UNIT III
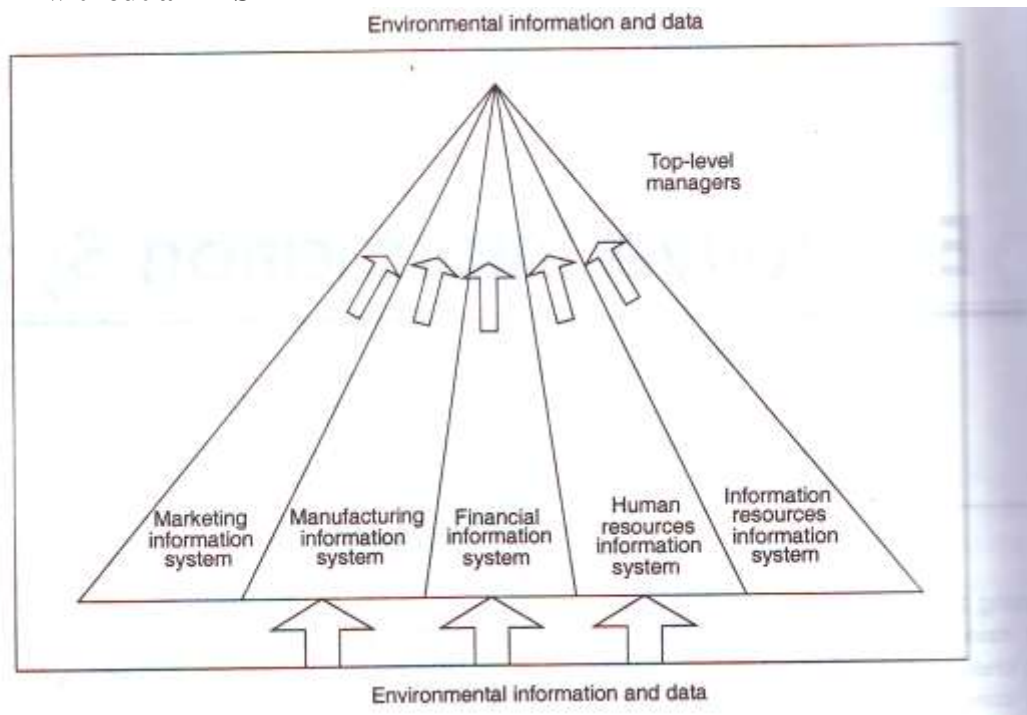
1. Executive information system
2. Marketing information system
3. Manufacturing Information system
4. Human – Resource information system

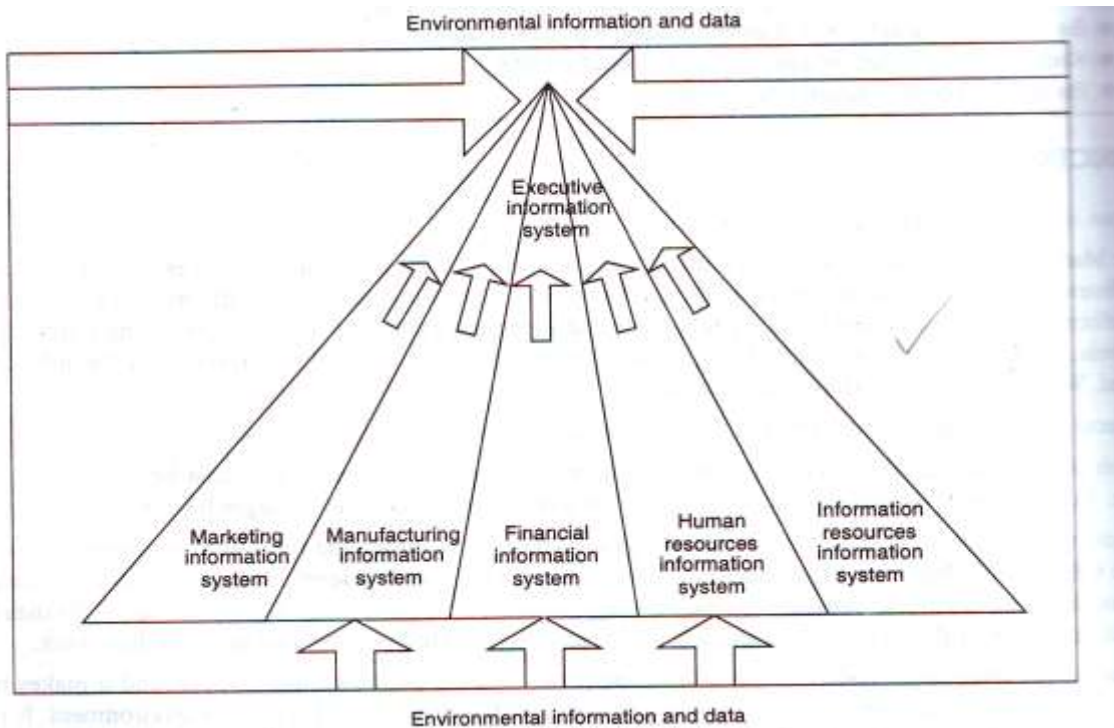## 1. EXECUTIVE INFORMATION SYSTEM

The Executive Position

- Executives have Unique demands of the executive position
- Executives require unique information processing

A Firm without an EIS

Fig.3.1 A Firm without an EIS

A Firm with an EIS

Fig.3.2 A Firm with an EIS

What Do Executives Do?

- Term executive is loosely applied
  - No clear dividing line between executives and other managers.
- Executive manager on the upper level of the organizational hierarchy who exerts a strong influence on the firm.
- Executive manager on the lower level distinguished by their attitude.
- Executive assign a higher value to the welfare of the firm than to the welfare of individual units within the firm.
- Executives tend to be company oriented.

Fayol's Management Functions

- Plan
- Organize
- Staff
- Direct
- Control

Mintzberg's Managerial Roles

- Different levels of management perform same roles but relative time spent on each differs.
- Executives focus on
  - Long-range, entrepreneurial improvements

        o   Responding to unanticipated situations

Kotter's Agenda and Networks

Kotter's believes that executives cope with the challenges of their jobs by following a three step strategy.

- Agenda -- objectives the firm is to achieve
- Networks -- cooperative relationships
  - Hundreds or thousands
  - Inside and outside the firm
- Environment -- norms and values so the network members can achieve agendas

How Do Executives Think?

- Daniel J. Isenberg, Harvard professor found that executives think about two general classes of problems
  - How to get things done
  - A few overriding issues
- More concerned with process than solution.
- Thought processes do not always follow the step-by-step patterns of the systems approach.
- Intuition is used at each step

Unique Information Needs of executives

Study 1:

- Mintzberg was first to conduct a formal study of executive information needs
- Studied 5 executives in early 1970s
- Five basic activities
  - desk work
  - telephone calls
  - unscheduled meetings
  - scheduled meetings
  - tours
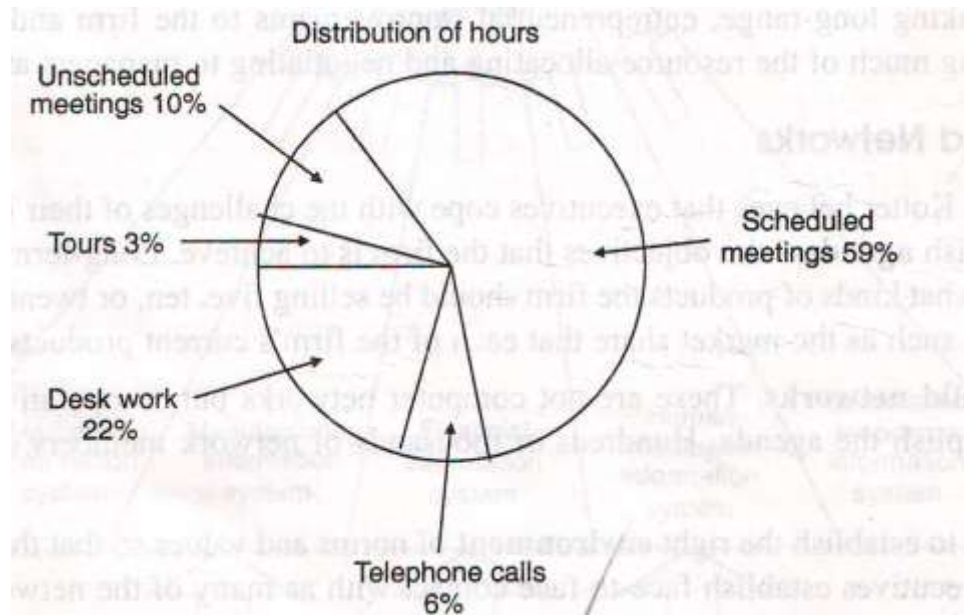
Fig.3.3 How Minzberg's CEOs Spent Time

Unique Information Needs of executives

Study 2:
- Jones & McLeod Study
- Studied 5 executives in early 1980s
- Questions

1) How much information reaches the executive?
2) What was the information value?
3) What are the information sources?
4) What media are used to communicate the information?
5) What use is made of the information?

1) How much information reaches the executive?
- The executives received an average of 29 information transactions per day.
- It varies from executive to executive
- It varies from day to day
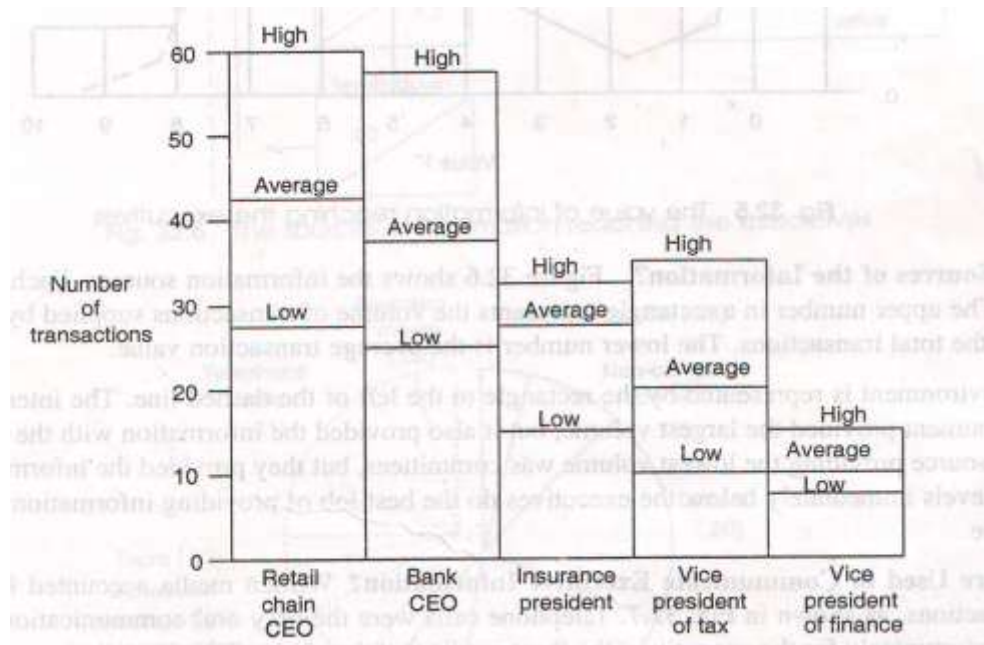
Fig.3.4 The volume of information reaching the executives

2) What was the information value?

