HNDIT1042 Information Management and Information Systems

Week2

Organizations and Management hierarchy Type of information (Strategic, Tactical, Operational)

WEEK 2

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.
- Describe the information systems supporting the major business functions
- Explain how enterprise applications improve organizational performance.

what Information systems will be able to do?

- Increasing market share
- becoming the high-quality or low-cost producer.
- developing new products
- increasing employee productivity

Business processes

- Business processes are the collection of activities required to produce a product or service.

- Every business can be seen as a collection of business processes.
- Many business processes are tied to a specific functional area.
- For example
  - the sales and marketing function is responsible for identifying customers,
  - the human resources function is responsible for hiring employees.

Business Processes and Information Systems

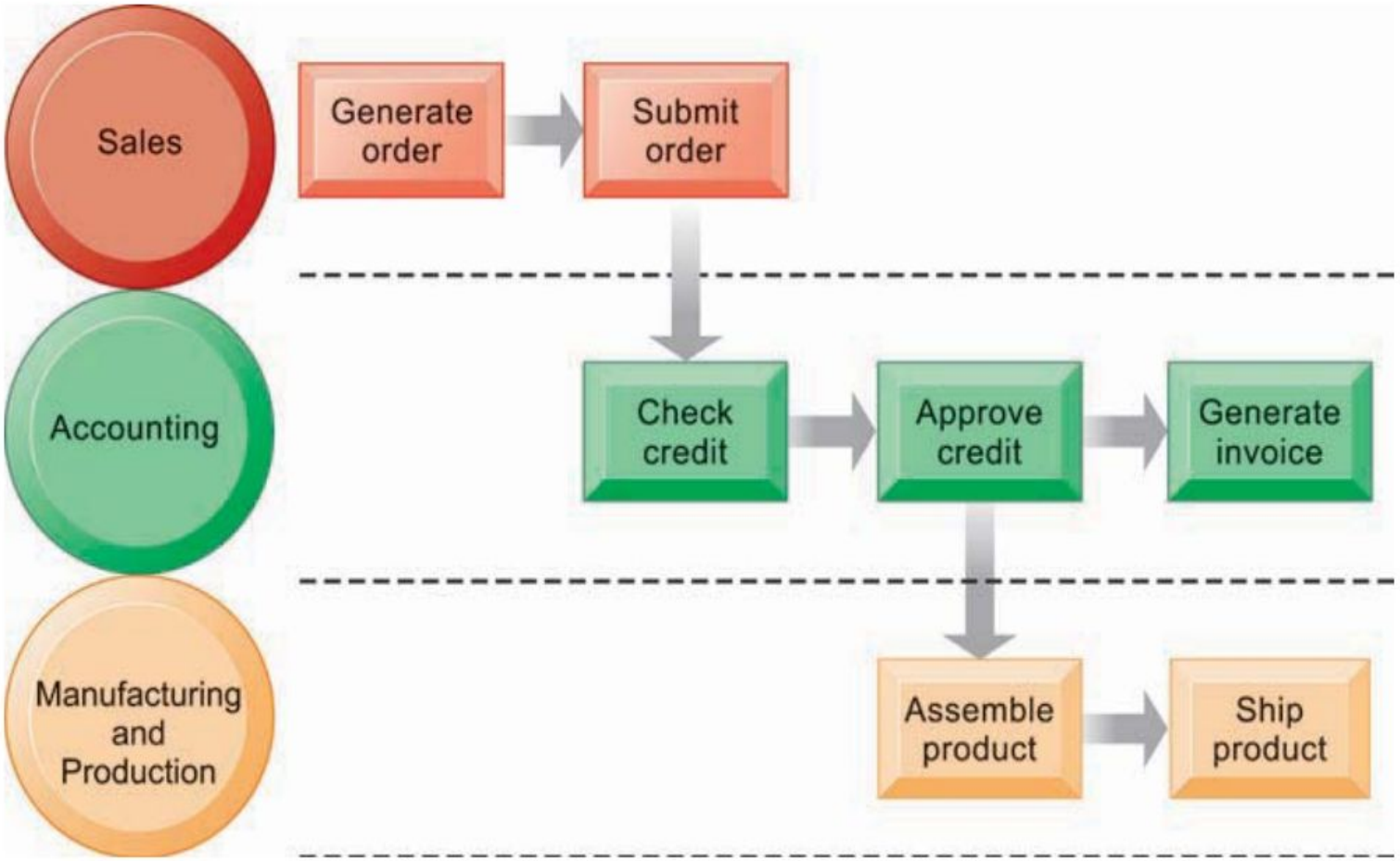
- Examples of functional business processes

