

# Information Management Systems

## Enterprise Resource Planning Systems

Senior Lecturer Jaana Tanhuanpää  
Saimaa University of Applied Sciences,  
Lappeenranta, Finland

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- Functional Areas and Business Processes
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# Objectives

After completing this lesson, you will be able to:

- Name the main functional areas of operation used in business
- Differentiate between a business process and a business function
- Identify the kinds of data each main functional area produces
- Identify the kinds of data each main functional area needs
- Define integrated information systems, and explain why they are essential in today's globally competitive business environment

# Introduction

- **Enterprise Resource Planning (ERP)** programs: Core software used by companies to coordinate information in every area of business
  - Help manage companywide business processes
  - Use common database and shared management reporting tools
- **Business process:** Collection of activities that takes some input and creates an output that is of value to the customer

# What is ERP?

- Software tools
- Manages business systems
  - Supply chain, receiving, inventory, customer orders, production planning, shipping, accounting, HR
- Allows automation and integration of business processes
- Enables data and information sharing
- Enterprise-wide system
- Introduces “best practices”

# Elements of ERP

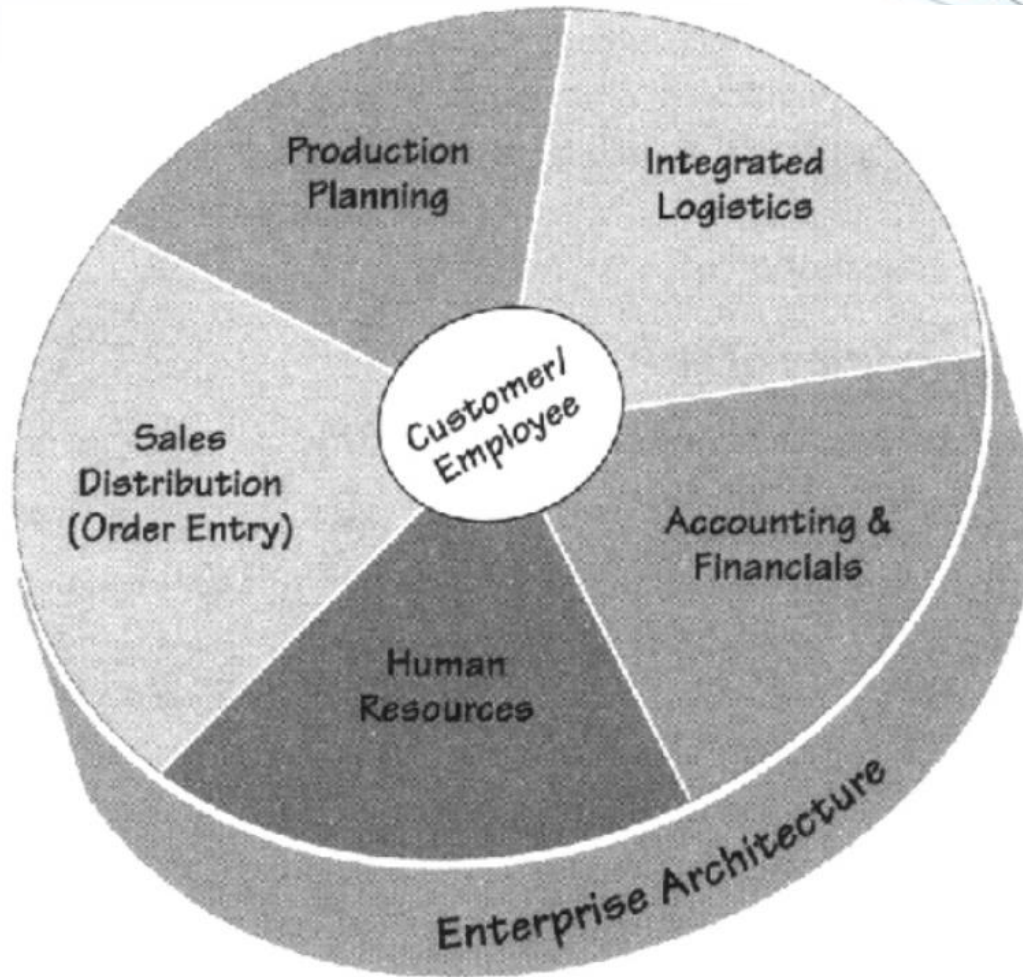
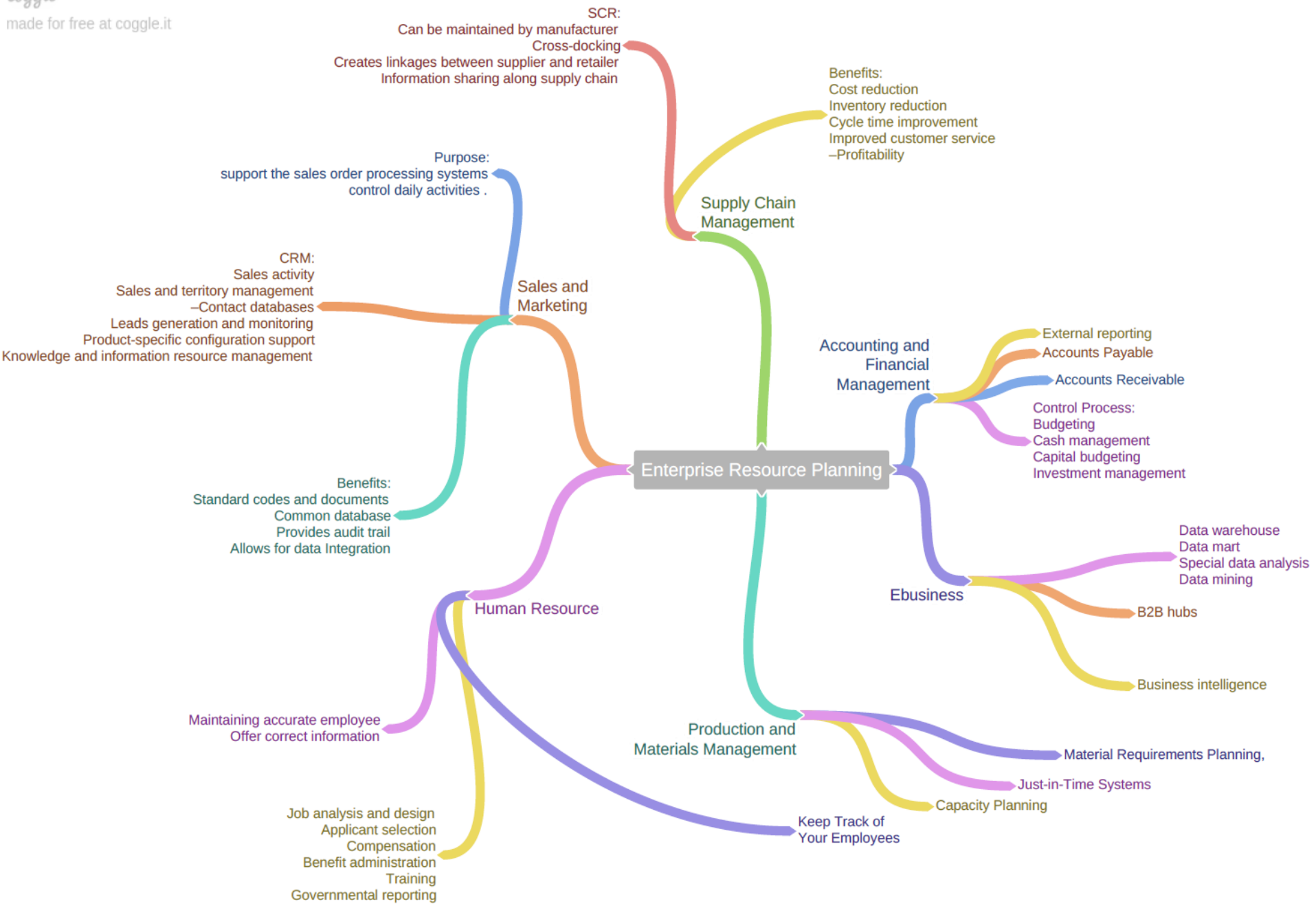


Figure 8.1. Elements of Enterprise Resource Management



# Integrated Systems Approach

- Common set of applications
- Usually requires re-engineering business processes
  - Better alignment
- Limited customization
  - Easier upgrades
- Overcomes inefficiencies of independent systems
- Integrated data supports multiple business functions