- The executives assigned a value ranging from zero to ten to each transaction.
- The executive gave 26% of the transactions very low value.
- Only 6% of the transactions a nine or ten.

3) What are the information sources?

- Some executives went down levels to gather information.
- Environment provides the largest volume but lowest average value.
- Sources were internal and external.
- External sources provided the most volume but also the lowest average value.
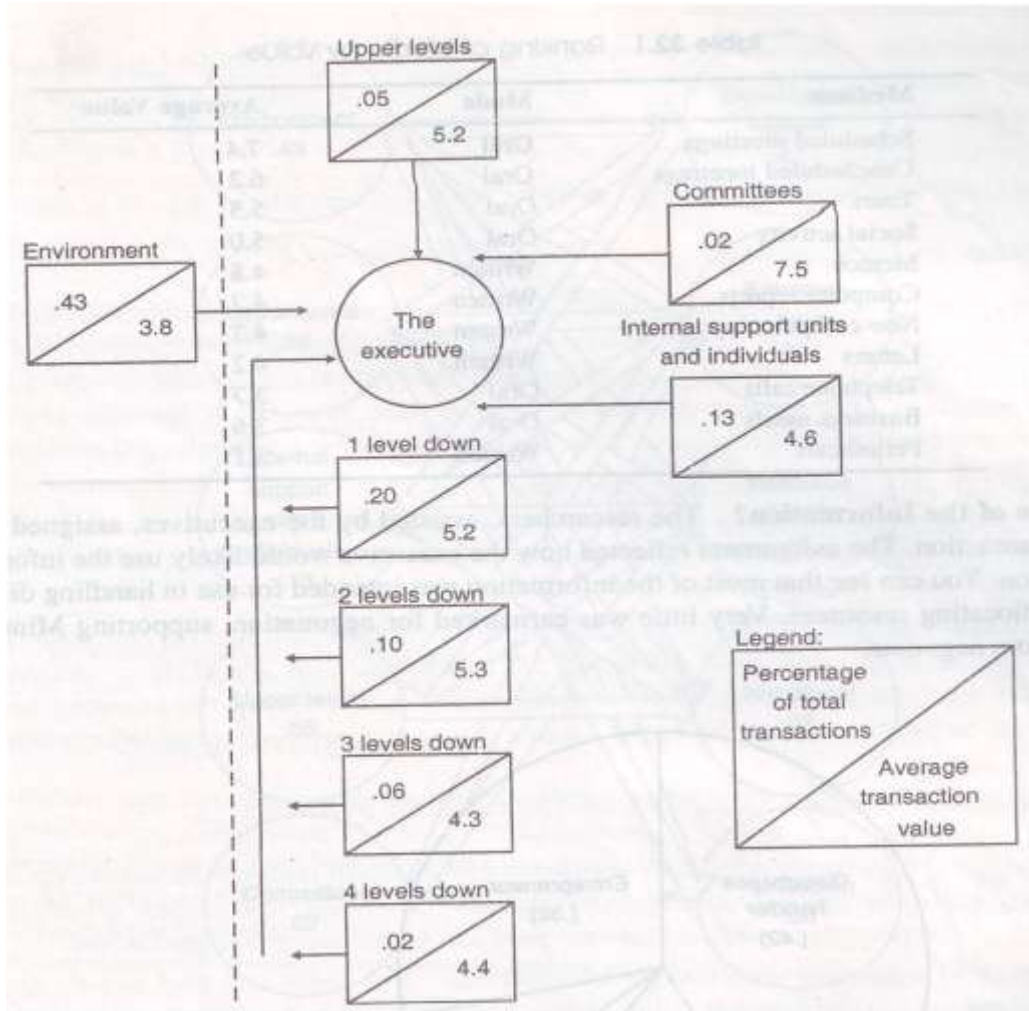
Fig.3.4 The sources of information reaching the executives

4) What media are used to communicate the information?
- Written media accounts for 61% of the transactions
    - Computer reports
    - Letters and memos
    - Periodicals
- Oral media is preferred by executives
    - Tours
    - Business meals
    - Telephone calls
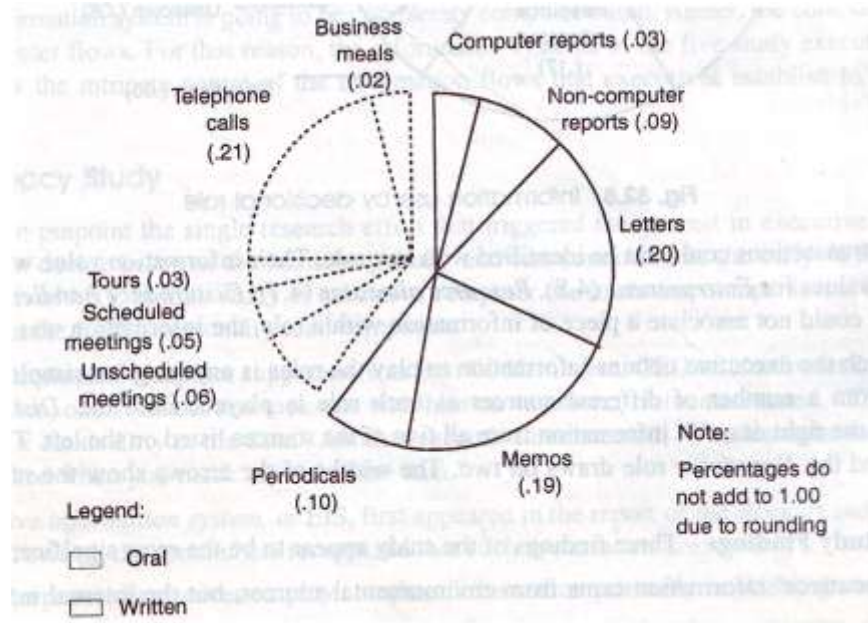
Fig.3.5 The media pie

Table 1.2 Ranking of media by value

| Medium	Mode	Average Value
Scheduled meetings	Oral	7.4
Unscheduled meetings	Oral	6.2
Tours	Oral	5.3
Social activity	Oral	5.0
Memos	Written	4.8
Computer reports	Written	4.7
Non-computer reports	Written	4.7
Letters	Written	4.2
Telephone calls	Oral	3.7
Business meals	Oral	3.6
Periodicals	Written	3.1

5) What use is made of the information?
- Disturbance handler
- Entrepreneur
- Resource allocator
- Nagotiator
- Others

Jones & McLeod Study Findings
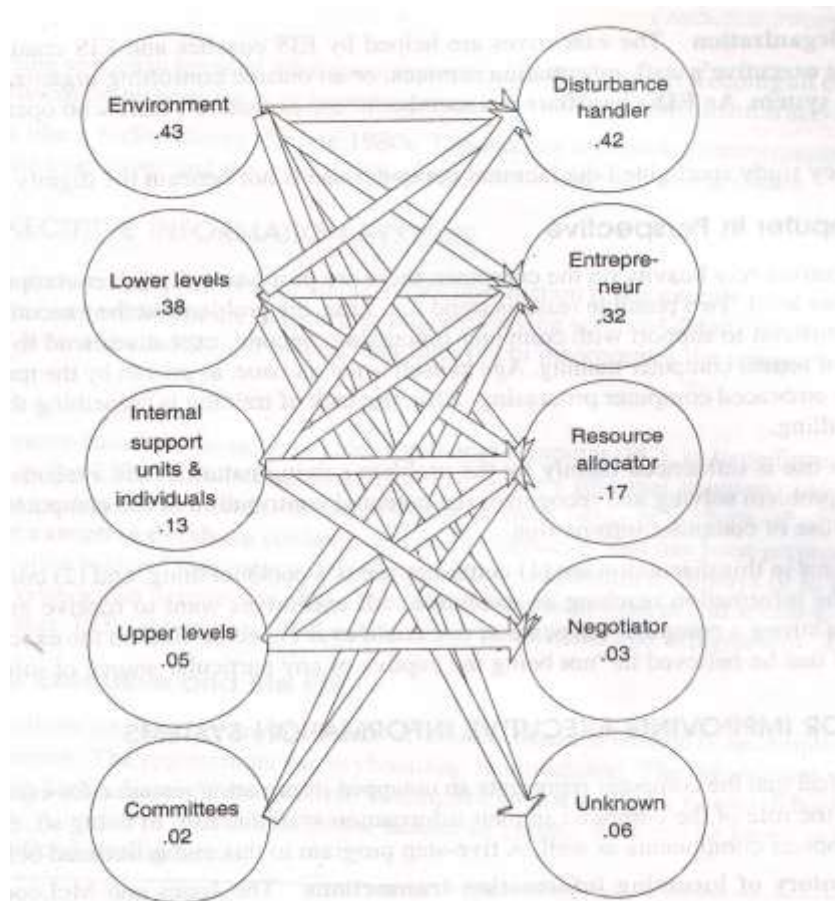
- Most executives' information came from environmental sources, but the internal information was valued higher
- Most of the executives' information came in written form, but the oral information was valued higher

- Executives receive very little information directly from a computer
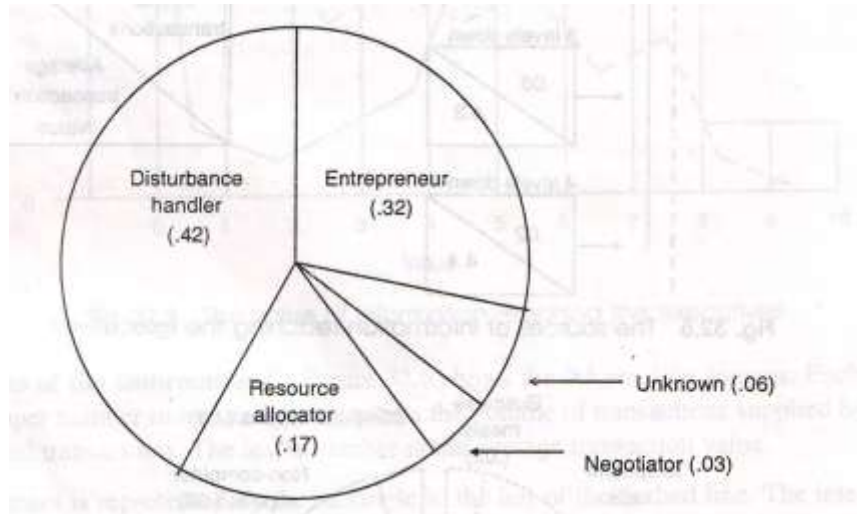
Fig.3.6 information use by decisional role