FUNCTIONAL AREA	BUSINESS PROCESS
Manufacturing and production	Assembling the product Checking for quality Producing bills of materials
Sales and marketing	Identifying customers Making customers aware of the product Selling the product
Finance and accounting	Paying creditors Creating financial statements Managing cash accounts
Human resources	Hiring employees Evaluating employees' job performance Enrolling employees in benefits plans

simple business process of fulfilling a customer order

- the sales department receives a sales order.
- The order passes first to accounting to ensure the customer can pay for the order either by a credit verification or request for immediate payment prior to shipping.
- Once the customer credit is established, the production department pulls the product from inventory or produces the product.
- Then the product is shipped.
- A bill or invoice is generated by the accounting department, and a notice is sent to the customer indicating that the product has shipped.
- The sales department is notified of the shipment and prepares to support the customer by answering calls or fulfilling warranty claims

FIGURE 2.1 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.

How do information systems improve business processes?

- Information systems automate many steps in business processes that were formerly performed manually
  - such as checking a client's credit,
  - generating an invoice and shipping order

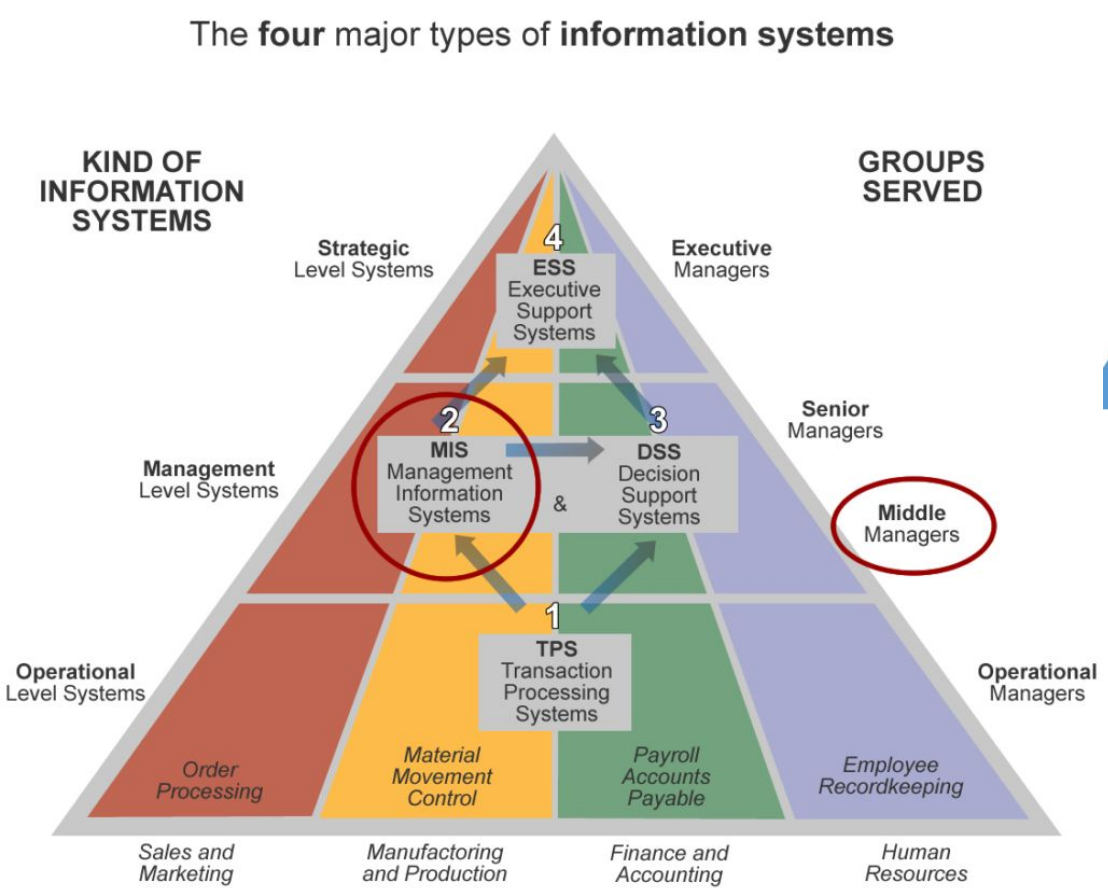
TYPES OF INFORMATION SYSTEMS

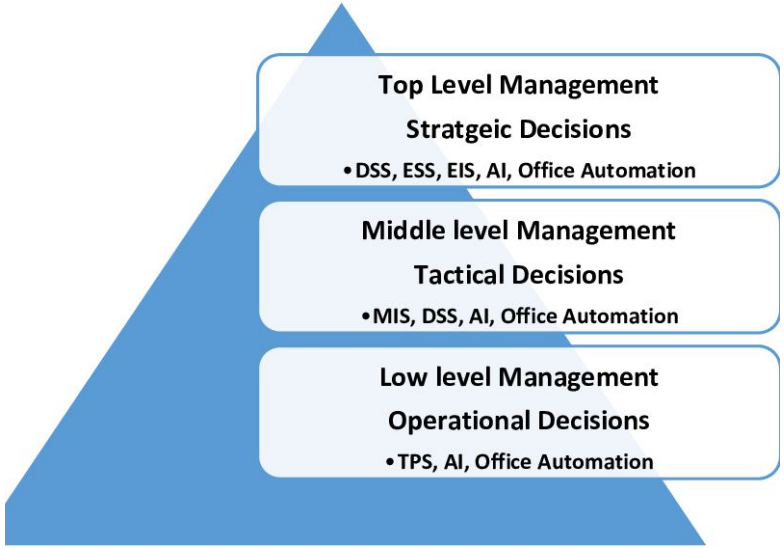
Types of Information Systems

Three main categories of information systems serve different organizational levels:

- Operational-level systems: support operational managers, keeping track of the elementary activities and transactions
- Management-level systems: serve the monitoring, controlling, decision-making, and administrative activities
- Strategic-level systems: help senior management tackle and address strategic issues

