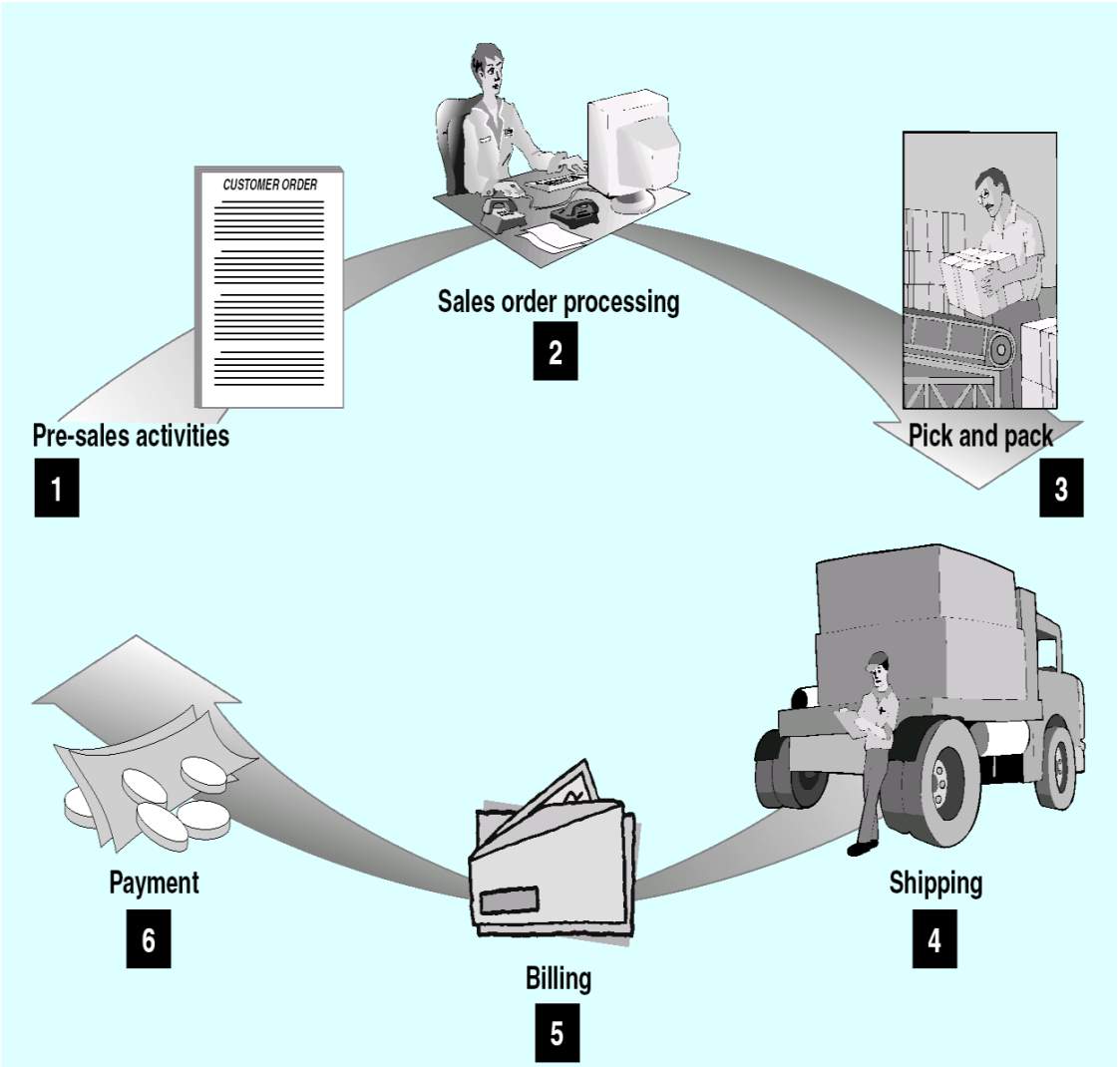
FUNCTIONS OF AN ENTERPRISE



Business Process...

- **Business Process** is a collection of interrelated tasks, which solve a particular issue.
- There are three types of business processes—Management, Operational, and Supporting
- Management processes govern the operation of a system. Typical management processes include “corporate governance" and “strategic management".
- Operational processes create the primary value stream and are part of the core business. Typical operational processes are purchasing, manufacturing, marketing, and sales.
- Supporting processes support the core processes. Examples include accounting, recruitment, IT-support.

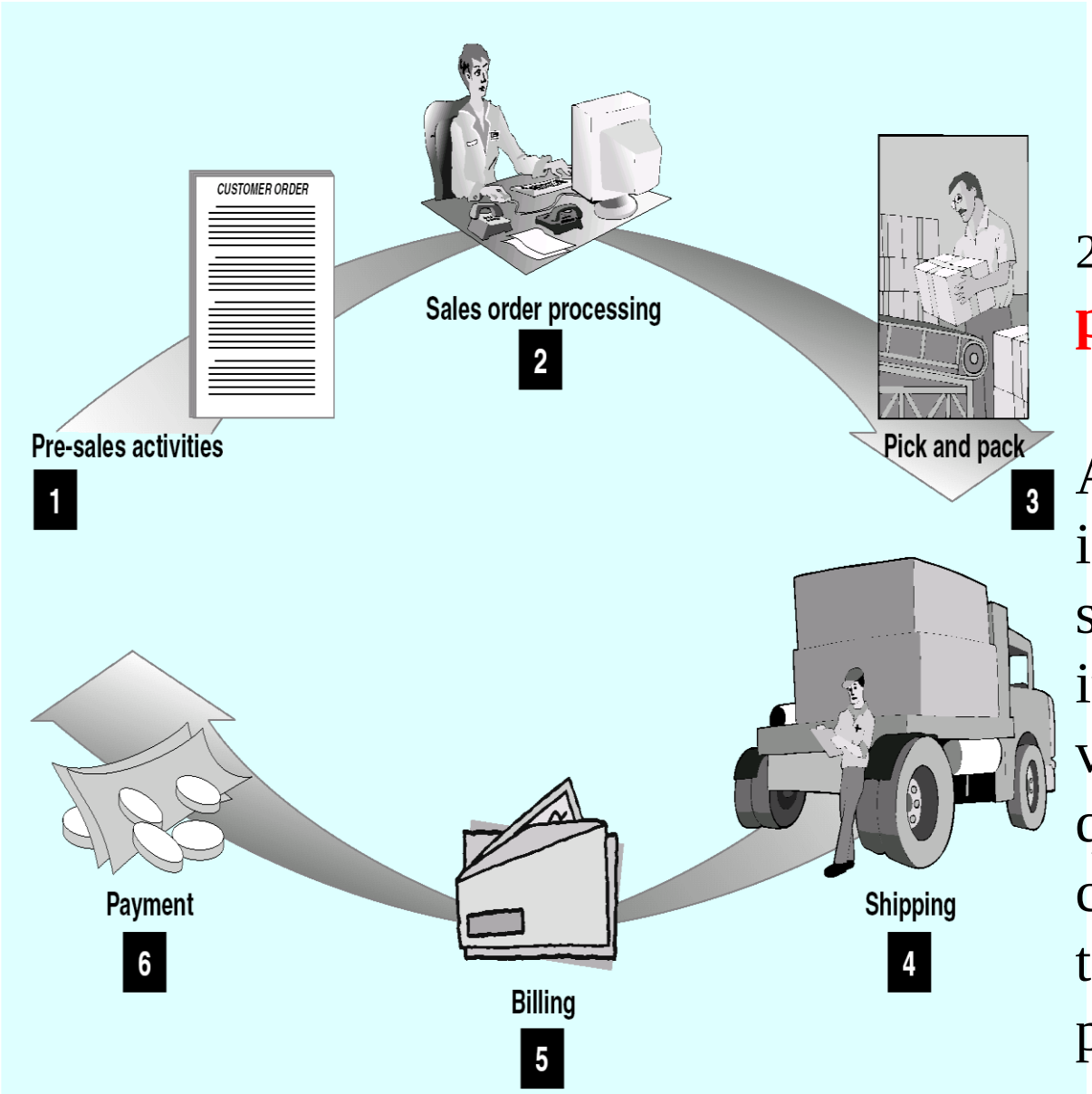
An example of a business process: Purchase-to-Pay