Fig.3.7 Sources of decisional information

**Unique Information Needs of executives**

Study 3:

- Study conducted by John Rockart and Michael Treacy, both of MIT
- Studied 16 companies in early 1980s
- Found many computer users
- Found some executives interested in detail
- Coined the term "executive information system"

EIS Features
- A central purpose
- A common core of data
- Two principal methods of use
    - Retrieve reports
    - Conduct analyses
- A support organization
    - EIS coach
    - EIS chauffeur

An EIS Model

Executive information system or EIS are used by the firm's executives. It is a system that provides information to the executive on the overall performance of the firm.
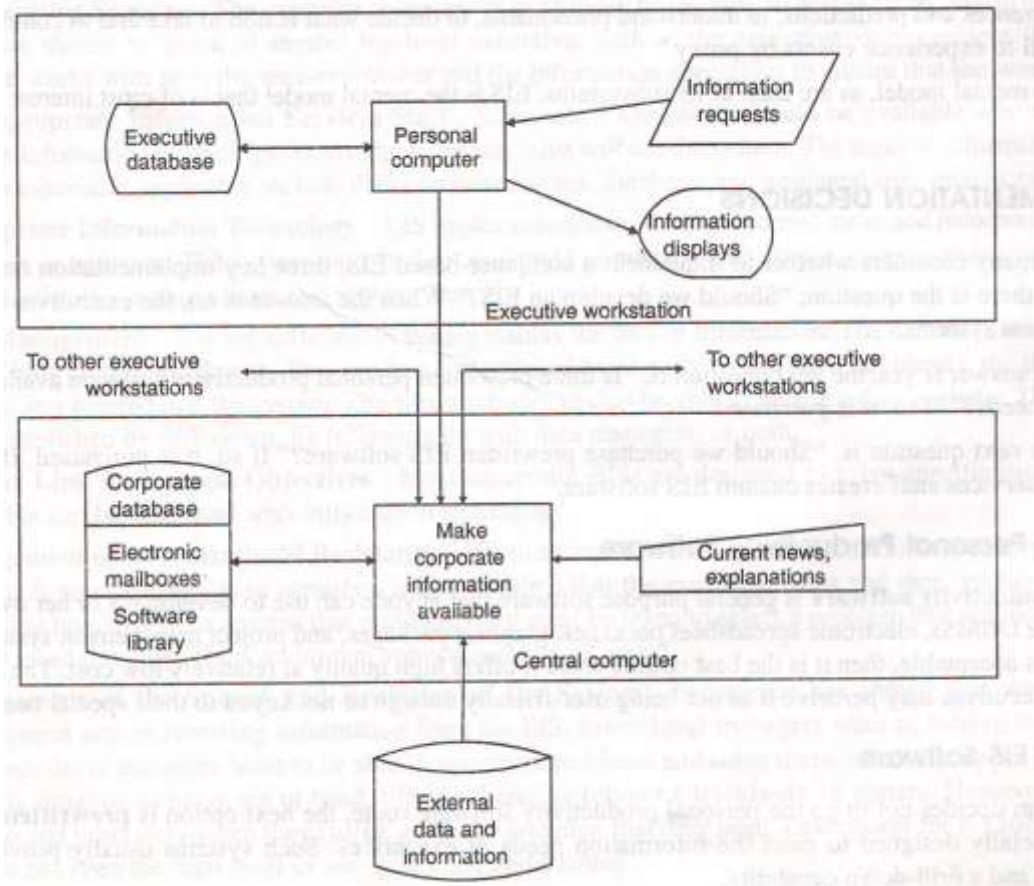
Fig.3.8 The EIS model

EIS model consists of
- Executive workstation
- Central computer

EIS Implementation Decisions

Three Key Questions:

- Do we develop an EIS? When the answer is no, the executives continue to rely on their present systems. When the answer is yes, the next question is
- "Is there prewritten personal productivity software available to meet the executive's needs?" If so, it is purchased.
- If not, the next question is "Should we purchase prewritten EIS software?" if so, it is purchased. If not, the firm's information services staff creates custom EIS software.

Prewritten personal productivity software

It is general purpose software that anyone can use to develop his or her own applications. Examples are DBMS, electronic spreadsheet packages.

Prewritten EIS software

Prewritten EIS software, which is specially designed to meet the information needs of executives.

Advantages of Prewritten Software

- Fast
- Doesn't strain information services
- Tailored to executives

EIS Critical Success Factors

- Committed/informed executive sponsor
- Operating sponsor
- Appropriate information services staff
- Appropriate information technology (IT)
- Data management
- Link to business objectives
- Manage organizational resistance
- Manage the spread and evolution

Future EIS Trends

- Use will become commonplace
- Decreasing software prices
- Will influence MIS/DSS
- The computer will always play a support role

2. MARKETING INFORMATION SYSTEM

Introduction

- Marketing was the first functional area to exhibit an interest in management information system (MIS).
- The marketing information system has three subsystems; the accounting information system, marketing research, and marketing intelligence.
- Functional information systems: the conceptual systems should be "mirror images" of the physical systems.

Functional Information Systems

The conceptual systems are mirror images of the physical systems that they represent.
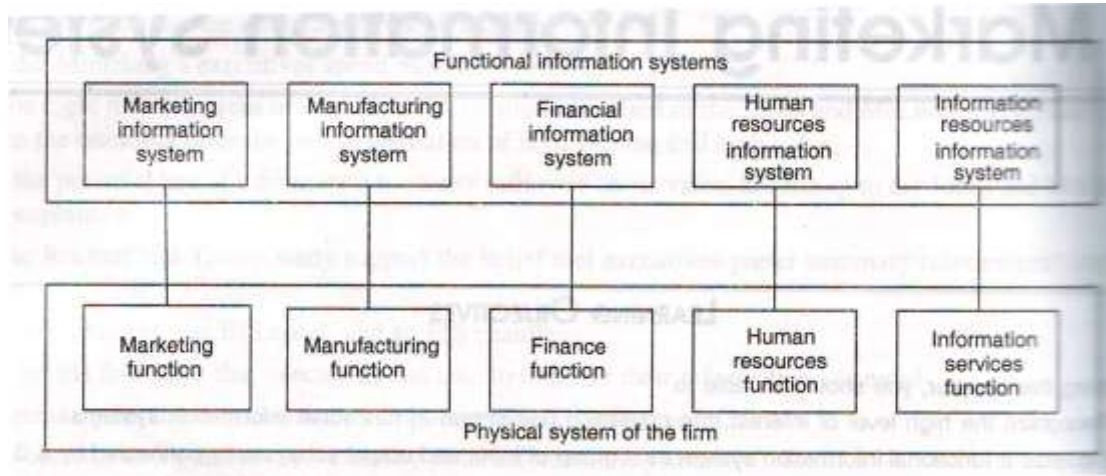
Fig.3.9 Functional Information Systems

Marketing Principles

- Many people think of marketing in narrow terms, as including only selling and advertising.
- Marketing "consists of individual and organizational activities that facilitate and expedite satisfying exchange relationships in a dynamic environment through the creation, distribution, promotion and pricing of goods, services and ideas."
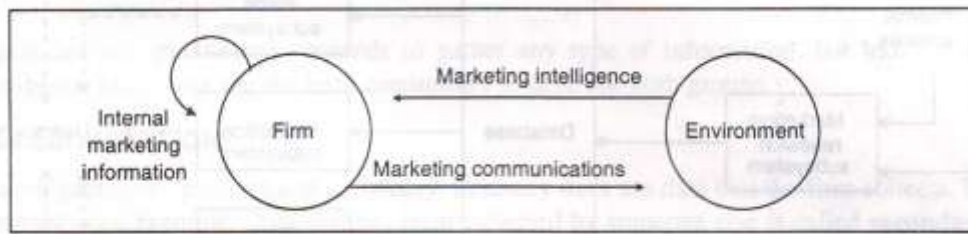
Marketing mix

Marketing strategies consists of a mixture of ingredients that has been named the marketing mix: product, promotion, place and price. Collectively they are known as the four Ps.

- Product: is what the customer buys to satisfy a perceived want or need. A product can be a physical good, some type of services or ideas.
- Promotion: is concerned with all the means of encouraging the sale of the product, including advertising and personal setting.
- Place: deals with the means of physically distributing the product to the customer through a channel of distribution.
- Price: consists of all the elements relating to what the customers pays for the product.

Evolution of the Marketing Information System (MKIS)

- In 1966 professor Philip kotler used the term marketing nerve center to describe a new unit within marketing to gather and process marketing information.
- He identified three types of information that are
  - Internal

- Intelligence (from environment)
- Communications (to environment)

Fig.3.10 Kotter's information flow

Marketing Information System (MKIS) Definition

Marketing information system as a computer based system that works in conjunction with other functional information systems to support the firm's management in solving problems that relate to marketing the firm's products.

An MKIS Model

It consists of
- Output
  - product
  - place
  - promotion
  - price
  - integrated mix
- Database
- Input
  - AIS
  - marketing research
  - marketing intelligence
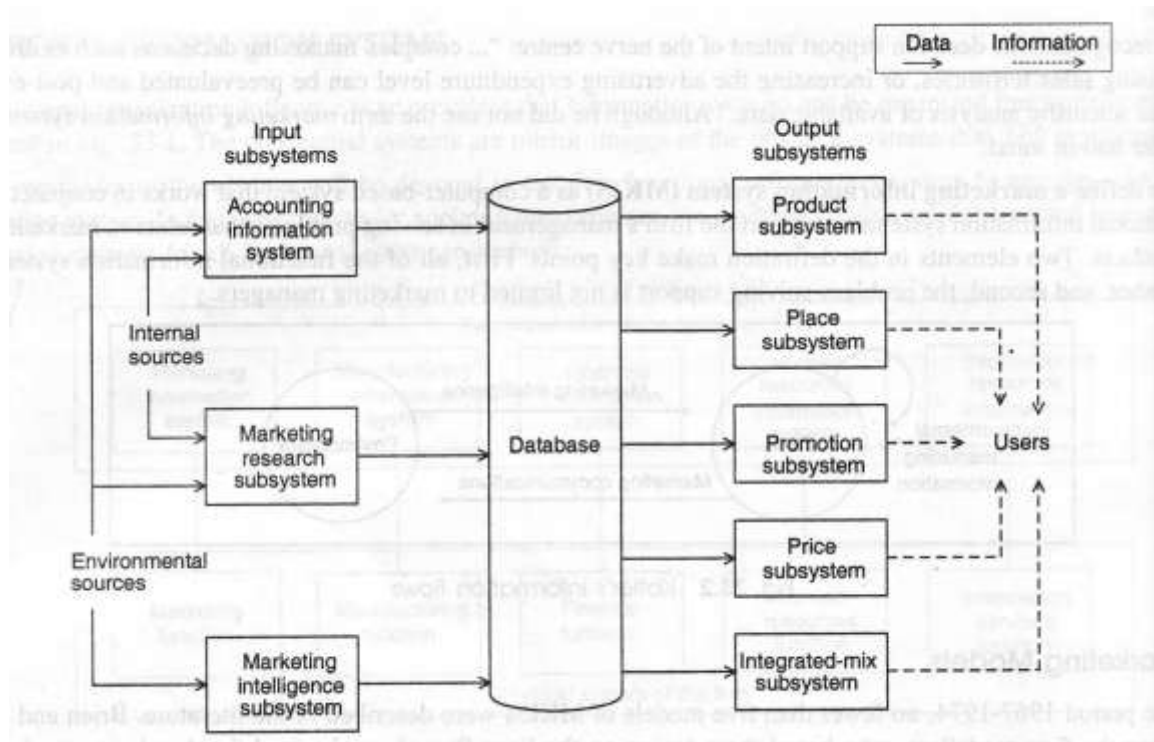
Fig.3.11 A model of marketing information system

Accounting Information System

Marketing provides sales order data that is input to the AIS.
There are three ways to provide sales data to the AIS:
- o Sales representative enter the data from customer offices.
- o Sales personnel at headquarters may take order data over the phone or by mail and enter it into keyboard terminals.
- o Customer enters data directly into the firm's computer, using the internet.