SYSTEMS FOR DIFFERENT MANAGEMENT GROUPS





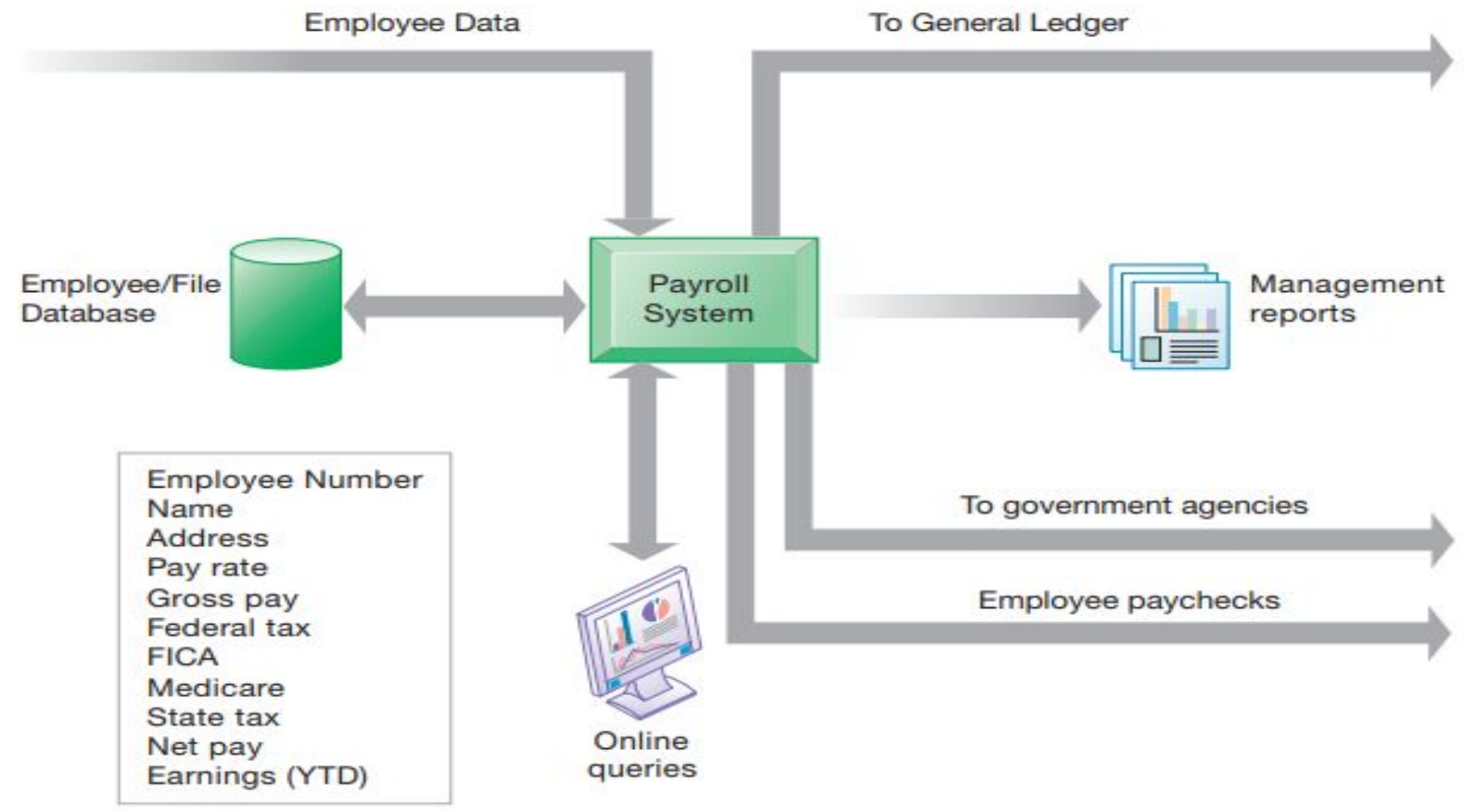
Transaction Processing Systems

- keep track of the elementary activities and transactions of the organization.
  - sales, receipts, cash deposits, payroll, credit decisions, and the flow of materials in a factory.
- Performs and records the daily routine transactions necessary to conduct business
  - sales order entry, hotel reservations, payroll, employee record keeping, and shipping.
- Answer routine questions and to track the flow of transactions through the organization.
  - Eg: How many parts are in inventory? What happened to Mr. Smith's payment? To answer these kinds of questions

payroll system

- A payroll system keeps track of money paid to employees. An employee time sheet with the employee's name, social security number, and number of hours worked per week represents a single transaction for this system. Once this transaction is input into the system, it updates the system's master file that permanently maintains employee information for the organization. The data in the system are combined in different ways to create reports of interest to management and government agencies and to send paychecks to employees.

FIGURE 2.2 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.