# Integrated information system

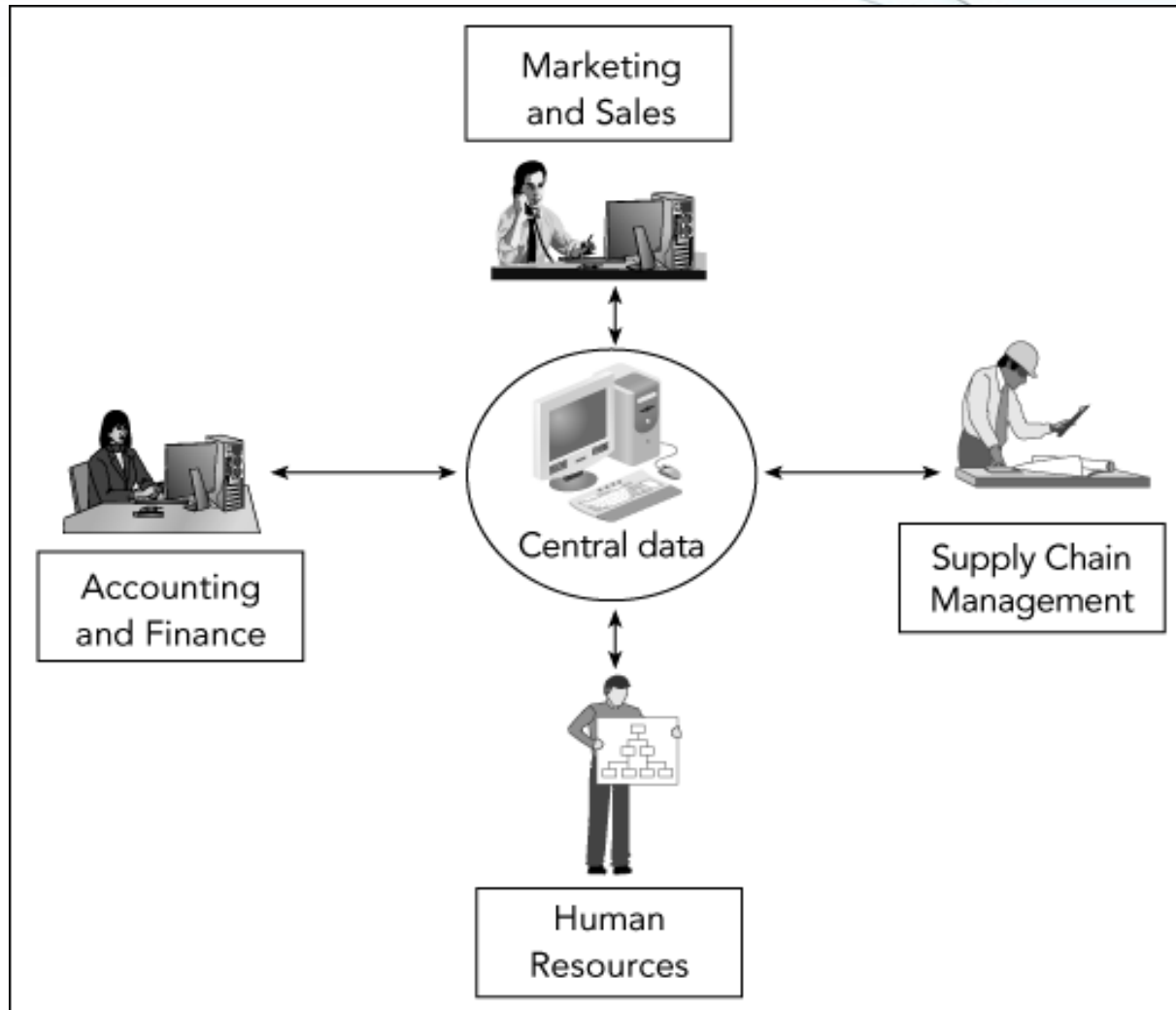


Figure 2-4 Data flow within an integrated information system

# Overall Business Benefits

- Information
  - Maximizes information throughput
  - Provides timely information
  - Integrates information throughout supply chain
- Minimizes response time
- Pushes decision making down to lowest levels
- Reduces costs
- Cuts inventory
- Improves operating performance

# Functional Areas and Business Processes

- To understand ERP, you must understand how a business works
  - Functional areas of operation
  - Business processes

# Functional Areas of Operation

- Marketing and Sales (M/S)
- Supply Chain Management (SCM)
- Accounting and Finance (A/F)
- Human Resources (HR)
- **Business functions:** Activities specific to a functional area of operation

# Functional Areas of Operation (cont'd.)

Functional area of operation	Marketing and Sales	Supply Chain Management	Accounting and Finance	Human Resources
<b>Business functions</b>	Marketing a product	Purchasing goods and raw materials	Financial accounting of payments from customers and to suppliers	Recruiting and hiring
	Taking sales orders	Receiving goods and raw materials	Cost allocation and control	Training
	Customer support	Transportation and logistics	Planning and budgeting	Payroll
	Customer relationship management	Scheduling production runs	Cash-flow management	Benefits
	Sales forecasting	Manufacturing goods		Government compliance
	Advertising	Plant maintenance		