AIS provides data to prepare information in the form of
- o Periodic reports: example sales-by-product, sales-by-salesperson
- o Special reports: example accidental reports
- o Mathematical models and knowledge-based models

Marketing Research Subsystem

- Marketing research is used to gather any type of information. Two types of data are gathered primary and secondary.
- Primary data are collected by the firm. Example, data gathered by the firm's salesperson.
- Primary data is collected through marketing research
  - o Survey: a survey involves asking a number of people the same questions by personal interview, telephone or mail. The number of respondents may be relatively small, say thirty, or quite large, say several thousand.

- o In-depth interview: when questions are asked of a small number of people, perhaps only three or four, the technique is known as an in-depth interview. The time devoted to the interview is much larger than that spent with someone participating in a survey.
    - o Observation: watching a certain behavior.
    - o Controlled experiment: experiments designed to measure the effect of particular treatment.
- Secondary data that has been collected by someone else.
    - o Mailing lists
    - o Retail sales statistics
    - o Video retrieval systems
- Some secondary data must be bought and some is free.

Marketing Research Software

- Graphics packages (print maps)
- CATI (computer-aided telephone interviewing) where the computer displays the next question to ask
- Statistical analysis

Marketing Intelligence Subsystem

- The AIS gathers customer data, and the marketing intelligence subsystem gathers competitor's data.
- Marketing intelligence refers to the ethical activities aimed at gathering information about competitors.
- Each functional information system has an intelligence responsibility

Product Subsystem

- The firm decides to provide a product to satisfy a particular market need.
- Product life cycle traces the sales of a product from its withdrawal from the market.
- Four stages are
    - o introduction
    - o growth
    - o maturity
    - o decline
- Figure shows theses stages along with the three time periods during which the product subsystem helps the marketing manager make product oriented decisions.
    - o The first period precedes the introduction of the product, when a decision is made whether to develop and market the product.
    - o The second period includes the time when various strategies must be considered to keep sales healthy.
    - o The final period is during the decline, when product deletion is an alternative.

- New Product Evaluation Model: the firm may have a new product committee, which performs a screening function by using a new product evaluation model to compute scores for new product candidates.
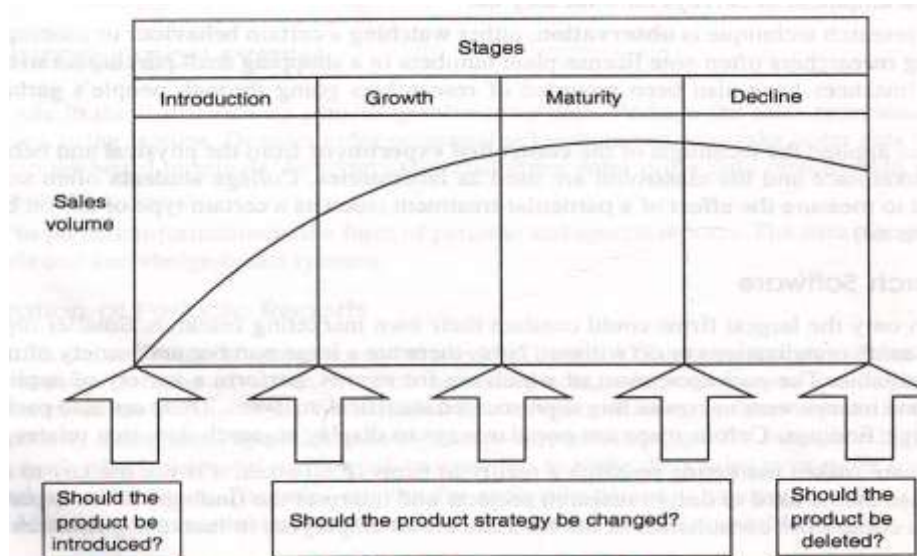
Fig.3.12 The product life cycle and related decisions

Place Subsystem

- The channels of distribution that a firms uses to get its products to the consumer constitute the place ingredient in the marketing mix.
- The material flow originates with the supplier and ends with the consumer.
- The money flow just the reverse; and an information conduit provides a two-way flow that connects all participants.
- Information that flows in the direction opposite to the material flow is called feedback information.
- Feed forward information from the manufacturer to the wholesaler and retailer can include announcements of new products, sales and promotion aids, and forecasts of demand.
- Feed forward information to the consumer can include instructs for use, safety tips, and warranties.
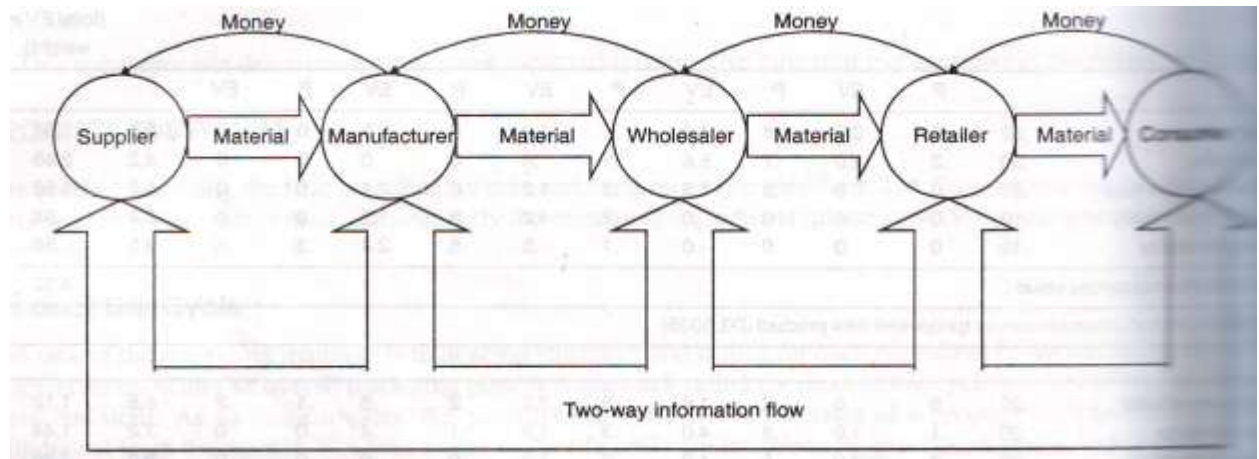
Fig.3.13 material, money and information flow through the distribution channel

Promotion Subsystem

- It is the difficult area to computerize.
- One promotional area where the computer can be applied is salesperson communications. If the firms wants to provide its sales force with a flexible means of communication, this can be accomplished with laptops. Salesperson carries the laptops with them as they cover their territories and use them to:
- Query the database to answer questions that the consumer asks about products being considered for purchase.
- Enter sales order data into the order entry system.
- Submit call reports that summarize each sale call, specifying who was contacted, what was discussed, what the next sales objective will be and so on.

Pricing Subsystem

Two Basic Approaches

1. Cost based: some firms engage in cost-based pricing by determining their costs and then adding a desired markup. This approach is a rather cautious one.

2. Demand-based: a less cautious pricing policy is demand-based pricing, which establishes a price compatible with the value that consumer places on the product. The key to this approach is correctly estimating demand. This requires a good understanding of the consumer and also of the market.

Integrated-Mix Subsystem

- The integrated-mix subsystem supports the manager as the ingredients of the marketing mix are combined to form a particular strategy. This goal is accomplished by projecting outcomes of various mixes.
- The integrated-mix model receiving the most publicity is BRANDAID developed by MIT professor.

BRANDAID

- It includes sub models for advertising, promotion, price, personal selling and retail distribution.
- It simulates the activities of a manufacturer that sells to consumers through retailers in a competitive environment.
- The solid arrows represent the influences flowing from the manufacturer, retailer, competitor and business environment.
- The dashed arrows represent responses to those influences.
- Environmental and retailer influence on the consumer
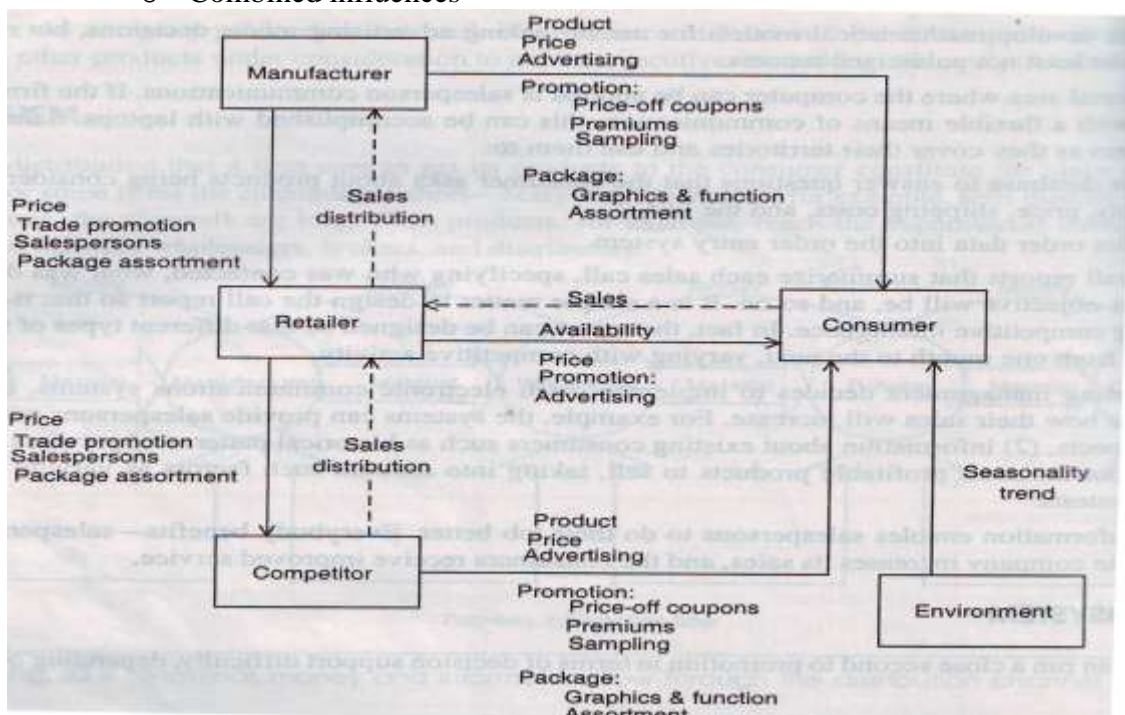 - Individual influences
  - Combined influences

Fig.3.14 The BRANDAID integrated-Mix model

A study of MKIS in FORTUNE 500 Firms

- Professor John Rogers conducted a survey of fortune 500 firms in 1980. the study revealed how the firms used the computer as an MKIS.
- In 1990, these researcher were joined other group, and a second study of the fortune 500 firms was conducted.
- The study was conducted to know how many firms were using the computer.
- The topic discussed are:

  - Computer usage

- o Frequency of computer usage
- o Purpose of computer usage
- o Modeling support

3. MANUFACTURING INFORMATION SYSTEM

Marketing has the responsibility fro determining what consumers want and need. Once this determination has been made and once the firm's executives decide to meet those wants and needs, it is the responsibility of the manufacturing function to produce the products.