1. **Determine requirements, complete purchase requisition.**

Automatically generate the purchase requisition based on quantity on-hand, quantity-on-order, and expected demand.

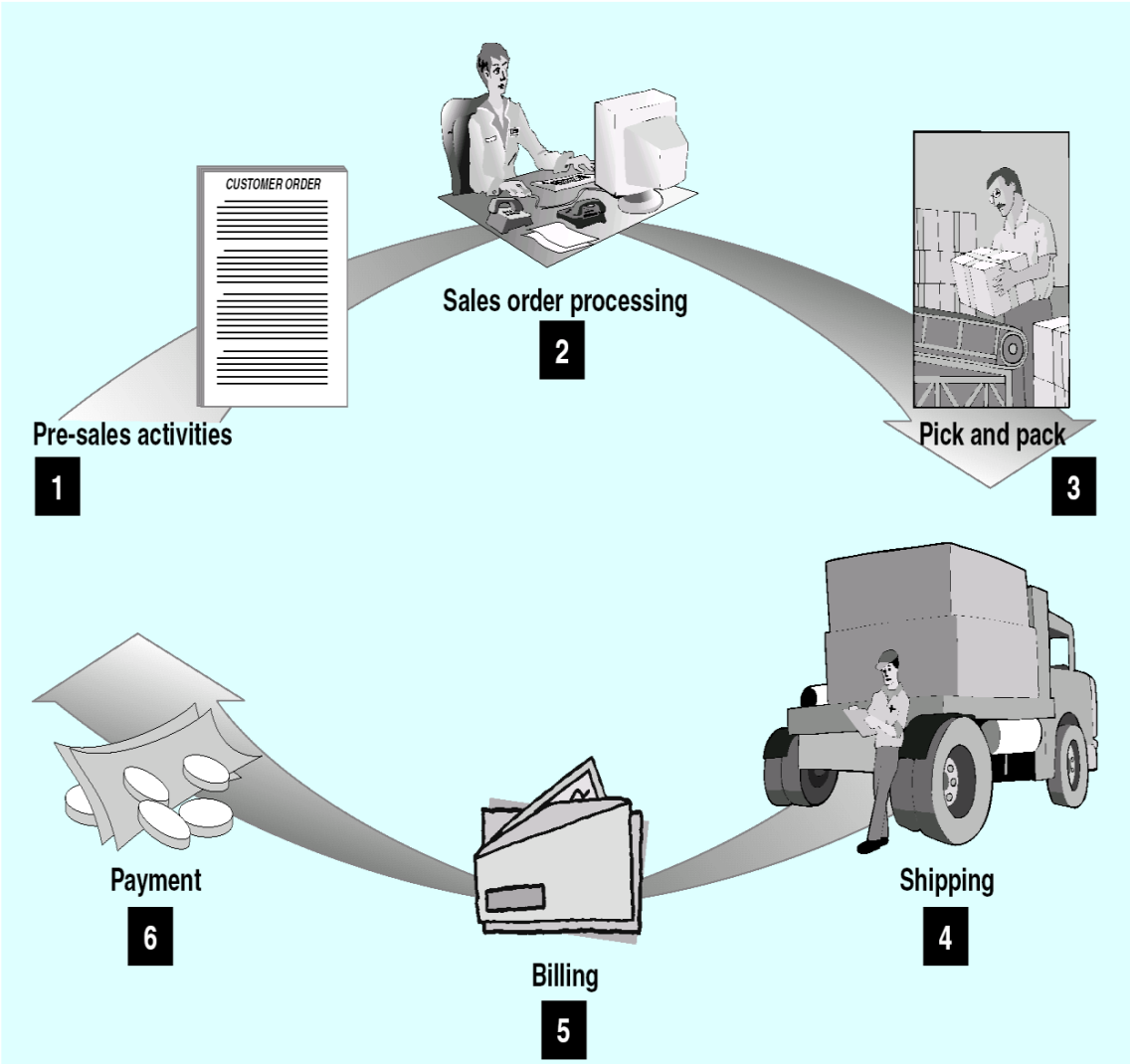
Purchase-to-Pay



2. **Prepare and record purchase order.**

Assists the buyer in identifying sources of supply for the requested item, preparing RFQs to vendors, analyzing vendor quotes,
comparing vendor prices, terms, and past performance