Figure 1-1 Examples of functional areas of operation and their business functions

## Functional Areas of Operation (cont'd.)

- Functional areas are interdependent
  - Each requires data from the others
- Better integration of functional areas leads to improvements in communication, workflow, and success of company
- **Information system (IS):** Computers, people, procedures, and software that store, organize, and deliver information

# Business Processes

- Collection of activities that takes one or more kinds of input and creates an output that is of value to customer
  - Customer can be traditional external customer or internal customer
- Thinking in terms of business processes helps managers to look at their organization from the customer's perspective

# Business Processes (cont'd.)

<b>Input</b>	<b>Functional area responsible for input</b>	<b>Process</b>	<b>Output</b>
Request to purchase smartphone	Marketing and Sales	Sales order	Order is generated
Financial help for purchase	Accounting and Finance	Arranging financing in-house	Customer finances through the smartphone company
Fulfillment of order	Supply Chain Management	Shipping and delivery	Customer receives smartphone
Technical support	Marketing and Sales	24-hour help line available	Customer's technical query is resolved

Figure 1-2 Sample business processes related to the sale of a personal smartphone



## Business Processes (cont'd.)

- Businesses must always consider customer's viewpoint in any transaction
- Successful customer interaction
  - Customer (either internal or external) is not required to interact with each business function involved in the process
- Successful business managers view business operations from the perspective of a satisfied customer

## Business Processes (cont'd.)

- Sharing data effectively and efficiently between and within functional areas leads to more efficient business processes
- **Integrated information systems:** Systems in which functional areas share data

# Business Processes (cont'd.)

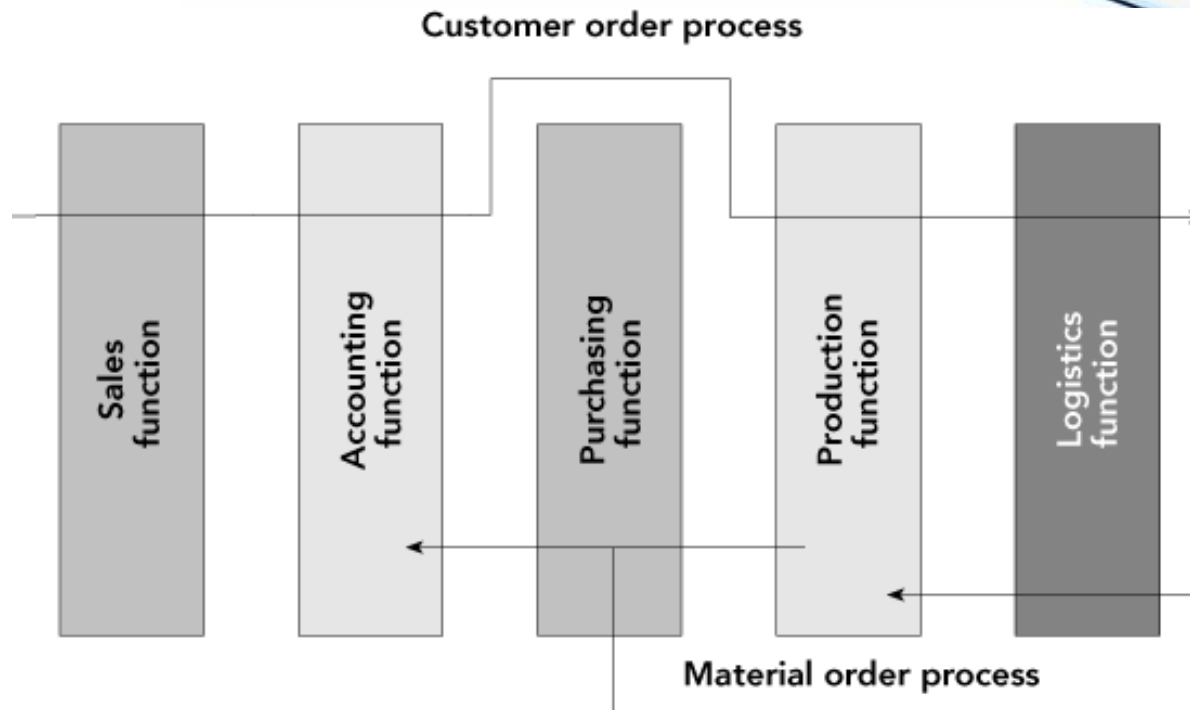


Figure 1-3 A process view of business

## Business Processes (cont'd.)

- Businesses take inputs (resources) and transform these inputs into goods and services for customers
  - Inputs: Material, people, equipment
- Managing inputs and business processes effectively requires accurate and up-to-date information