CAD, CAM and robotics all represent ways to use computer technology in the physical production system.

Computer-aided design

CAD, increasingly being referred to as computer aided design engineering (CAE), involves the use of a computer to assist in the design of a product that is to be manufactured. CAD first appeared in the aerospace by automobile manufacturing.

A design engineer can use a CRT terminal equipped with a special light pen that is used for input. The CAD software refines the drawing by smoothing the lines. Once the design is entered into the computer, the engineer can subject the design to various tests to detect weak points.

The CAD software can even make parts move as they would when in use.

When the design becomes finalized, the CAD software can prepare the detailed specifications that are necessary to produce the product. These specifications are stored in a design database.

Computer-aided manufacturing

CAM is the application of the computer in the production process. Special computer – controlled production machines such as drills and lathes produce the products according to the specifications obtained from the design database.
Computers in the Physical System

Robotics

Robotics involves the use of industrial robots (IR), device that automatically perform certain tasks in the manufacturing process.

A popular robotics application is the feeding of raw materials to a machine tool that is automated by CAM.

Robots enable firms to cut costs and achieve high levels of quality, but they also perform hazardous jobs such as working in areas where the temperature is very high.

Manufacturing information system

Manufacturing information system is the CBIS that provides information concerning the production operations.

There are many approaches to manage the manufacturing process, and all use information such as ROP, MRP, MRP II, JIT, and CIM.

Reorder point (ROP) systems

The simplest approach to manage the firm's inventory is waiting for an item balance to reach a particular level, when then triggers purchase order or a production process.

The item level that serves as the trigger is called the reorder point (ROP), and a system that bases the purchasing decision on the reorder point is called a reorder point system.

In the diagram as soon as the balance on hand drops to zero, replenishment stock arrives from the supplier and the balance on hand returns to its peak level. This cycle is repeated over and over. The amount of time the supplier needs to fill the order is called the lead time.

Managers do not like to cut things so close. As a precautionary measure, an extra amount of inventory, called safety stock, is held in reverse. The firm hopes that it never has to use its safety stock, but it is there just in case- like a sphere tire.
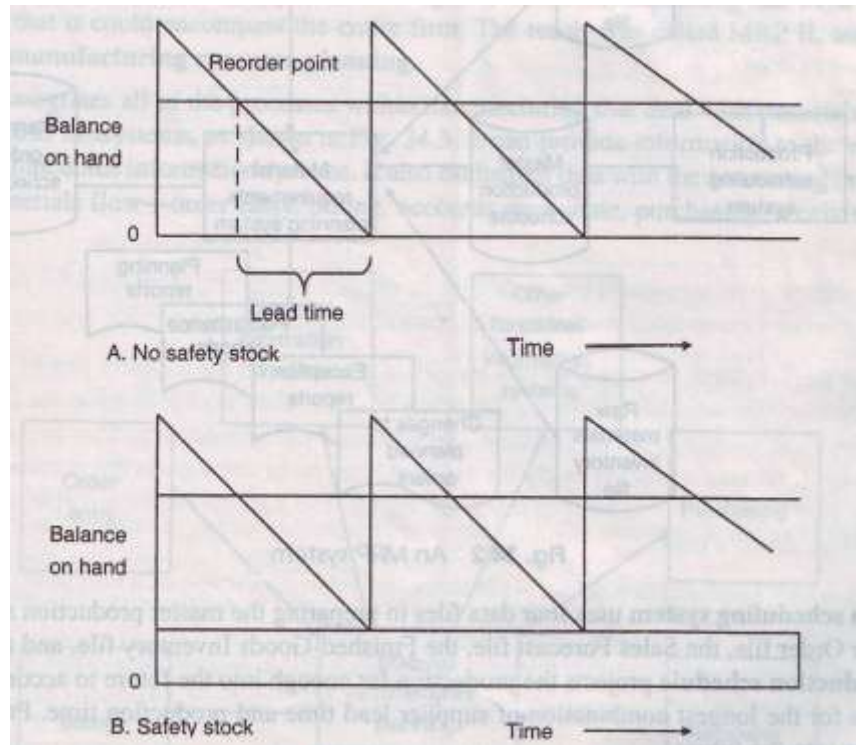
Fig.3.15 The reorder point

The reorder point formula

R = LU+S
Where, R= reorder point
        L= supplier lead time (in days)
        U= usage rate (no. of units used or sold per day)
        S= safety stock level (in units)
If   L=14 days
   U= 10 days
     S= 16 units
     R = 140 + 16 = 156 units

Material Requirements Planning (MRP)

In 1960, a new approach to materials management was devised, called MRP. Rather than wait until it is time to order, MRP looks into the future and identifies the materials that will be needed, their quantities, and the dates on which they will be neede.

Components:
1. Production scheduling system -- produces a master production schedule that encompasses the longest lead time plus the longest production time.
2. MRP system: determines how much material will be needed to produce the desired number of units. The bill of material file is used to explode the bill of material for each item scheduled for production.

3. Capacity requirements planning: this system works with MRP system to keep production within plant capacity. Produces outputs reports and planned order schedule.
4. Order release system: produces reports for shop floor and purchasing.
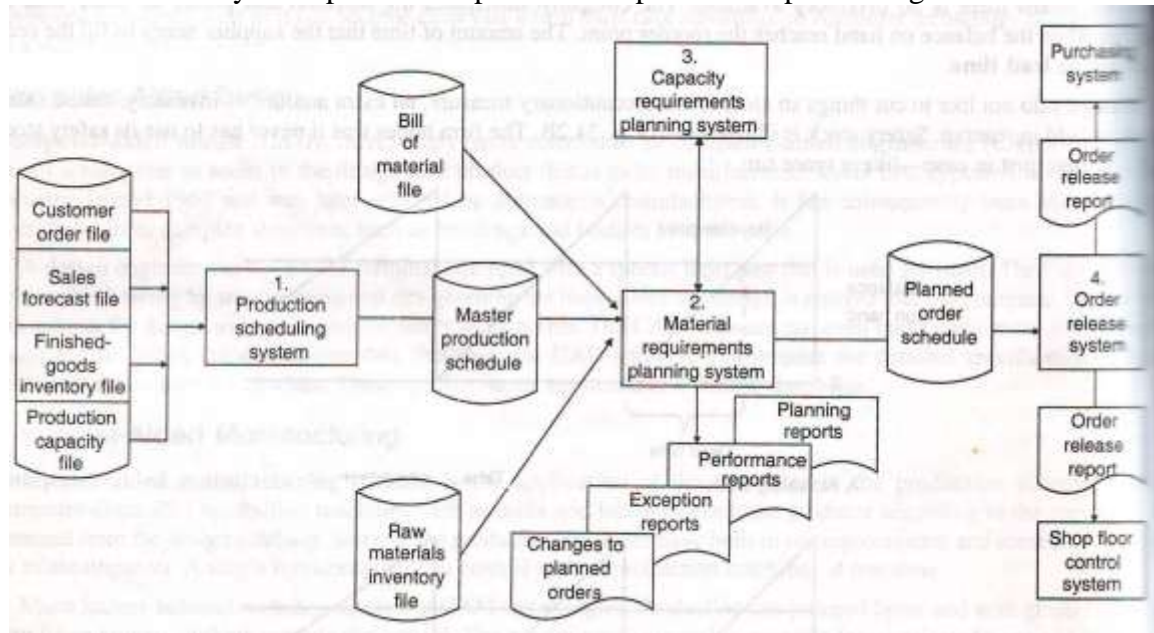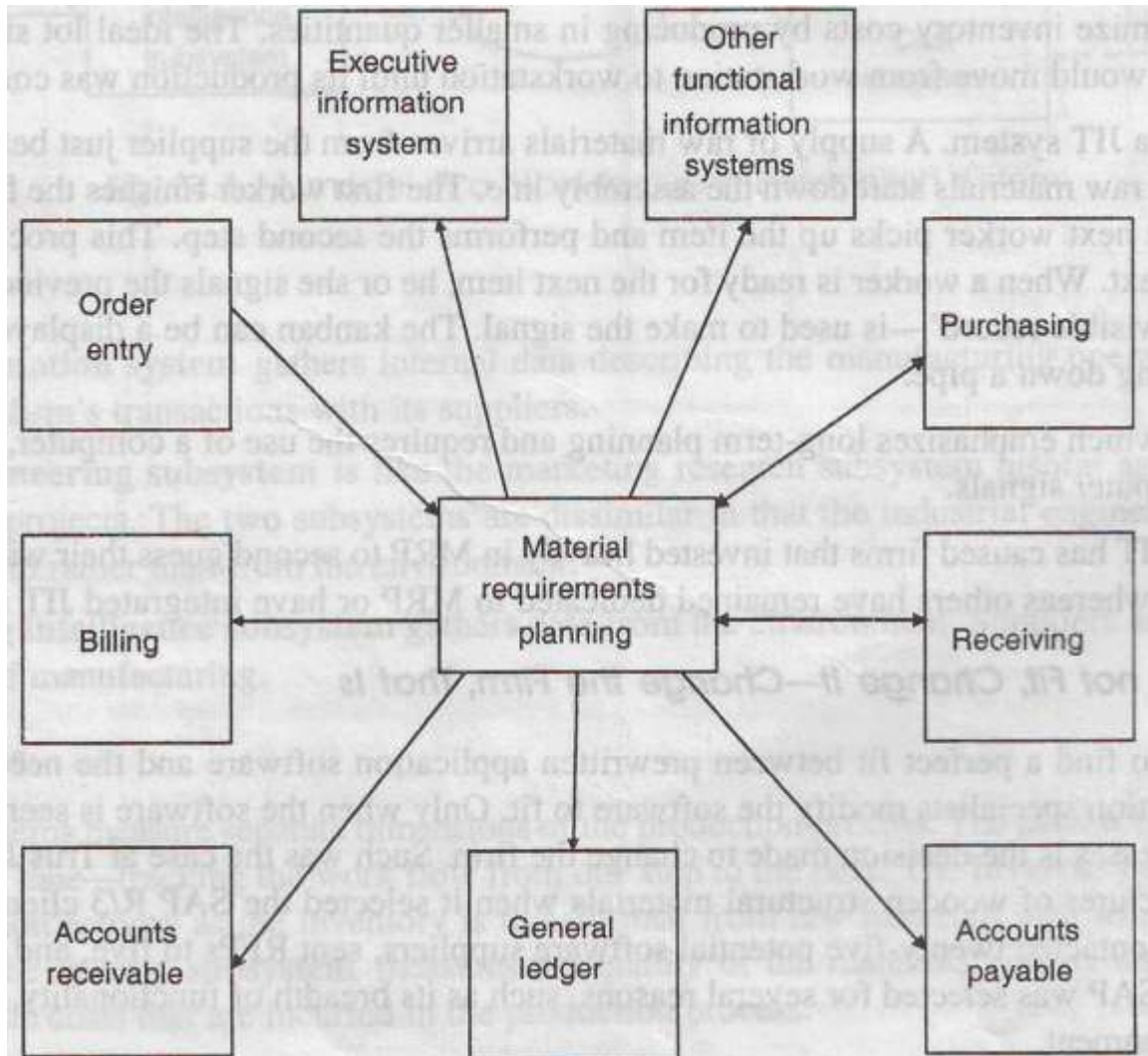