SYSTEMS FOR BUSINESS INTELLIGENCE FOR MIDDLE MANAGEMENT

Types of Information Systems

Business intelligence

- Data and software tools for organizing and analyzing data

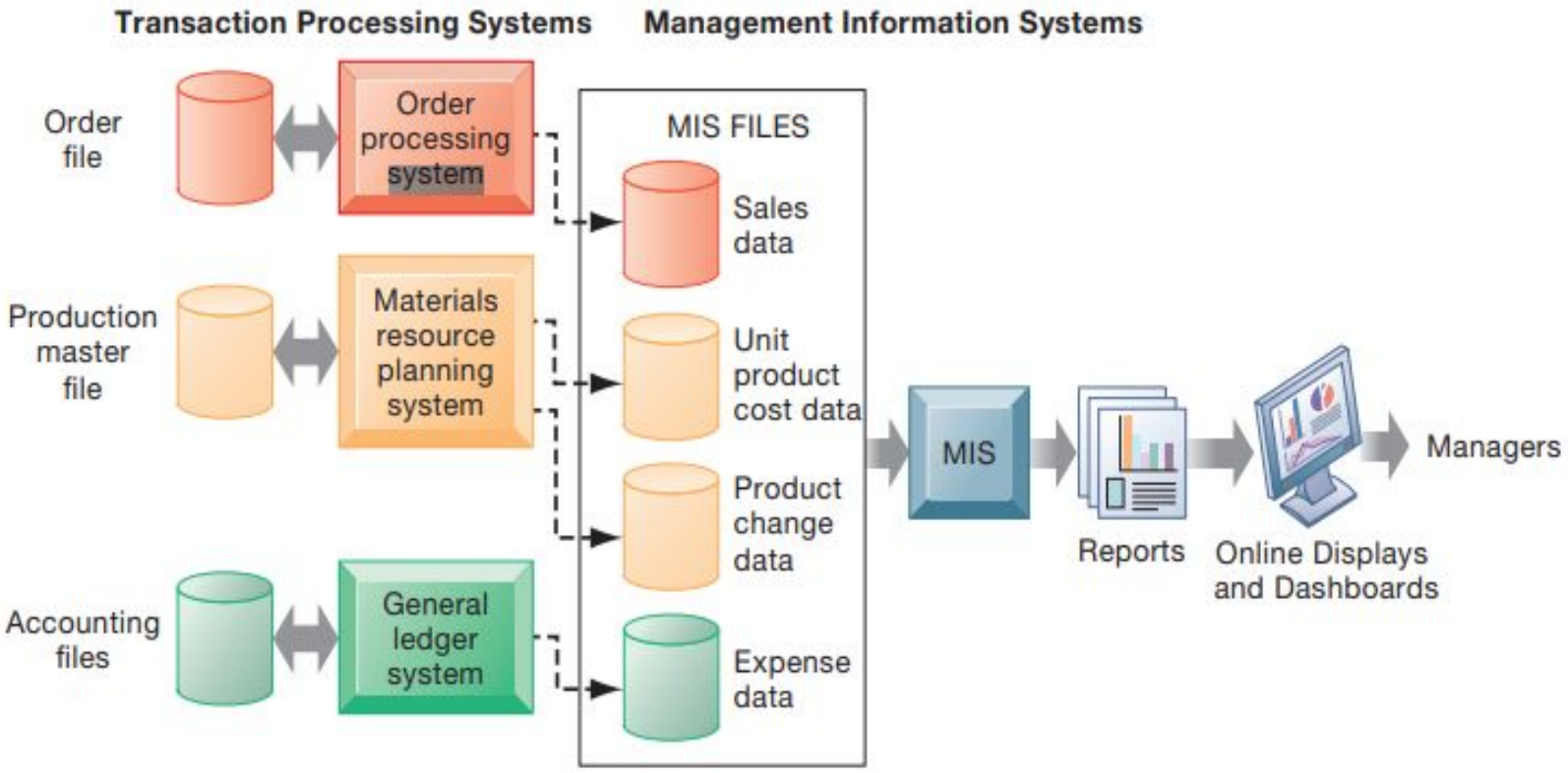
Used to help managers and users make informed decisions

- Business intelligence systems
  - Management information systems
  - Decision support systems
  - Executive support systems

management information systems (MIS)

- Summarize and report on the company's basic operations using data supplied by transaction processing systems.
- serving middle management.
- Provide middle managers with reports on the organization's current performance.
- Inflexible
- Have little analytical capability.
- Use simple routines, such as summaries and comparisons.

FIGURE 2.3 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.

Sample report

Consolidated Consumer Products Corporation Sales by Product and Sales Region: 2011

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	0.95
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	1.05