# Group Task: Functional Areas and Business Processes of a Very Small Business

- Example case: A fictitious coffee shop and café
  1. Examine business processes of the coffee shop
  2. See why coordination of functional areas helps achieve efficient and effective business processes
  3. Look at how integration of the information system improves the business



# Functional Area Information Systems

- Potential inputs and outputs for each functional area described next
- Note the kinds of data needed by each area and how people use the data
- Information systems maintain relationships between all functional areas and processes

# Marketing and Sales

- Functions of Marketing and Sales
  - Developing products
  - Determining pricing
  - Promoting products to customers
  - Taking customers' orders
  - Helping create a sales forecast

# Marketing and Sales (M/S)

- Marketing and Sales tasks for the coffee shop
  - Formal recordkeeping not required
  - Need to keep track of customers
  - Product development can be done informally
  - Good repeat customers allowed to charge purchases—up to a point
    - Records must show how much each customer owes and his or her available credit



# Marketing and Sales

- Needs information from all other functional areas
- Customers communicate orders to M/S in person or by telephone, e-mail, fax, the Web, etc.
- M/S has a role in determining product prices
  - Pricing might be determined based on a product's unit cost, plus some percentage markup
  - Requires information from Accounting and Finance, and Supply Chain Management data

# Marketing and Sales

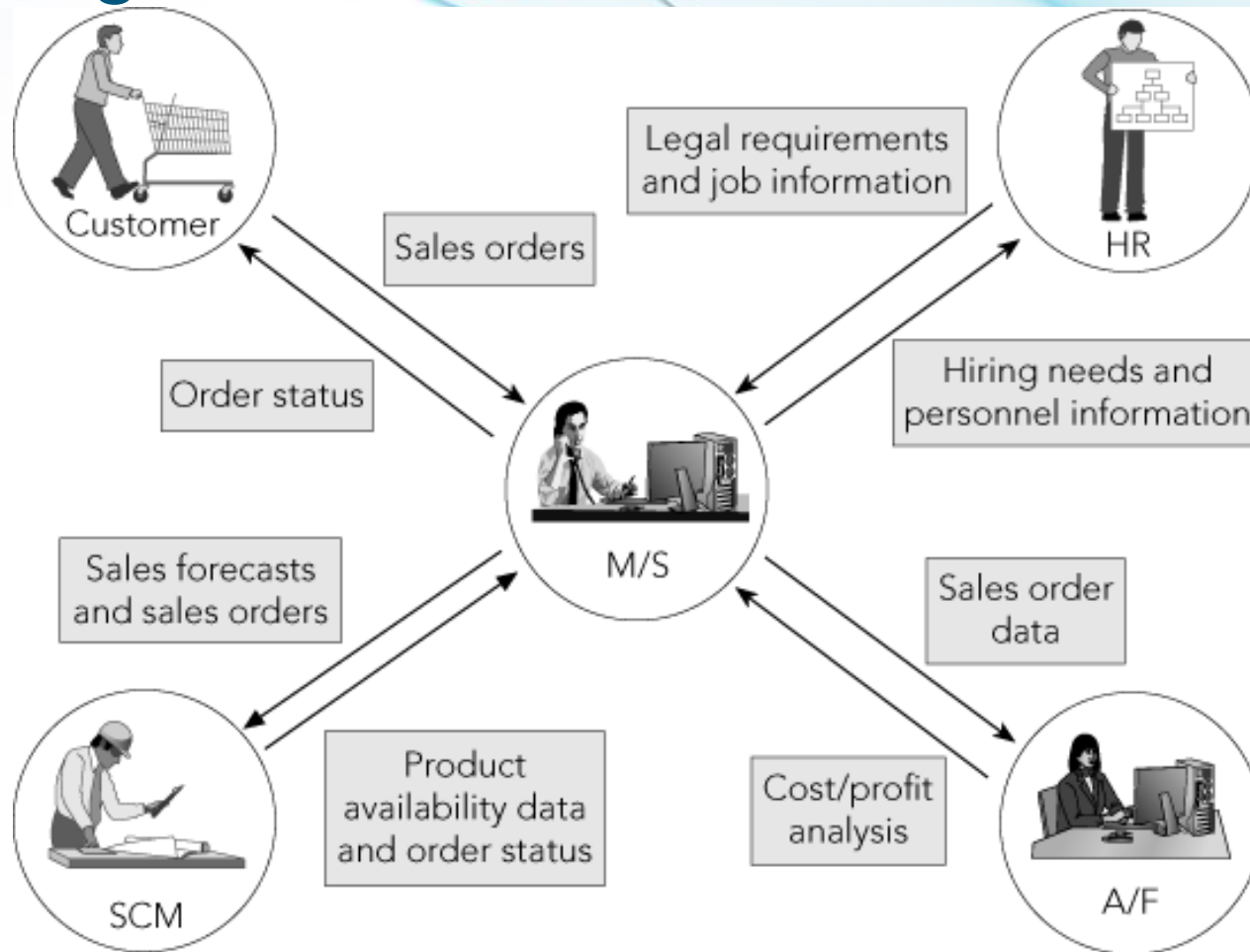


Figure 1-4 The Marketing and Sales functional area exchanges data with customers and with the Human Resources, Accounting and Finance, and Supply Chain Management functional areas