Fig.3.16 An MRP System

Manufacturing Resource Planning (MRP-II)

The purpose is to integrate MRP with all systems that affect materials management. MRP II supports financial planning by converting materials schedules into capital requirements. Information in the MRP II system is used to provide accounting with information on material receipts to determine accounts payable. MRP II increases a company's efficiency by providing a central source of management information.

MRP-II Benefits

- More efficient use of resources
  - Reduced inventories
  - Less idle time
  - Fewer bottlenecks
- Better priority planning
  - Quicker production starts
  - Schedule flexibility
- Improved customer service
  - Meet delivery dates
  - Improved quality
  - Lower price possibility
- Improved employee moral
- Better management information

Fig.3.17 An MRP System

Just-In-Time (JIT)

Basically JIT means to produce goods and services when necessary, not too early not too late. It is time based and often has quality and efficiently targets. It is a production philosophy and not a technology. A JIT system aims to make goods available just in time, and these can be parts, products or subassemblies and achieve some of the following benefits:

1. Increased flexibility
2. Parts reduction
3. Increased quality
4. Simplicity of system

Increased flexibility: this can be done through small batch sizes, which achieves faster throughput.

Parts reduction: JIT continuously seeks to reduce inventory levels of raw materials, work in process and finished goods.

Increased quality: service employees need to learn the value of providing defect free services.

Simplicity of system: product mix or volume changes as planned by the master production system can be accomplished by adjusting the number of cards in the system.

Principles applied

1. Elimination of waste
2. Total quality management
3. Total employee involvement

Pitfalls in JIT

Many companies' fails to understand what JIT is and what it can mean to them because they fail to implement it properly.

Manufacturing Information System: definition

A computer-based system that works in conjunction with other functional information systems to support the firm's management in solving problems that relate to manufacturing the firm's products

A Model of a Manufacturing System

It consists of
- Input
    - AIS
    - Industrial engineering subsystem
    - manufacturing intelligence subsystem
- Output
    - Production subsystem
    - Inventory subsystem
    - Quality subsystem
    - Cost subsystem
- Database
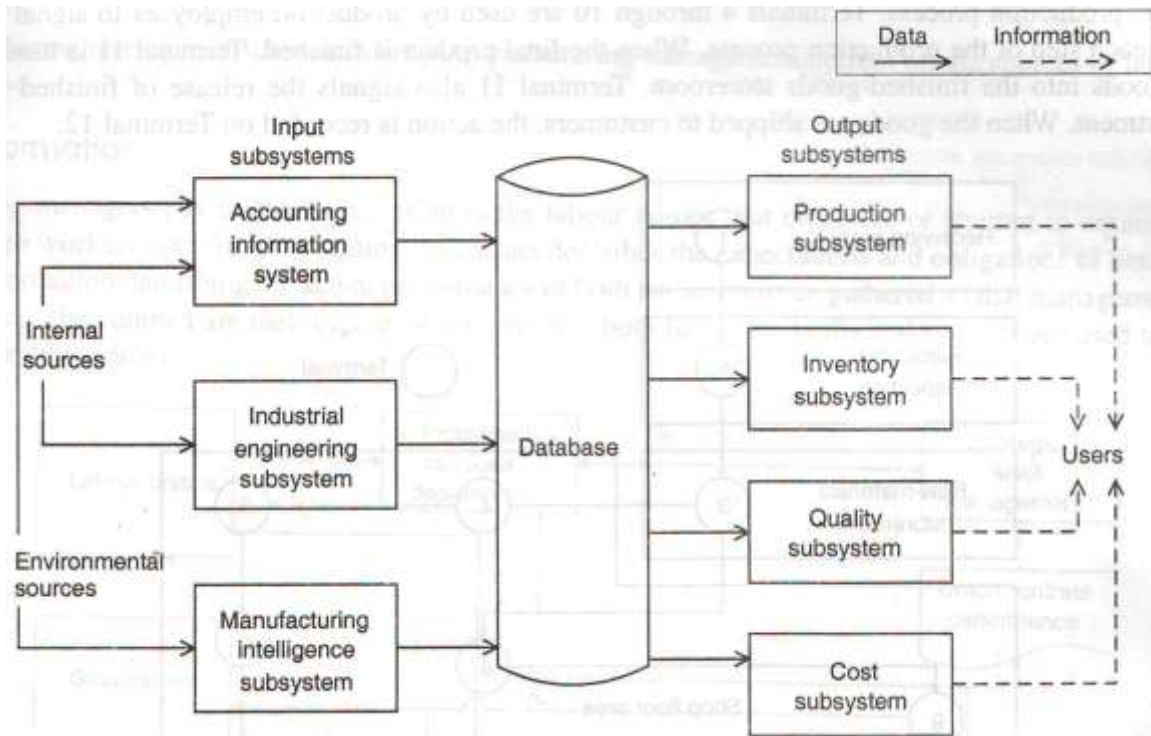
Fig.3.18 A model of a manufacturing information system

INPUT SUBSYSTEM

Accounting Information System
- It gathers information about the manufacturing operation. There are three ways to collect the data into the computer.
  - Using bar code reader
  - Using Magnetic code reader
  - Using optical code reader

- Data collection terminals
  - Track material flow
  - Gather job data (job reporting)
  - Gather attendance data (attendance reporting)

The below figure shows twelve data collection terminals located throughout a factory.

Terminal 1: it is in the receiving area. When raw materials are received from supplier, receipt data is entered into the terminal.

Terminal 2: all material receipts then undergo a quality control inspection and the results are recorded on terminal 2.

Terminal 3: as the accepted receipts enter the raw materials storeroom, the action is logged on terminal 3.

Terminal 4 to 10: are used by production employees to signal the start and completion of each step of the production process.

Terminal 11: it is used to show the entry of goods into the finished goods storeroom. It also signals the release of finished goods to the shipping department.

Terminal 12: when the goods are shipped to customers, the action is recorded on Terminal 12.
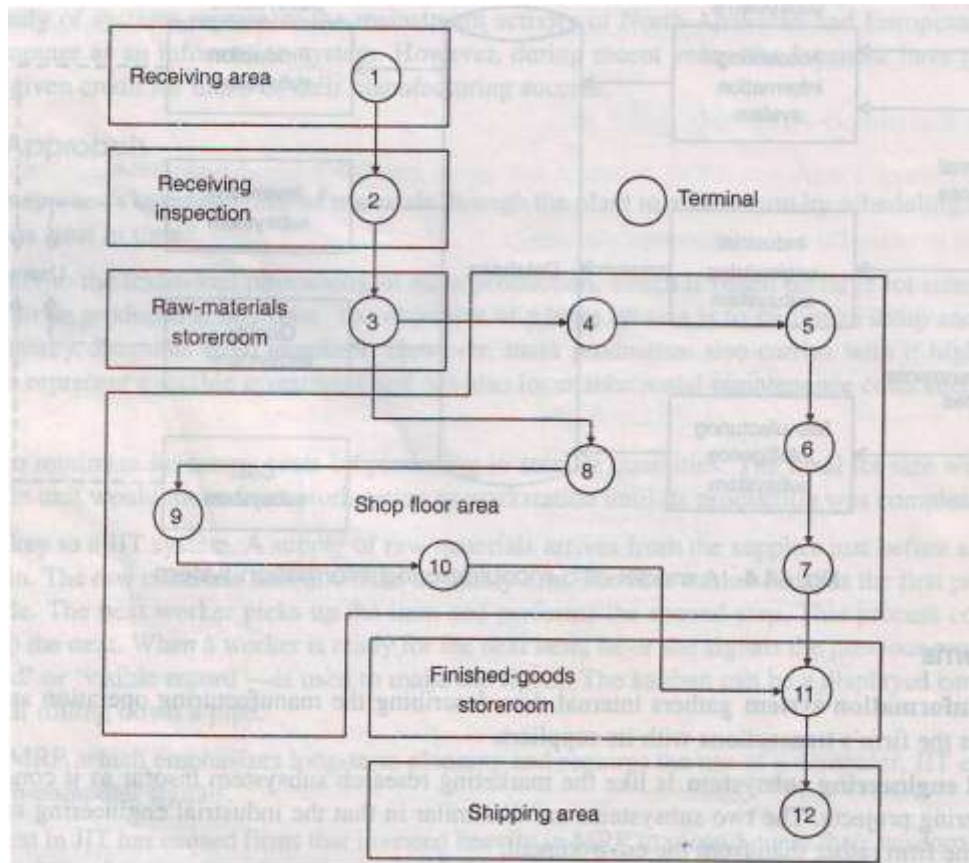
Fig.3.19 Location of data collection terminal

Industrial Engineering Subsystem

The industrial engineer is a specially trained systems analyst who studies the manufacturing operation and makes recommendations for improvement. They perform the task such as:

- Studies physical and conceptual systems
- Sets production standards

Manufacturing Intelligence Subsystem

The Manufacturing Intelligence Subsystem keeps manufacturing management current on the sources of labor, material and machine.