Purchase-to-Pay

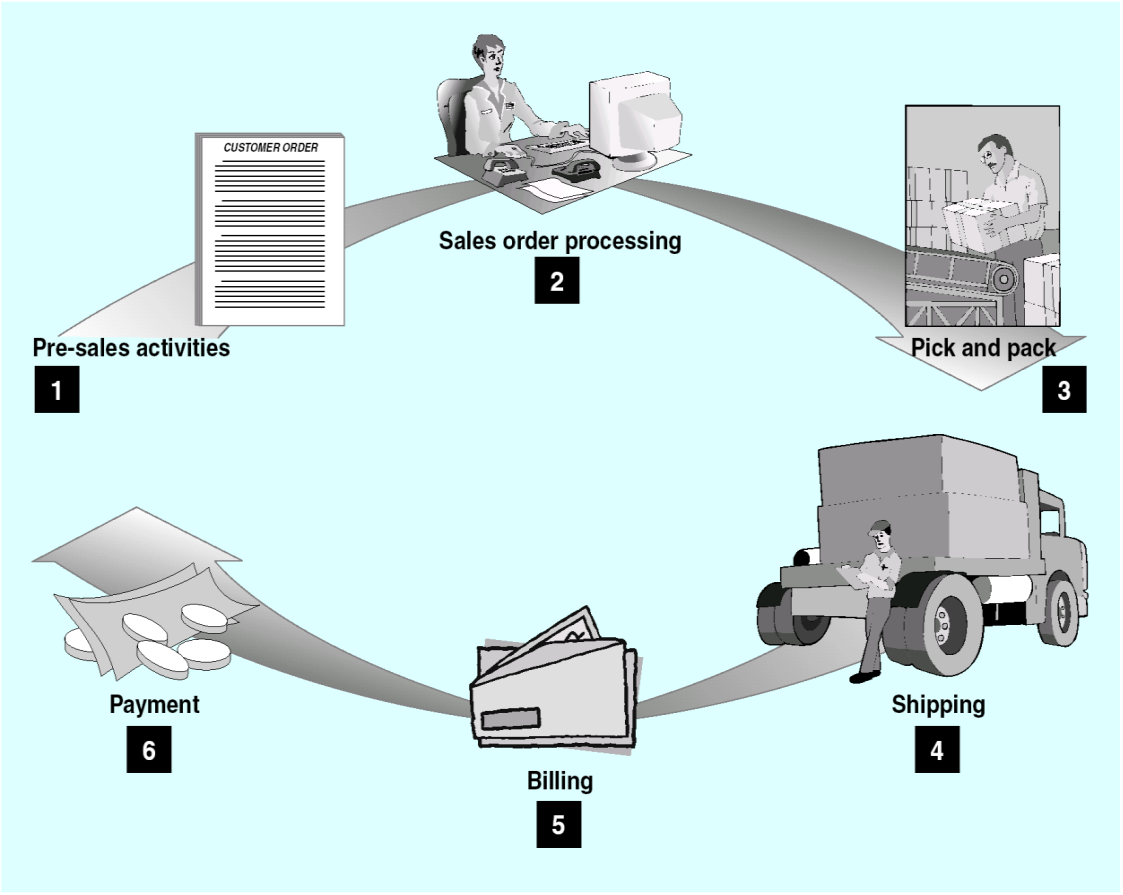


3. Receive and record goods.

Compare quantity ordered to quantity received.

Routes goods to the function that requested them or directs them the warehouse for immediate sale. It also records vendor performance data.

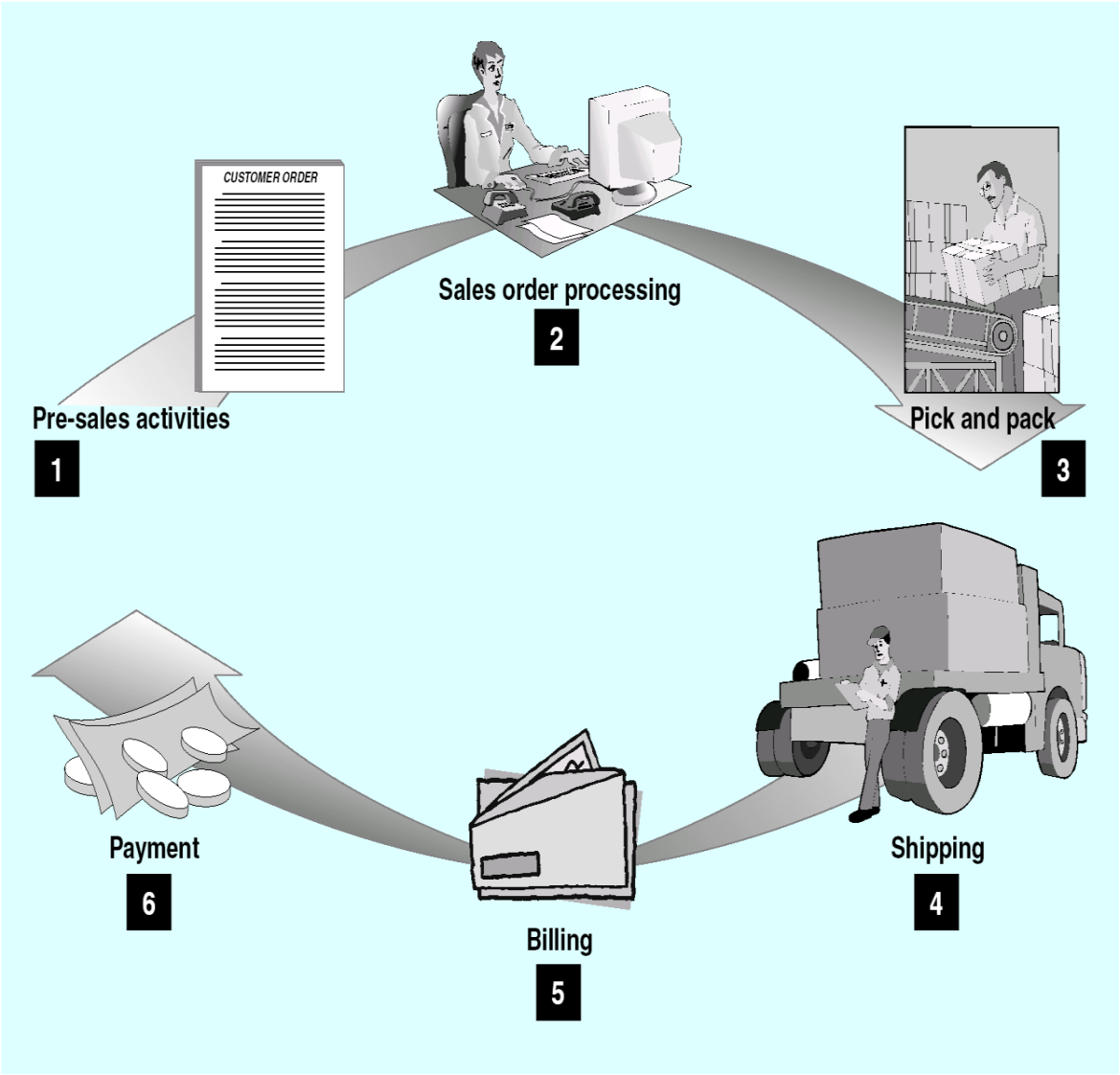
Purchase-to-Pay



4. Receive vendor invoice, match with PO and receiving report; record payable.

If the three-way match fails, the enterprise system notifies the proper personnel to ensure timely reconciliation of differences.

Purchase-to-Pay



5. Prepare and record cash disbursement and update accounts.

Uses vendor and AP data to schedule payments in accordance with vendor terms and to receive discounts.

Differences between Function & Process

Function	*Process*
Focus on “What”	Focus on “How”
Vertical	Horizontal
Static	Dynamic
Task-centered	Customer-oriented
Individual/Specialist	Team/Generalist
Parochial	Holistic

Function vs. Process

Recently organizations have started focusing on business processes rather than business functions.

A business process is a collection of activities that takes one or more kinds of input and creates an output that is of value to the customer.

The difference between a BF and a BP is that a process cuts across more than one business function to get a task done.