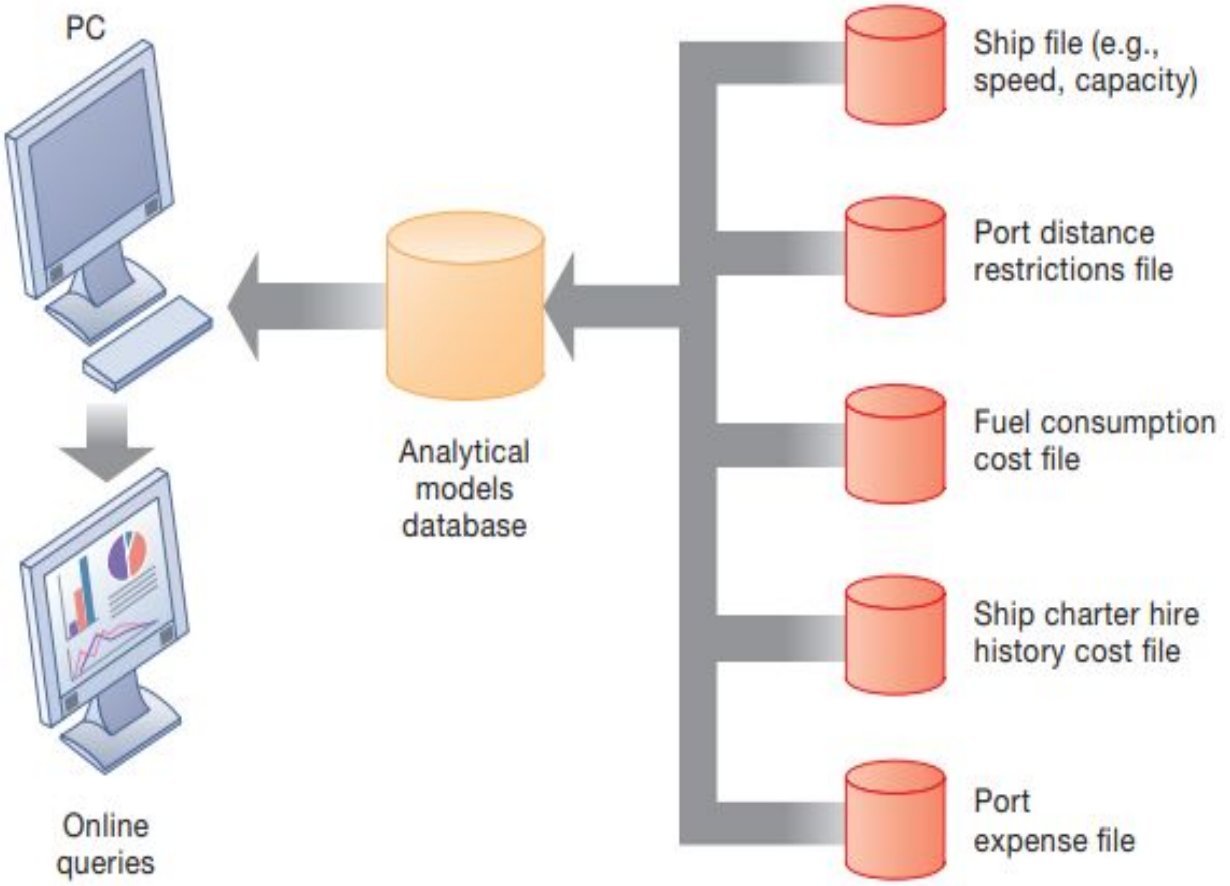
Decision Support System

- DSS use internal information from TPS and MIS.
- Serve middle management
- Support non-routine decision making
  - Example: What is the impact on production schedule if December sales doubled?

DSS for Voyage-estimating system

- The voyage-estimating system of a large global shipping company that transports bulk cargoes of coal, oil, ores, and finished products. The firm owns some vessels, charters others, and bids for shipping contracts in the open market to carry general cargo. A voyage estimating system calculates financial and technical voyage details. Financial calculations include ship/time costs (fuel, labor, capital), freight rates for various types of cargo, and port expenses. Technical details include a myriad of factors, such as ship cargo capacity, speed, port distances, fuel and water consumption, and loading patterns (location of cargo for different ports). The system can answer questions such as the following: Given a customer delivery schedule and an offered freight rate, which vessel should be assigned at what rate to maximize profits? What is the optimal speed at which a particular vessel can optimize its profit and still meet its delivery schedule? What is the optimal loading pattern for a ship bound for the U.S. West Coast from Malaysia? Figure 2.5 illustrates the DSS built for this company.