# Marketing and Sales

- M/S needs to interact with Human Resources to exchange information on hiring needs, legal requirements, etc.
- Inputs for M/S
  - Customer data
  - Order data
  - Sales trend data
  - Per-unit cost
  - Company travel expense policy

# Marketing and Sales

- Outputs for M/S
  - Sales strategies
  - Product pricing
  - Employment needs

# Supply Chain Management (SCM)

- Functions within Supply Chain Management
  - Making the coffee  
(manufacturing/production)
  - Buying raw materials (purchasing)
- Production planning requires sales forecasts from M/S functional area
  - **Sales forecasts:** Analyses that attempt to predict the future sales of a product

# Supply Chain Management

- Production plans used to develop requirements for raw materials and packaging
  - Raw materials: Bottled spring water, fresh lemons, artificial sweetener, raw sugar
  - Packaging: Cups, straws, napkins
- SCM and M/S must choose a recipe for each coffee product sold

# Supply Chain Management

- Needs information from various functional areas
- Production plans based on information about product sales (actual and projected) that comes from Marketing and Sales
- With accurate data about required production levels:
  - Raw material and packaging can be ordered as needed
  - Inventory levels can be kept low, saving money

# Supply Chain Management

- Supply Chain Management data and records can:
  - Provide data needed by Accounting and Finance to determine how much of each resource was used
  - Support the M/S function by providing information about what has been produced and shipped
- Supply Chain Management interacts in some ways with Human Resources