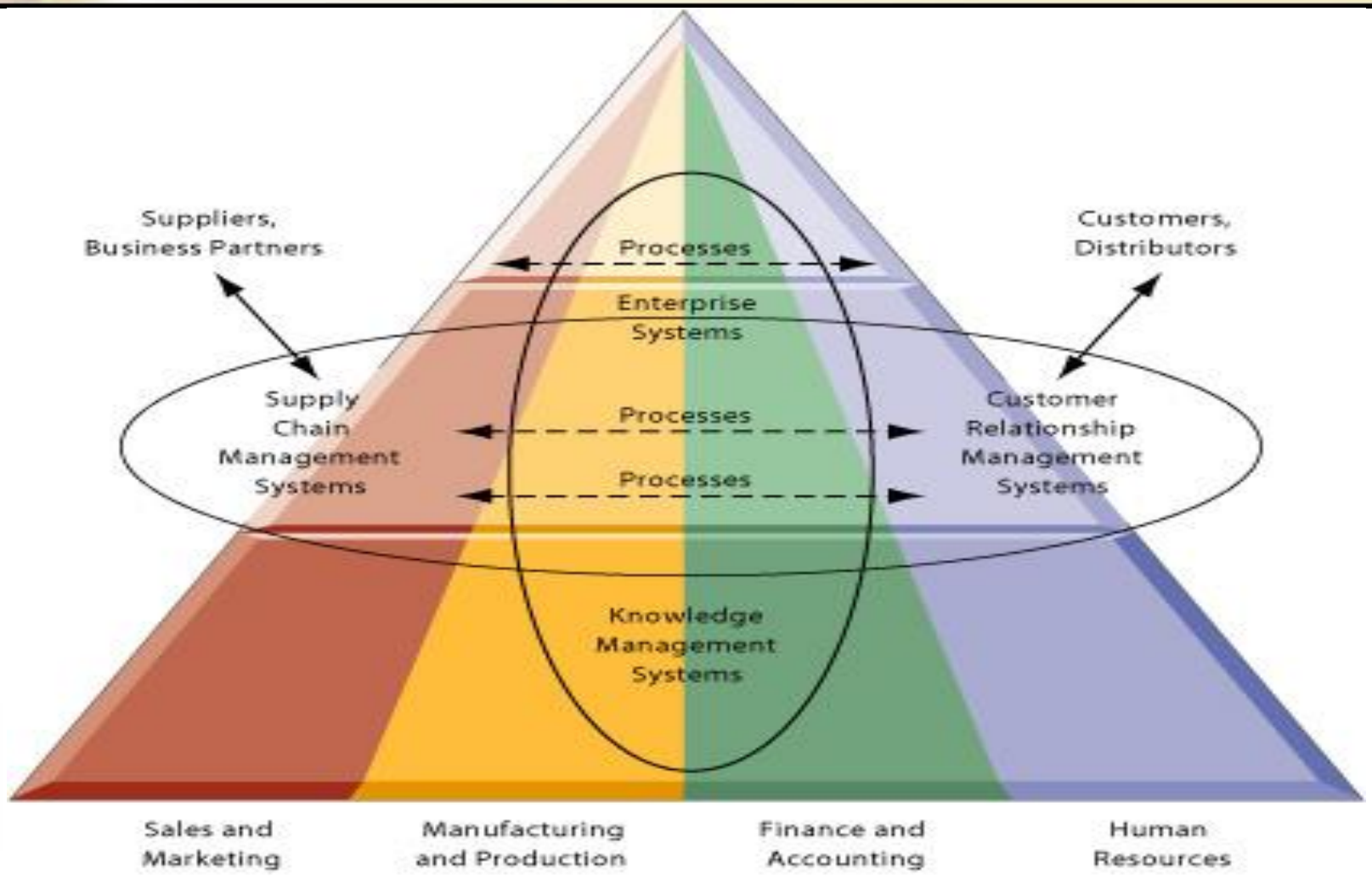
Organizations are now trying to view their business operations from the perspective of a satisfied customer.

Sharing data effectively and efficiently between and within functional areas leads to more efficient business processes.

Information systems can be designed so that accurate and timely data are shared between functional areas. These systems are called integrated information systems.