- **Labor unions (personnel flow):** manufacturing management initiates the flow of personnel information by human resource department.
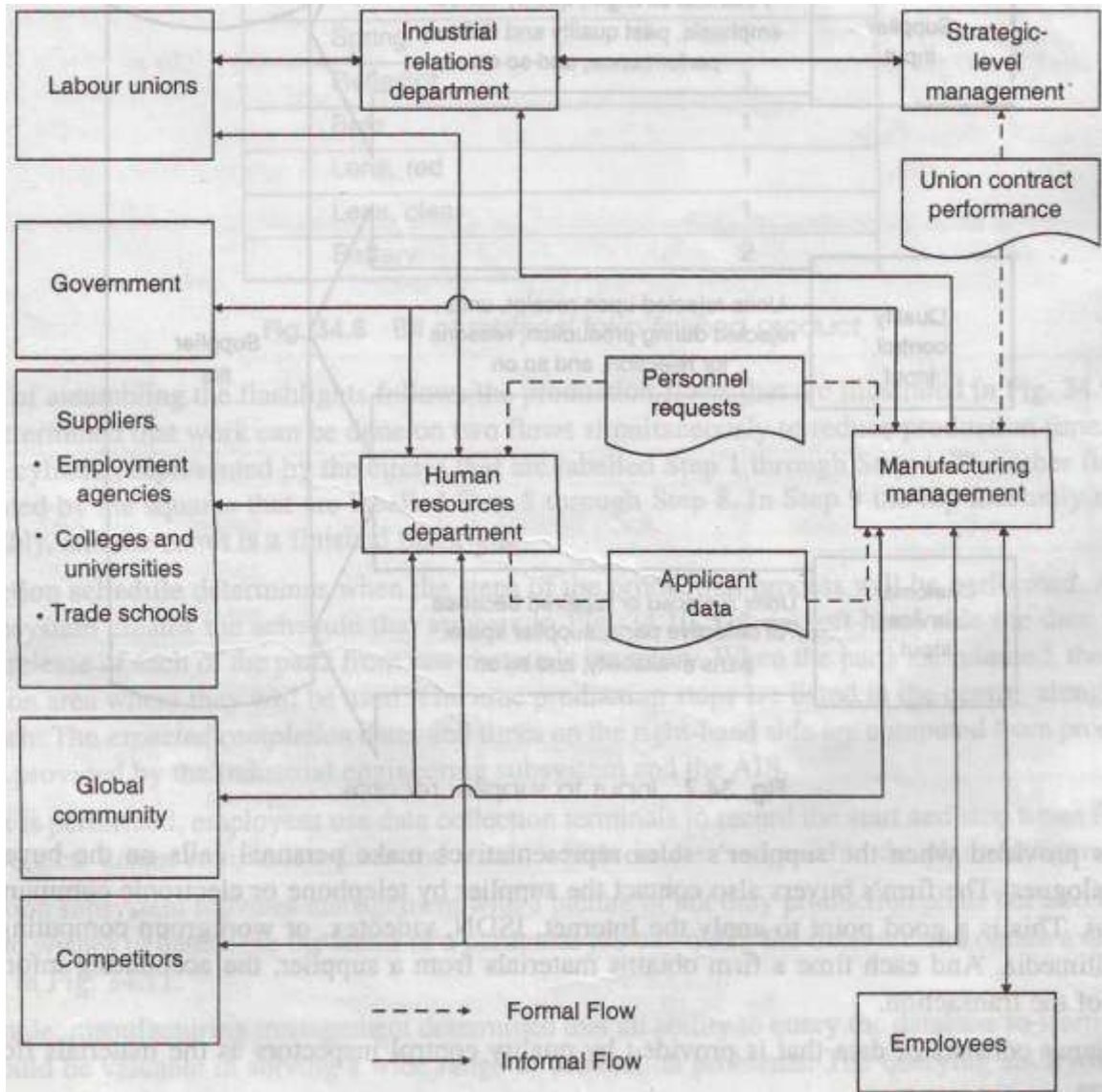
- **Suppliers (material and machine flow)**: suppliers are selected by means of some process.

Supplier Selection Process
- Questionnaire
  - Production capability
  - Emphasis on quality
- Financial analysis
  - Long-term reliability
- Buyer tour of supplier's plant
- Suppliers tour the firm's plant
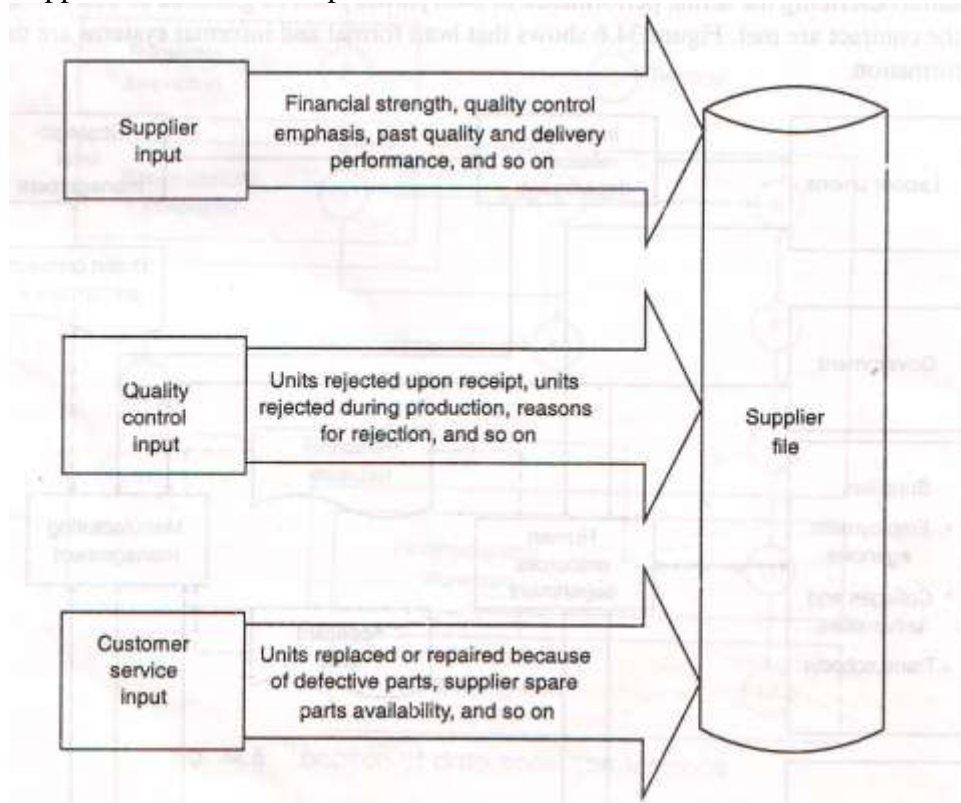
Fig.3.20 Input to supplier records

Fig.3.21 Flow of labor information

Production Subsystem

Used to:
- Build production facilities
- Operate production facilities
  - Production schedule determines when the production steps are performed
  - Track expected and actual completion times

Inventory Subsystem
- Importance of determining the inventory level
- Maintenance cost (a.k.a. carrying costs)
- Purchasing costs
- Economic Order Quantity (EOQ)

- Economic manufacturing quantity (EMQ)
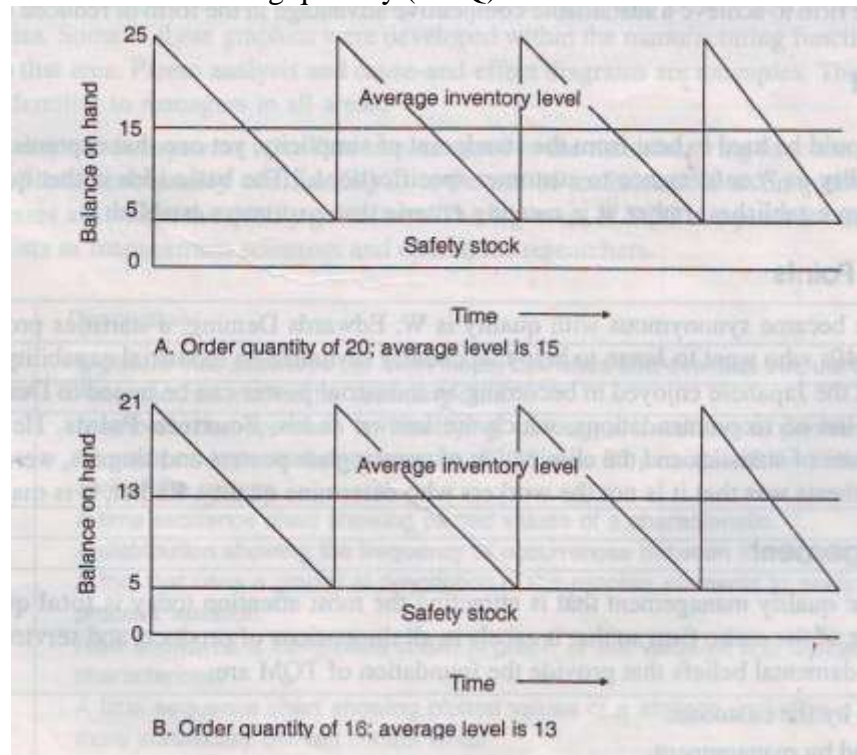
Fig.3.22 the effect of order quantity on average inventory level

Quality Subsystem
- Deming's fourteen points; maintained that it is not workers but management that determines quality
- Total quality management (TQM)
- Elements of TQM
  - zero defects
  - quality at the source

A Quality Environment

- Top management commitment
- Annual quality targets
- A fine-tuned physical system
  - Maintained machines
  - Neat facilities
  - Trained workers
- Emphasis on raw material

Cost Subsystem
It measures the cost that is incurred in the production process.

5. HUMAN-RESOURCE INFORMATION SYSTEM

The system that is used in managing the personnel is called the human resource information system or HRIS. The HR manager is often a director who is not a member of the executive committee. The importance of the human resource function and the human resources information system has grown over the last ten years.

Human resource function

1. **Recruiting and hiring:** HR helps bring new employees into the firm by running help wanted advertisements in newspapers, providing position requests to both government and private employment agencies, holding screening interviews on college campuses and at the firm's facilities, and administrating employment tests. HR stays current on government legislation affecting employment practices and counsels management in the proper policies to establish.

2. **Education and training:** during a person's period of employment, HR can administer educational and training programs that are required to cultivate the employees' job-related knowledge and skills.

3. **Data management:** HR maintains a data base of employee-related data, and processes that data to meet user's information needs.