# Supply Chain Management

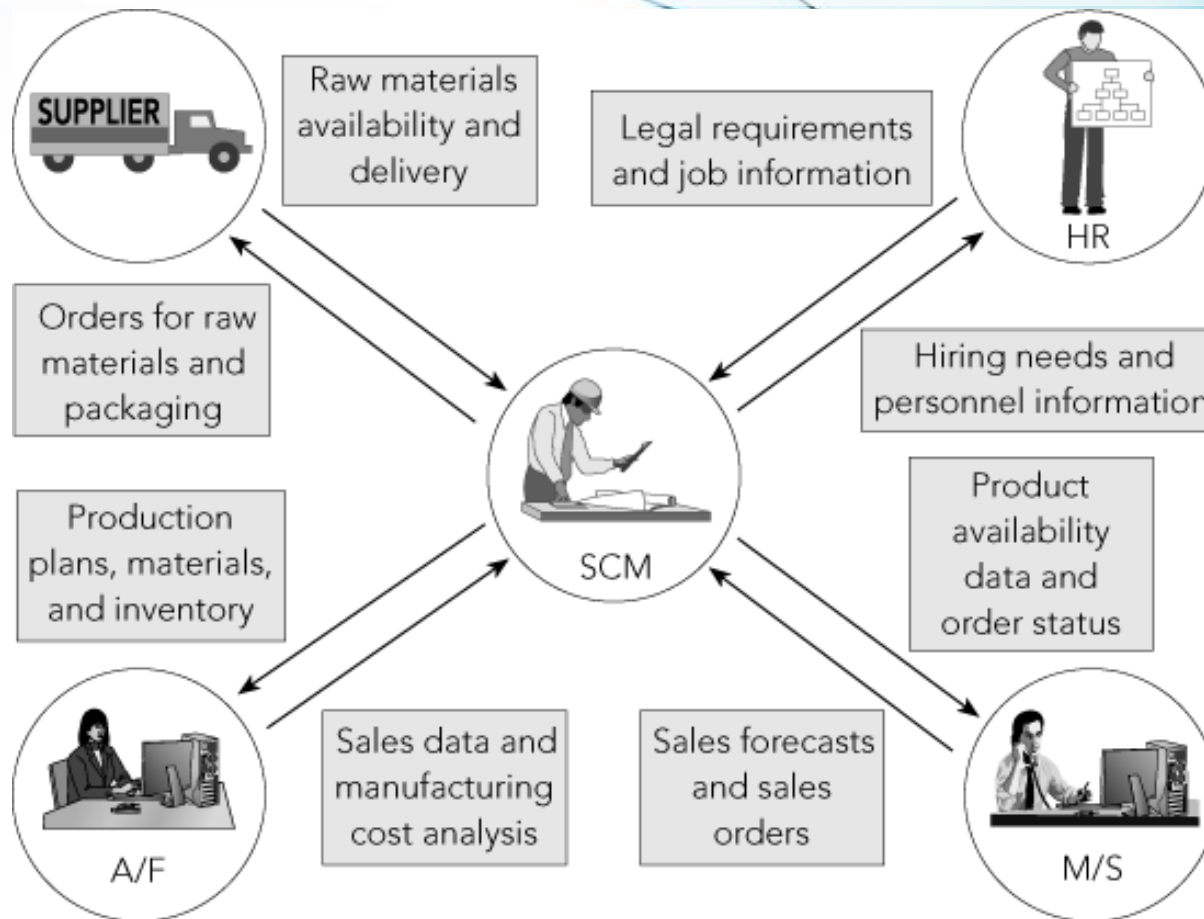


Figure 1-5 The Supply Chain Management functional area exchanges data with suppliers and with the Human Resources, Marketing and Sales, and Accounting and Finance functional areas

# Supply Chain Management

- Inputs for SCM
  - Product sales data
  - Production plans
  - Inventory levels
  - Layoff and recall company policy

# Supply Chain Management

- Outputs for SCM
  - Raw material orders
  - Packaging orders
  - Resource expenditure data
  - Production and inventory reports
  - Hiring information

# Accounting and Finance (A/F)

- Functions within Accounting and Finance
  - Recording raw data about transactions (including sales), raw material purchases, payroll, and receipt of cash from customers
- Raw data: Numbers collected from sales, manufacturing and other operations, without any manipulation, calculation, or arrangement for presentation

# Accounting and Finance

- Data from Accounting and Finance used by Marketing and Sales and Supply Chain Management
  - Sales records are important component of sales forecast
  - Sales forecast is used in making staffing decisions and in production planning
  - Records from accounts receivable used to monitor the overall credit-granting policy of the coffee shop

# Accounting and Finance

- Needs information from all other functional areas
- A/F personnel:
  - Record company's transactions in the books of account
  - Record accounts payable when raw materials are purchased and cash outflows when they pay for materials
  - Summarize transaction data to prepare reports about company's financial position and profitability

# Accounting and Finance

- People in other functional areas provide data to A/F
  - M/S provides sales data
  - SCM provides production and inventory data
  - HR provides payroll and benefit expense data
- M/S personnel require data from A/F to evaluate customer credit