INTEGRATING FUNCTIONS AND BUSINESS PROCESSES

Enterprise Application Architecture



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

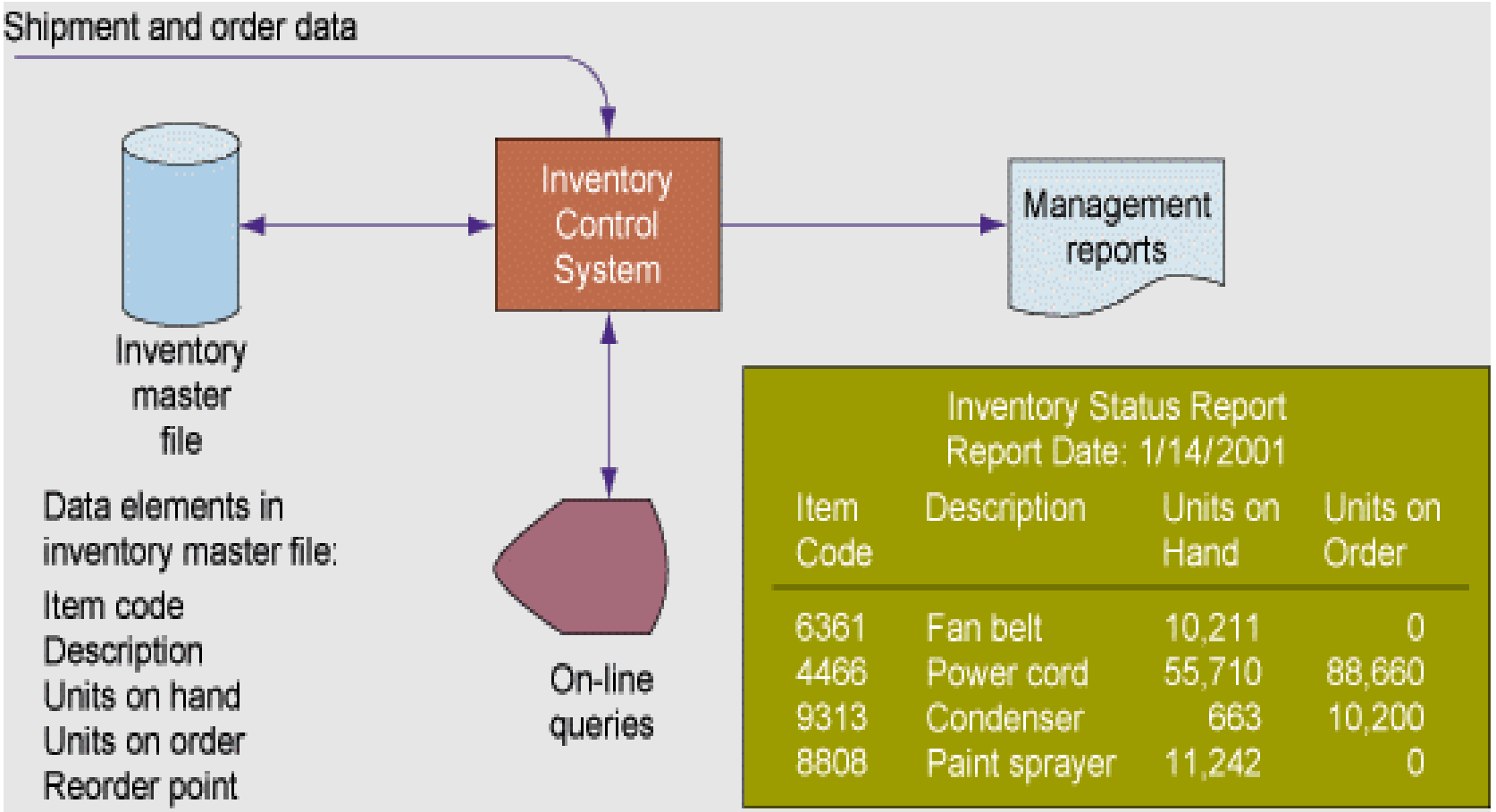
SYSTEMS FROM A FUNCTIONAL PERSPECTIVE

Manufacturing and Production Systems

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



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

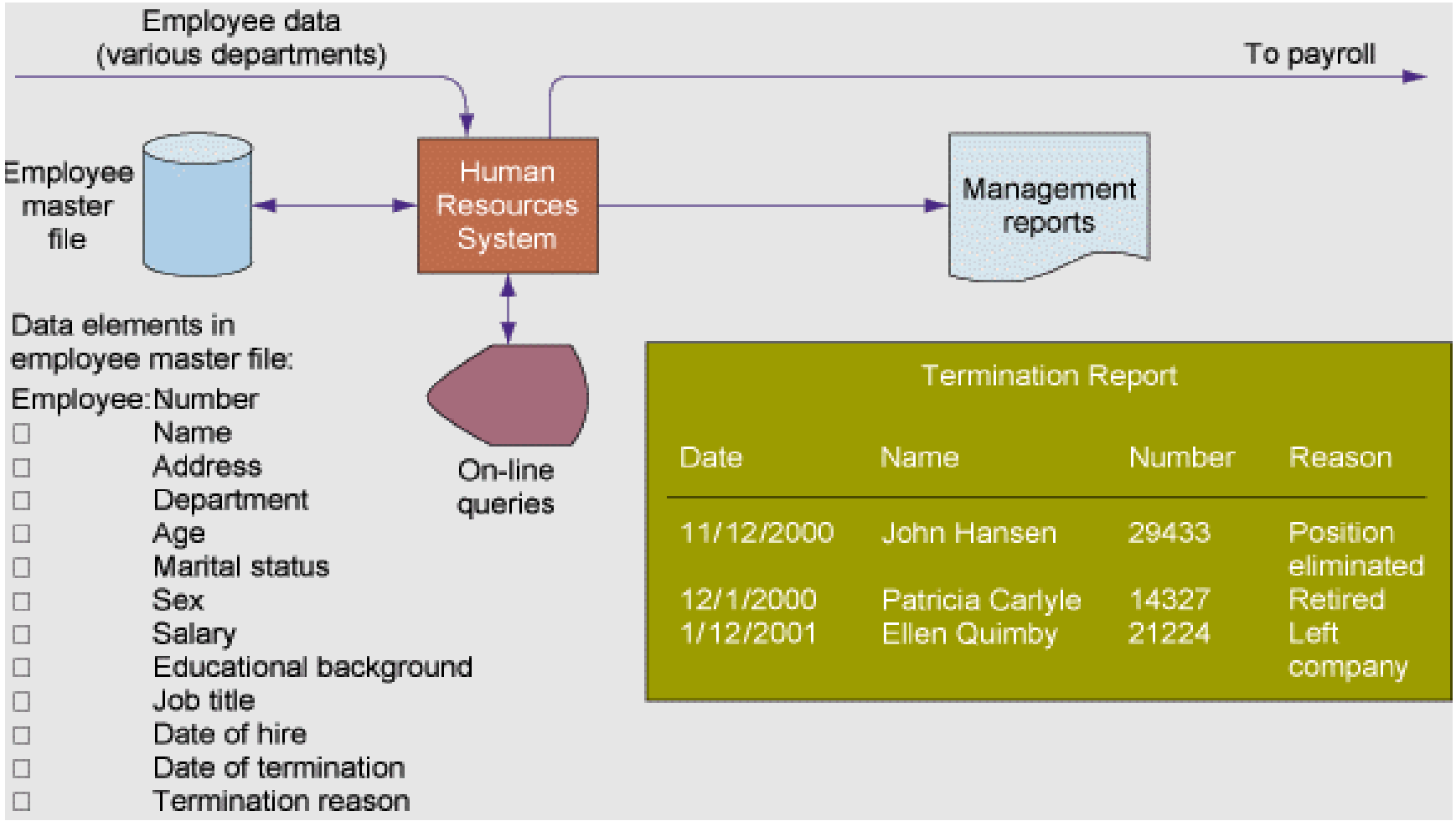
SYSTEMS FROM A FUNCTIONAL PERSPECTIVE

Human Resource Systems

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



Data elements in employee master file:

Employee: Number
- Name
- Address
- Department
- Age
- Marital status
- Sex
- Salary
- Educational background
- Job title
- Date of hire
- Date of termination
- Termination reason

Termination Report

Date	Name	Number	Reason
11/12/2000	John Hansen	29433	Position eliminated
12/1/2000	Patricia Carlyle	14327	Retired
1/12/2001	Ellen Quimby	21224	Left company