4. **Termination and benefit administration:** during the time that persons are employed by the firm, they receive a package of such benefits as hospitalization, dental insurance, and profit sharing.
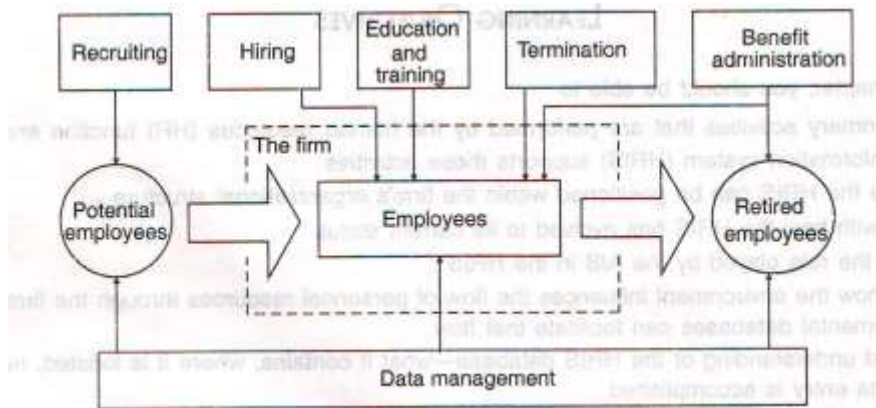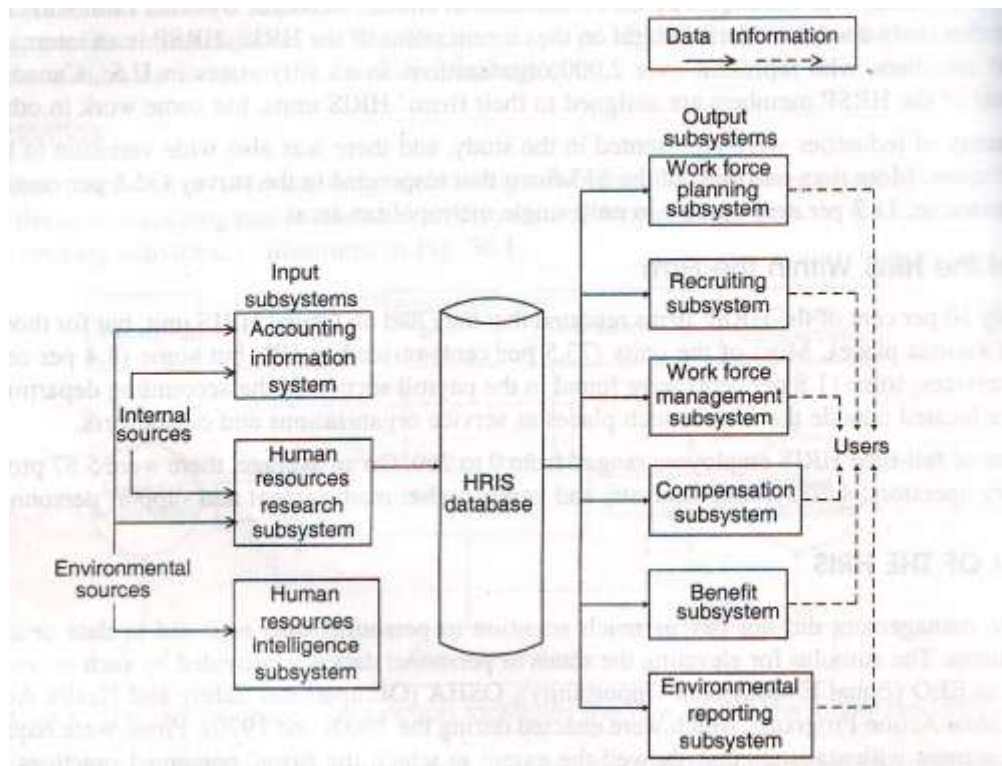

Fig.3.23 The human resource functions

An HRIS Model

One feature of the HRIS that distinguishes it from other functional information systems is the wide variety of applications that it performs. The problem is the packaging of so many different applications.

It consists of

- Input subsystem
- Data base
- Output subsystem

Fig.3.24 A model of human resource information system

INPUT SUBSYSTEM consists of

- Accounting information system(AIS)
- Human resource research subsystem
- Human resource intelligence subsystem

Accounting Information Subsystem

Two main types of data

1. Personnel data elements—it is relatively permanent and is non-financial in nature. Ex: name, birth date, sex, marital status, education, skills, etc.
2. Accounting – financial and more dynamic than personnel data. Ex: hourly rate or monthly salary, taxes, insurance deductions, etc.

Human Resources Research Subsystem

It gathers data by means of special research projects.
- Examples:
    - Job analyses and evaluations: study each job in an area for the purpose of defining its scope and identifying the knowledge and skills that are required.
    - Succession studies: conducted for the purpose of identifying persons in the firm who are candidates for positions that become available.
    - Grievance studies: follow up on complaints filled by employees for a variety of reasons.
- This research can generate new data for the database.
- And it can use existing database contents.

Human Resources Intelligence Subsystem

- HR has the responsibility for interfacing with the most environmental elements of any functional area. HR intelligence subsystem gathers data relating human resources from the firm's environment. They gathers data from the environmental elements such as:
    - Government –the government provides data and information that assist the firm in complying with the various employment laws.
    - Suppliers – the supplier includes insurance companies, universities placement centers, employment agencies.
    - Labor unions – provides data and information that are used in administrating the labor contracts between the union and the firm.
    - Global community intelligence—provides information that describes local resources as housing, education recreation.
    - Financial community –provides economic data and information that is used in personnel planning.
    - Competitor intelligence—some firm regard their competitors as excellent source of new employees, and they thus gather information concerning their competitor's personnel practices and perhaps even information on individuals who are potential recruits.

HRIS Databases

- Executive search firm databases
- University databases
- Employment agency databases
- Public access databases
- Corporate job banks databases

Content of database:
1. Employee data: 82.5% of the firms maintain only employee data
2. Non-employee data: 8% of the firms mainly organizations external to the firm
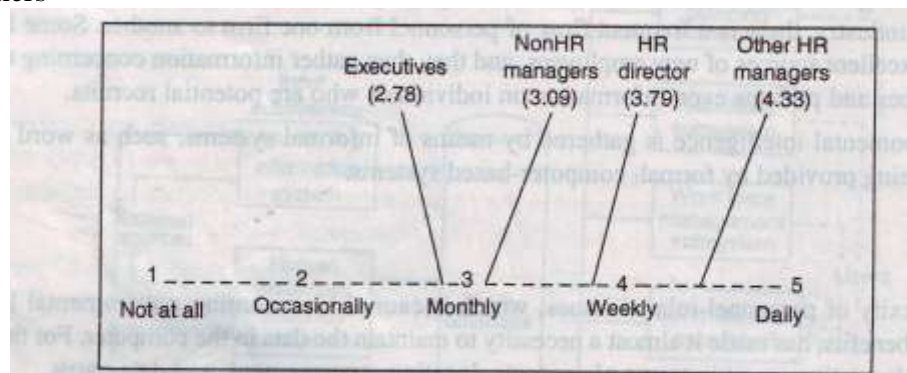
Database Location

MYcsvtu Notes

- Operating division -- decentralized
- Outside service center -- outsourcer
- Central computer is still the most popular location
- HR computer in only 34% of the firms
- Some firms keep database in multiple locations
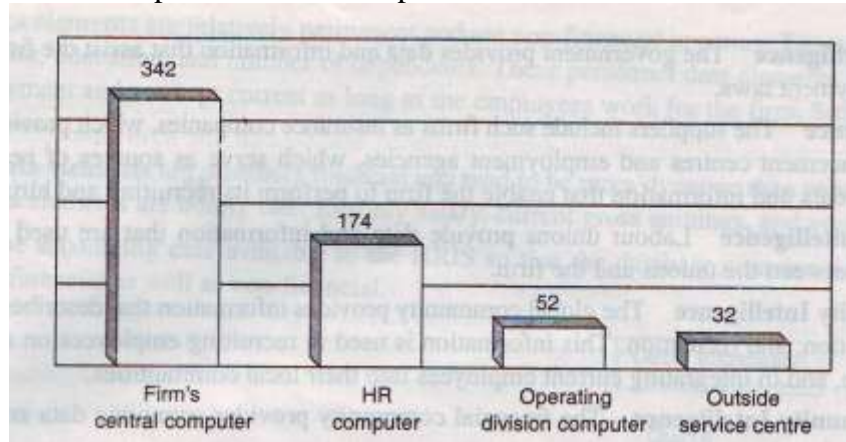
Fig.3.25 Possible HRIS database locations
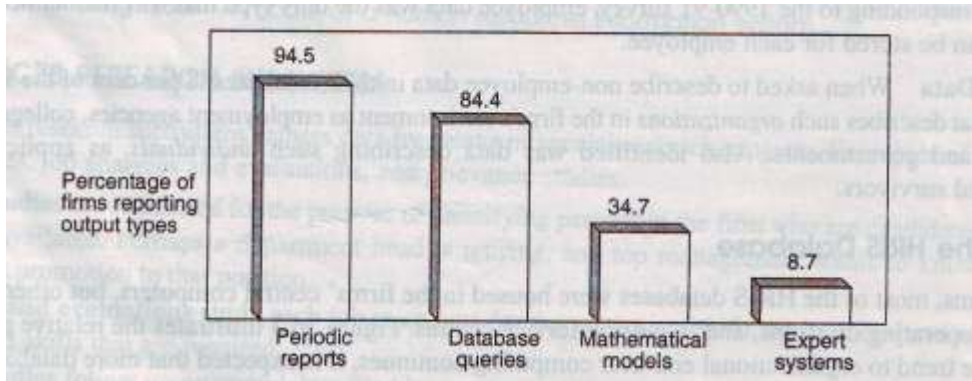
User of database
- HR director
- HR manager
- Others

Fig.3.26 Users of HRIS output

Basic form of database
- Periodic reports
- Database queries
- Mathematical models
- Expert systems

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Fig.3.27 Basic forms of HRIS output

Software

- Custom software is usually developed jointly by HR and IS
- Some software is integrated into a core HRIS
- Some is standalone

OUTPUT SUBSYSTEM

Work Force Planning Subsystem

Enable manager to identify future personnel needs. Tasks are:

- Organization charting
- Salary forecasting
- Job analysis/evaluation
- Planning
- Work force modeling

Recruiting Subsystem

Perform the task concerned with the recruitment process

- Applicant tracking
- Internal search

Work Force Management Subsystem

Tasks performed by this subsystem are:

- Performance appraisal
- Training
- Position control -- ensuring that headcount does not exceed budgeted limits.
- Relocation
- Skills/competency
- Succession
- Disciplinary

Compensation Subsystem

Main tasks are:
- Merit increases
- Payroll
- Executive compensation
- Bonus incentives
- Attendance

Benefits Subsystem

Main tasks are:
- Defined contribution
- Defined benefits
- Benefit statements
- Flexible benefits
- Stock purchase
- Claims processing

Environmental Reporting Subsystem

Reporting firm's personnel policies and practices to the government
- EEO records
- EEO analysis
- Union increases
- Health records
- Toxic substance
- Grievances