FIGURE 2.5 VOYAGE-ESTIMATING DECISION-SUPPORT SYSTEM



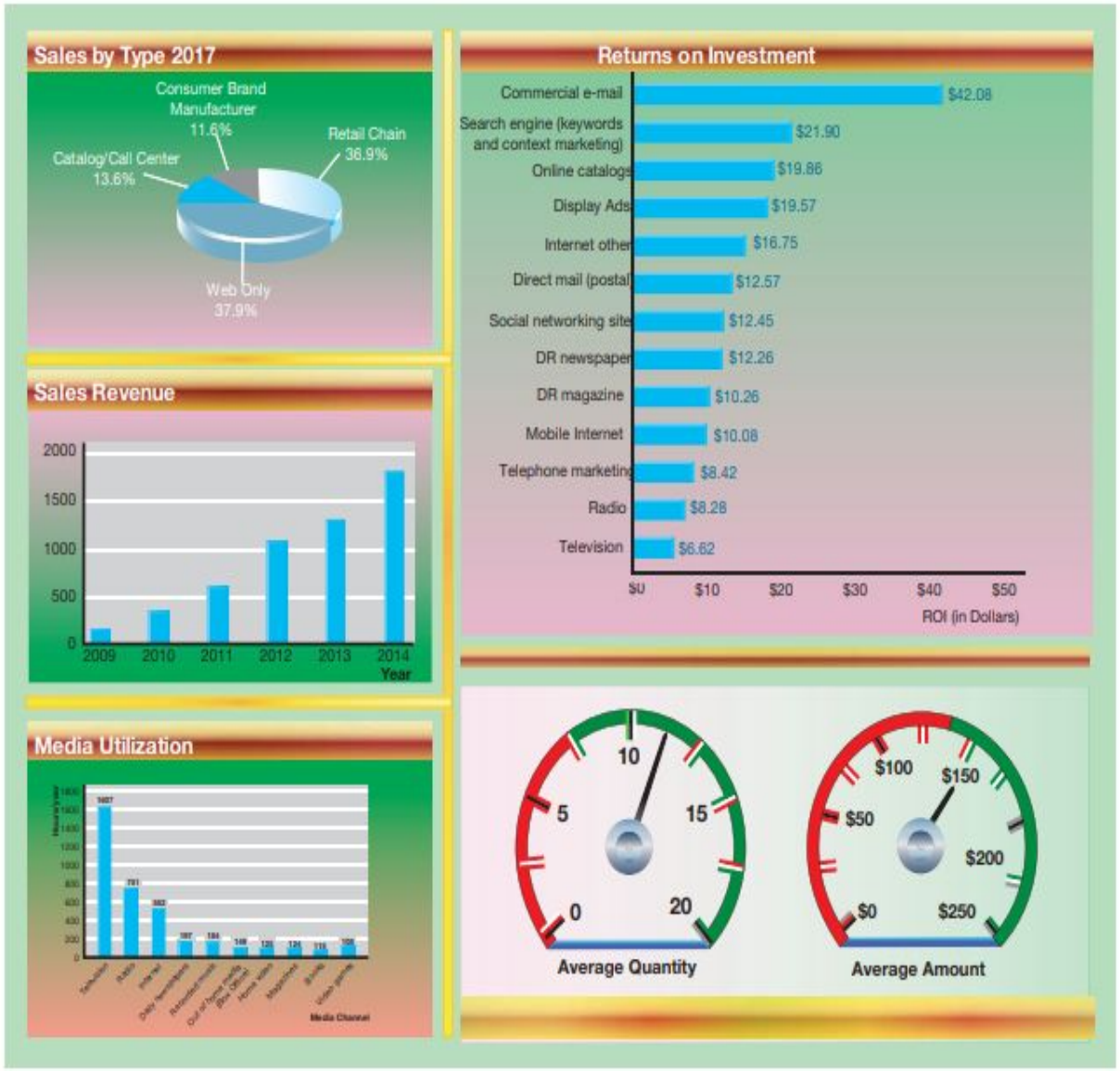
This DSS operates on a powerful PC. It is used daily by managers who must develop bids on shipping contracts.

Executive support systems (ESS)

- Support senior management.
- Address non-routine decisions requiring judgment, evaluation, and insight because there is no agreed-on procedure for arriving at a solution.
- Present graphs and data from many sources through an interface.
- Incorporate data about external events (such as new tax laws or competitors,) as well as summarized information from internal MIS and DSS.
- They filter, compress, and track critical data, displaying the data of greatest importance to senior managers.
- Systems include business intelligence analytics for analyzing trends, forecasting, and “drilling down” to data at greater levels of detail.

ESS example

- the CEO of Leiner Health Products, the largest manufacturer of private-label vitamins and supplements in the United States, has an ESS that provides on his desktop a minute-to-minute view of the firm's financial performance as measured by working capital, accounts receivable, accounts payable, cash flow, and inventory. The information is presented in the form of a digital dashboard, which displays on a single screen graphs and charts of key performance indicators for managing a company. Digital dashboards are becoming an increasingly popular tool for management decision makers.



A digital dashboard delivers comprehensive and accurate information for decision making, often using a single screen. The graphical overview of key performance indicators helps managers quickly spot areas that need attention.