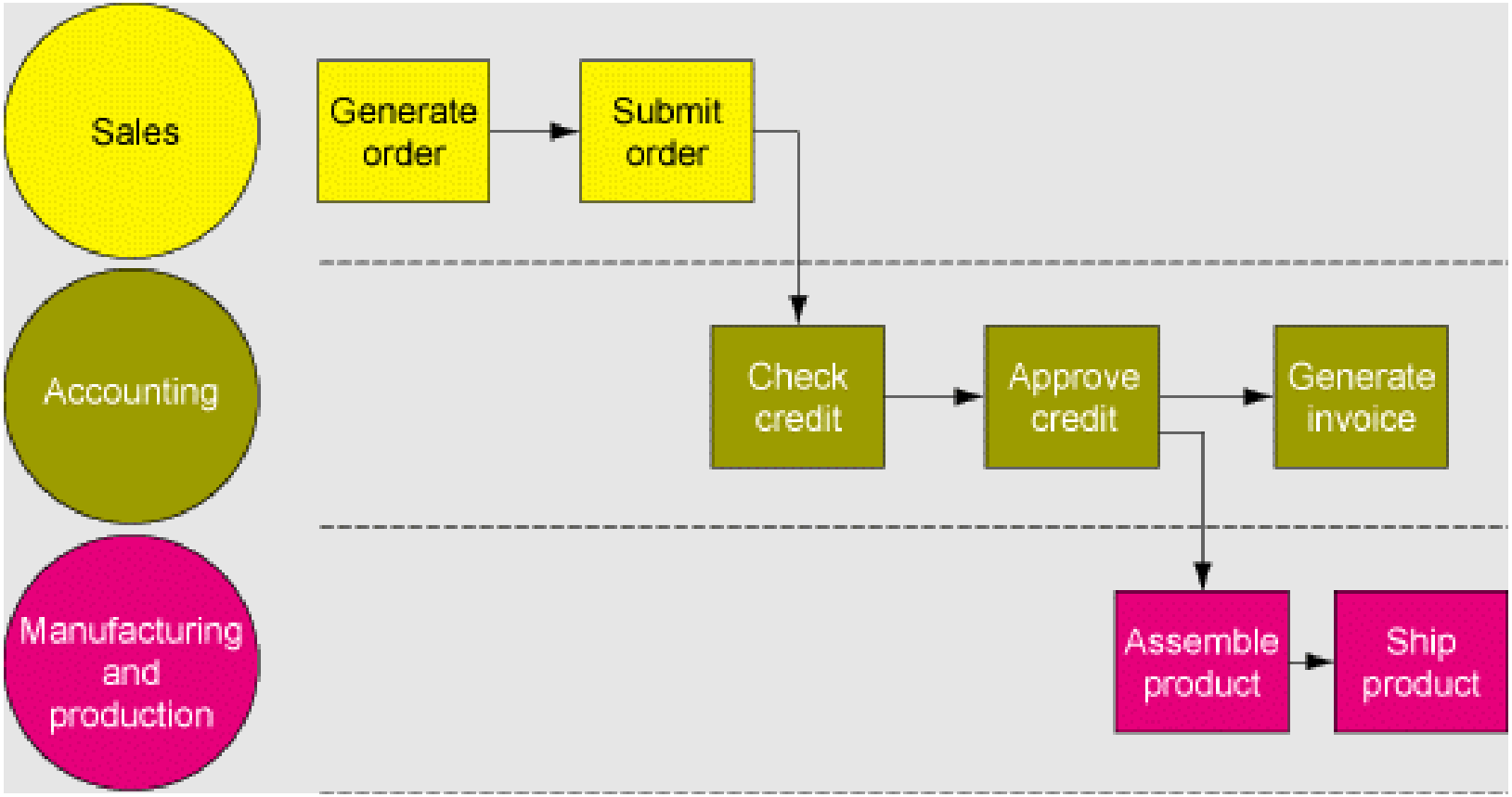
INTEGRATING FUNCTIONS AND BUSINESS PROCESSES

Examples of Business Processes

- **Manufacturing and production:** Assembling product, checking quality, producing bills of materials
- **Finance and accounting:** Paying creditors, creating financial statements, managing cash accounts
- **Sales and marketing:** Identifying customers, creating customer awareness, selling
- **Human Resources:** Hiring employees, evaluating performance, enrolling employees in benefits plans