# Accounting and Finance

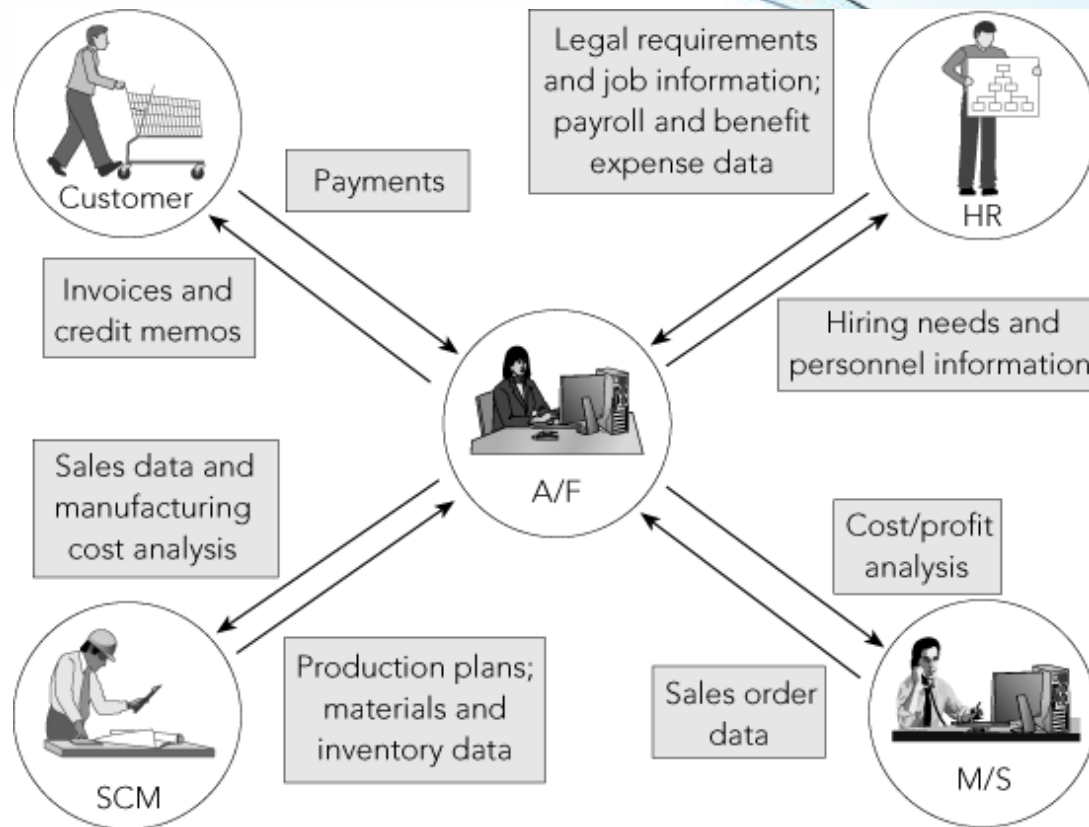


Figure 1-6 The Accounting and Finance functional area exchanges data with customers and with the Human Resources, Marketing and Sales, and Supply Chain Management functional areas



# Accounting and Finance

- Inputs for A/F
  - Payments from customers
  - Accounts receivable data
  - Accounts payable data
  - Sales data
  - Production and inventory data
  - Payroll and expense data

# Accounting and Finance

- Outputs for A/F
  - Payments to suppliers
  - Financial reports
  - Customer credit data

# Human Resources (HR)

- Functions of Human Resources
  - Recruit, train, evaluate, and compensate employees
- HR uses sales forecasts developed by the individual departments to plan personnel needs
- Systems integrated using ERP software provide the data sharing necessary between functional areas

# Human Resources

- HR needs information from the other departments
- Tasks related to employee hiring, benefits, training, and government compliance are all responsibilities of HR
- HR needs accurate forecasts of personnel needs from all functional units
- HR needs to know what skills are needed to perform a particular job and how much the company can afford to pay employees

# Human Resources



Figure 1-7 The Human Resources functional area exchanges data with the Accounting and Finance, Marketing and Sales, and Supply Chain Management functional areas

# Human Resources

- Observing governmental regulations in recruiting, training, compensating, promoting, and terminating employees
- Inputs for HR
  - Personnel forecasts
  - Skills data

# Human Resources

- Outputs for HR
  - Regulation compliance
  - Employee training and certification
  - Skills database
  - Employee evaluation and compensation

# Human Resources

- Significant amount of data is maintained by and shared among the functional areas
- Timeliness and accuracy of these data critical to each area's success and to company's ability to make a profit and generate future growth
- ERP software allows all functional areas to share a common database
  - Allows accurate, real-time information to be available



# Future of ERP

- Increased integration through SCM
- Application Service Providers will provide cost efficiency and access to latest technology e.g. cloud services
- Mobility
- Netsourcing
  - Renting ERP services, applications, and infrastructure over web
  - Additional risks in migration, contracts
  - Internal IT capabilities must be maintained
- Application software integration of legacy systems with ERP
  - Plug and play
  - Flexible, modular

# Summary

- Basic functional areas: Marketing and Sales, Supply Chain Management, Accounting and Finance, and Human Resources
- **Marketing and Sales:** Sets product prices, promotes products through advertising and marketing, takes customer orders, supports customers, and creates sales forecasts
- **Supply Chain Management:** Develops production plans, orders raw materials from suppliers, receives raw material, manufactures products, maintains facilities, and ships products to customers

## Summary (cont'd.)

- **Accounting and Finance:** Financial accounting to provide summaries of operational data in managerial reports, controlling accounts, planning and budgeting, and cash-flow management
- **Human Resources:** Recruits, hires, trains, and compensates employees, ensures compliance with government regulations, and oversees the evaluation of employees
- Information systems capture, process, and store data to provide information needed for decision making

## Summary (cont'd.)

- Employees working in one functional area need data from employees in other functional areas
  - Functional area information systems should be integrated, so shared data are accurate and timely
- Managers think in terms of business processes that integrate the functional areas
  - Need to share information between functions and functional areas
  - ERP software provides this capability by means of a single common database



Thank you for your time

Senior Lecturer Jaana Tanhuanpää  
Saimaa University of Applied Sciences,  
Lappeenranta, Finland