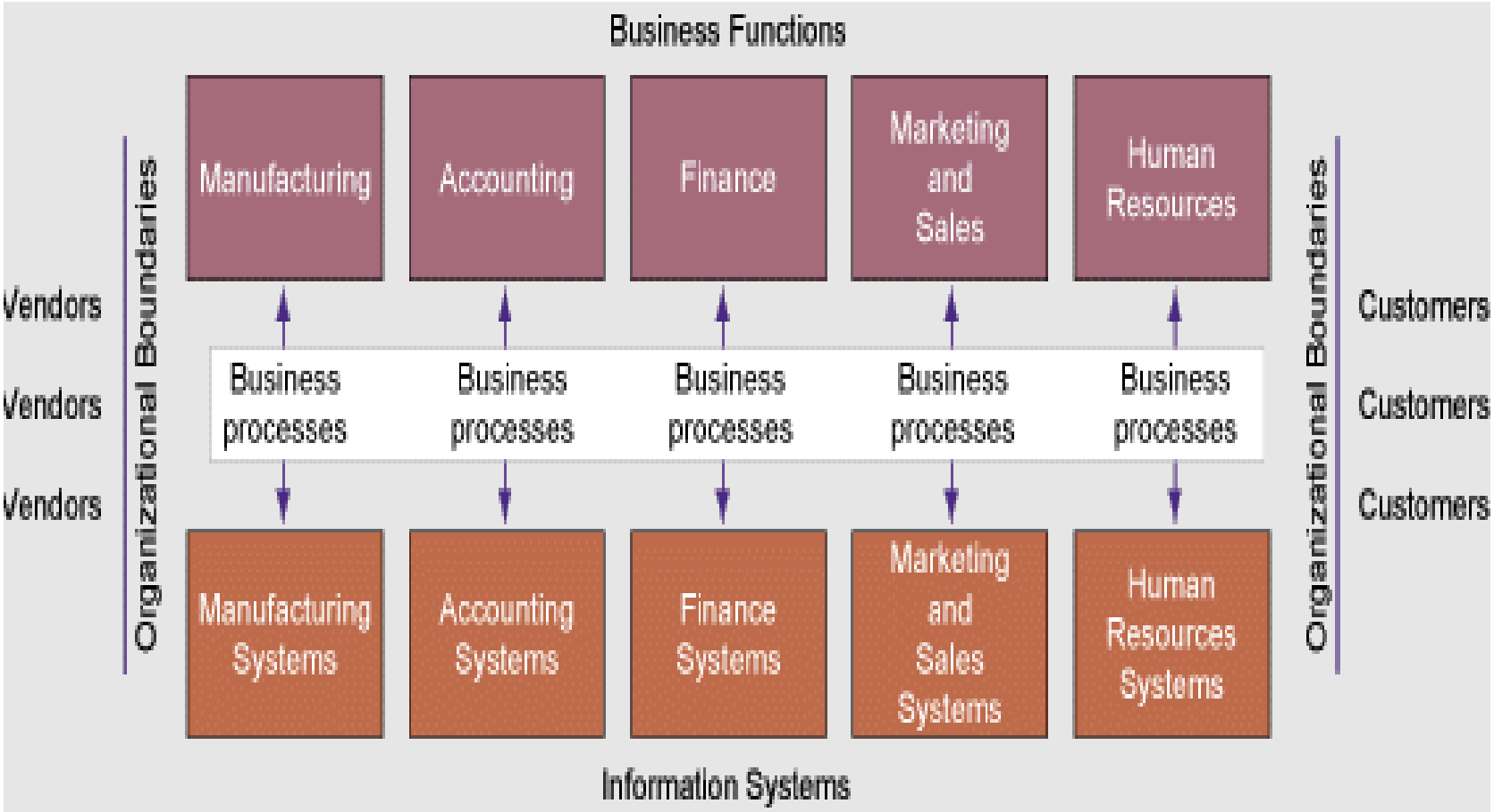
INTEGRATING FUNCTIONS AND BUSINESS PROCESSES

The Order Fulfillment Process



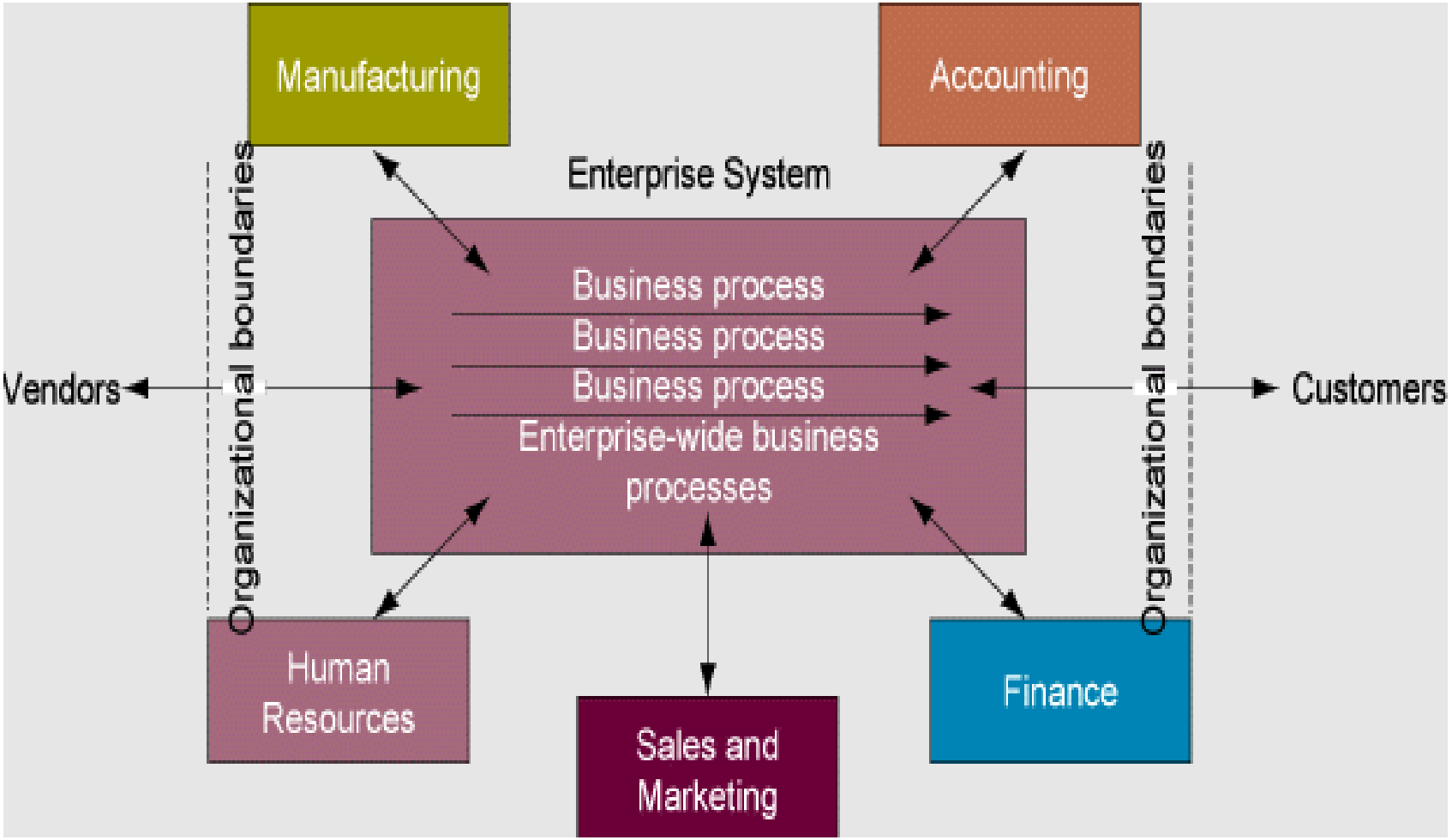
INTEGRATING FUNCTIONS AND BUSINESS PROCESSES

Traditional View of the Systems



INTEGRATING FUNCTIONS AND BUSINESS PROCESSES

Enterprise Systems

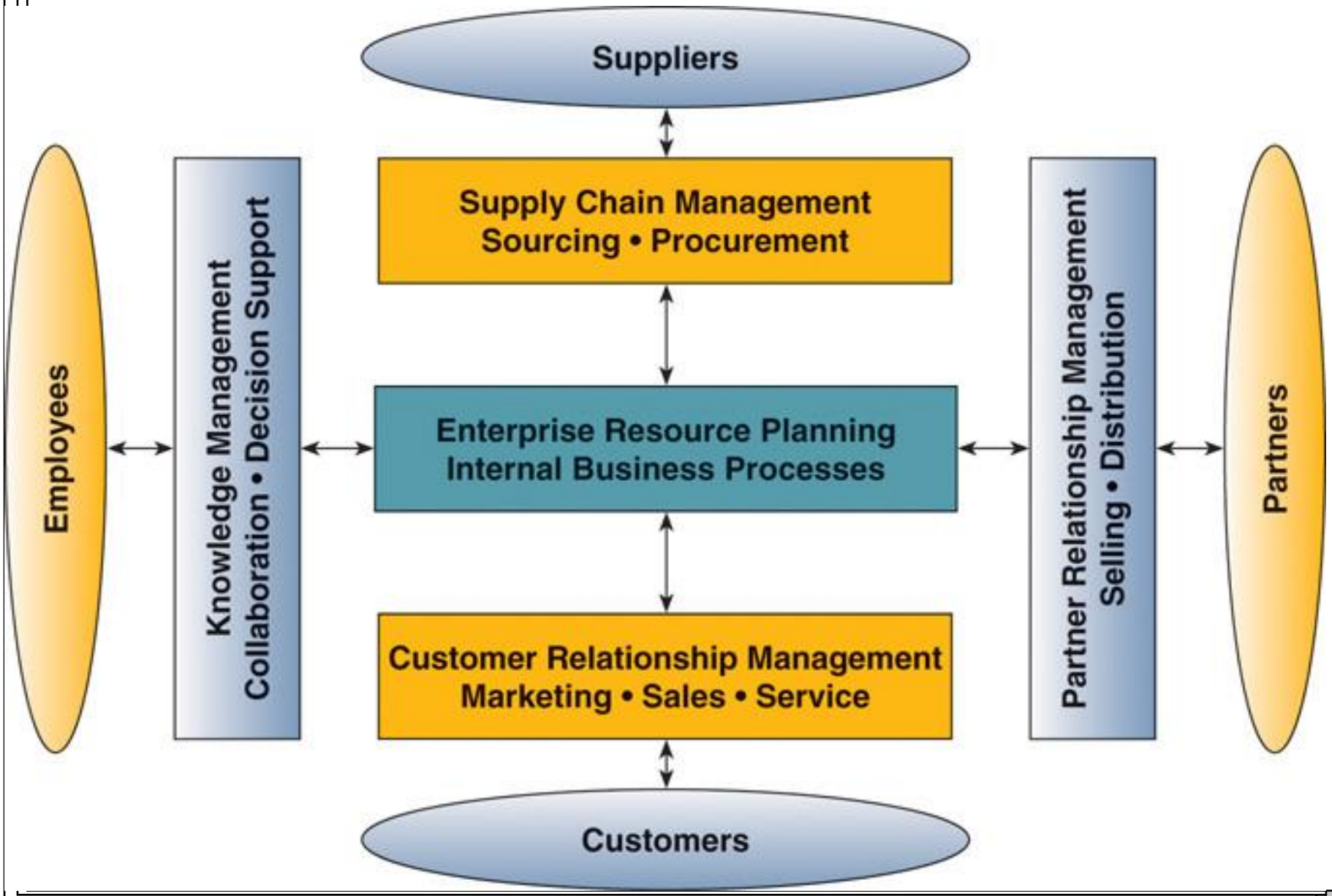


Enterprise Systems - Basics

- Enterprise systems are a category of information systems which have been heavily adopted in practice since the 1990s.
- Enterprise systems are usually based on packaged software products.
- They drive for cross-functional integration and require organization-wide resources for their implementation.

Enterprise Systems - Basics

- The lifecycle of enterprise systems including the development, the implementation, use and evaluation involves company external entities (e.g. software vendors or consulting companies) as well as company internal entities (e.g. IT departments or end-users).
- Enterprise systems impact multiple levels of a company, ranging from the individual employee, to groups, the entire organization and even its associated business network.
- Given these boundary conditions, introducing Enterprise Systems to companies is a challenge


Suppliers
Supply Chain Management
Sourcing • Procurement
Employees
Knowledge Management
Collaboration • Decision Support
Enterprise Resource Planning
Internal Business Processes
Partner Relationship Management
Selling • Distribution
Partners
Customer Relationship Management
Marketing • Sales • Service
Customers

KEY CHARACTERISTICS OF ENTERPRISE SYSTEMS

Integration:

Enterprise systems promise "**seamless integration of all the information flowing through a company—financial and accounting information, human resource information, supply chain information, and customer information**".

However, it is extremely important to note that achieving this **integration depends on "configuring"** (setting up) **the system** in particular ways.

Configuration in this context means **choosing which package modules to install and setting software parameters to represent**

KEY CHARACTERISTICS OF ENTERPRISE SYSTEMS

Packages:

Enterprise System software is not an in-house creation, rather **it is a commercial product** that can be modified to suit the particular and unique needs of the business.

However, by using commercial products, the business acknowledges that there are similarities between this business and others like it to form a cohesive industry.

KEY CHARACTERISTICS OF ENTERPRISE SYSTEMS

Best Practices:

Associated with the notion of **software packages that support industry-wide operations**, this **philosophy is affirmed with best practices.**

This means that a **business operates in a manner consistent with other organizations**, and the software used is similar to that of others.

However, **customization may be the rule of the day** internally to meet specific needs or operations.

These become the best practices of the business, which are unique and differentiate it from other, similar businesses.

KEY CHARACTERISTICS OF ENTERPRISE SYSTEMS

Assembly Requirements:

Unique but **similar industry-wide business practices force enterprise systems to customize their software efforts**.

While the software packages that work well for the other similar businesses may also work with this one, modifications must take place to make the fit occur.

The requirements that a software package fit industry standards exist, but it may not be so intact with the business at hand.

Managers may have other intentions for the software package

KEY CHARACTERISTICS OF ENTERPRISE SYSTEMS

Evolving: As the **IT industry changes, from mainframes to PCs to the domination of the Internet**, **software changes are also in the stream.**

Consider that during the 1980s, **MRP systems ran on mainframes,** but were **replaced by ERP systems**, and now ES systems are making their way forward in a business operation.

The **changing nature of technology shows that one must reexamine the software from time to time to see if it still supports the business needs**.

Technology changes force the company to change as well in order to stay in business.

CHALLENGES OF ENTERPRISE SYSTEMS

- Enterprise systems promise to integrate the diverse business processes of a firm into a single integrated information architecture but they present major challenges.

Daunting Implementation:

Enterprise systems bring dramatic changes to business. They **require not only deep-seated technological changes** but **also fundamental changes in the way the business operates**.

CHALLENGES OF ENTERPRISE SYSTEMS

Surviving a cost –benefit analysis:

- The **costs of enterprise systems are large, up-front, highly visible, and often politically changed**

- Although the costs to build the system are obvious, the benefits often cannot be precisely quantified at the beginning of an enterprise project.

CHALLENGES OF ENTERPRISE SYSTEMS

Realizing Strategic Value:

- **Companies** may also **fail to achieve strategic benefits from enterprise systems**
  - if integrating business process processes using the generic models provided by standard ERP software prevents the firm from using unique business processes that had been sources of advantage over competitors.

ADVANTAGES OF ENTERPRISE SYSTEMS

- Enterprise systems **(ES)** allow for integration of data and applications of a business or organization process through a system that supports different operating systems for customized and non-customized programs.
- Here are several organizational benefits and advantages of an enterprise system

ADVANTAGES OF ENTERPRISE SYSTEMS

Centralized Databases:

Centralized databases are a main feature of most enterprise systems.

Databases allow the user to access data through query and data extraction programs. Programs that interface with the databases are simple and menu-driven and most include software "wizards," which ask the individual questions to help in the selection of data.

The extraction of timely data can improve business functions such as customer support or accounting.

ADVANTAGES OF ENTERPRISE SYSTEMS

Infrastructure Costs: Enterprise systems are created to support the business infrastructure of an organization.

Popular applications can be used to support functions such as customer service, accounting, management and production.

The ES also provides a user-friendly programming language module for developing custom or specialized applications.

This leads to a flexible infrastructure that is adaptable to future changes, reduced IT software and hardware costs and increased productivity for system users.

ADVANTAGES OF ENTERPRISE SYSTEMS

End User Management: Enterprise systems provide the end user with various software applications or tools to use to perform tasks.

An example is an integrated work-group calendar that allows users of a particular work group (for example, human resources) to work on a project or document at the same time.

These systems allow for resource sharing through the network, which can be configured in various ways.

End users can also work on remote projects with other work groups through an enterprise system.

ADVANTAGES OF ENTERPRISE SYSTEMS

Network Management: For technicians who are responsible for maintaining any type of network, maintenance can be a daunting task.

An **enterprise system network is fairly simple to maintain**. In most cases, the **hardware configuration consists of a mid-range server** which provides processing power to terminals connected to the network.

The core **software of the ES system is usually licensed proprietary software** which is purchased for the system according to the processing needs of the business.

ADVANTAGES OF ENTERPRISE SYSTEMS

Resource Sharing:

Workers can create groups using the enterprise system in which they share all of their information concerning a particular project they're working on together.

This way, the individual members of the group can view everyone else's resources and progress and can make suggestions if necessary.

Not only does this allow workers to move faster on the projects, but it improves the accuracy of those projects.

ADVANTAGES OF ENTERPRISE SYSTEMS

- **More Effective Marketing:**
- Enterprise systems offer applications that are designed to be user-friendly for those who interact with customers on a daily basis.
- The programs enable representatives to better address the needs of individual customers, which often leads to better marketing.
- The data picked up by customer service and marketing can often lead to opening unexpected new markets or new ways to respond to existing markets.

DISADVANTAGES OF ENTERPRISE SYSTEMS

- Enterprise systems help companies perform essential tasks, such as deciding the best ways of how to create products, tracking orders, and incorporating profits, costs and revenues.
- Enterprise systems are large-scale applications that allow companies to incorporate and organize their business processes.
- These systems can make sure that all of the company's departments can share vital information with each other. Although there are many advantages for installing enterprise systems, there are some disadvantages.

DISADVANTAGES OF ENTERPRISE SYSTEMS

Costs:

Implementing and managing enterprise systems can be expensive, especially for small and medium-sized businesses (SMBs).

SMBs usually do not have the resources and money. For example, companies need the right people to make sure that their data is protected.

Large companies can afford to hire the consultants who specialize in this area.

The **costs to install enterprise systems**, for multi-corporations, can range from approximately $30,000 to $500 million

DISADVANTAGES OF ENTERPRISE SYSTEMS

Costs: **Another cost that companies face is licenses**.

Companies purchase licenses in order to receive services, such as technical support or getting software patches or upgrades.

Finally, **another cost can be where enterprise systems cannot integrate with the company's legacy systems**. These systems contains important data that the company that it still needs and uses. In order to get the enterprise system to work with legacy applications, the company might have to purchase new computers, servers, or applications. It might also have to hire some additional consultants to complete this project.

DISADVANTAGES OF ENTERPRISE SYSTEMS

Training and Turnover:

If the enterprise system is to be successful in an organization, it must have employees who know how to use it.

The company must provide comprehensive training. However, many companies have ignored this area because it is costly.

Even if the employees have been trained, they could leave the company, taking the knowledge with them.

The company may also hire new managers that do not know very much about the system.

They can recommend changes to the business processes that are not in line with the company's policies.

As a result, this can hurt the business' bottom line.

DISADVANTAGES OF ENTERPRISE SYSTEMS

Difficult to Customize:

Tailoring the enterprise system to the company's preferences can be a challenge.

It is very rare that companies will accept enterprise systems as they are.

Therefore, employees or consultants can spend a large amount of time on programming or talking to the enterprise system's technical support in order satisfy the customer's requirements.