



CHAPTER 10

INFORMATION SYSTEM

COMPETENCIES



Explain the functional view of an organization and describe each function.



Describe the management levels and the informational needs for each level in an organization.



Discuss how information flows within an organization.



Discuss computer-based information systems.



Distinguish among a transaction processing system, a management information system, a decision support system, and an executive support system.

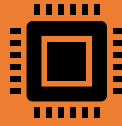


Distinguish between office automation systems and knowledge work systems.



Explain the difference between data workers and knowledge workers.

INTRODUCTION



An information system is a collection of people, procedures, software, hardware, and data



They all work together to provide information essential to running an organization



Computers are used in organizations to keep records of events



Competent end users need to understand how the information flows as it moves through an organization.

ORGANIZATIONAL INFORMATION FLOW



Information flows vertically and horizontally throughout an organization



Information systems support the natural flow of information within an organization's structure :



1) 5 Functional Areas

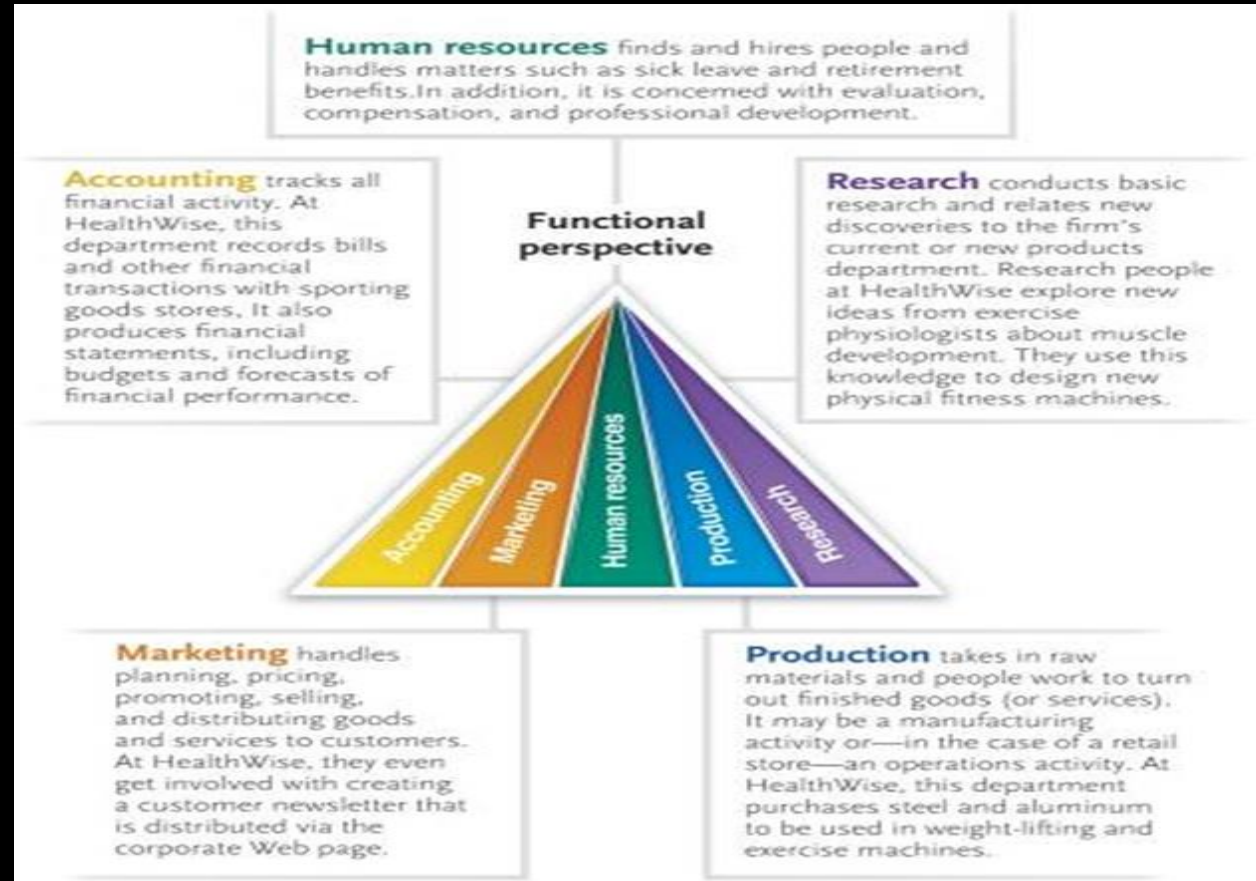


2) Management Levels



3) Information Flow

FIVE FUNCTIONS OF AN ORGANIZATION



- 1) **Accounting** – records all financial activity from billing customers to paying employees
- 2) **Marketing** – plans, prices, promotes, sells, and distributes the organization's goods and services
- 3) **Human resources** – focuses on people—hiring, training, promoting, and other human-centered activities
- 4) **Production** – actually creates finished goods and services using raw materials and personnel
- 5) **Research** – identifies, investigates, and develops new products and services

MANAGEMENT LEVELS



Top managers:

Involved with long-range planning; responsible for strategic planning; need highly summarized information; also need information from outside sources

Middle managers:

Responsible for tactical planning or control planning and decision making; need summarized weekly or monthly information; responsible for long term goal implementation

Supervisors:

Responsible for operational matters; control matters; detailed, day-to-day information

INFORMATION FLOW

- Each level of management has different information needs
- The information flows to support these needs :

Top management :

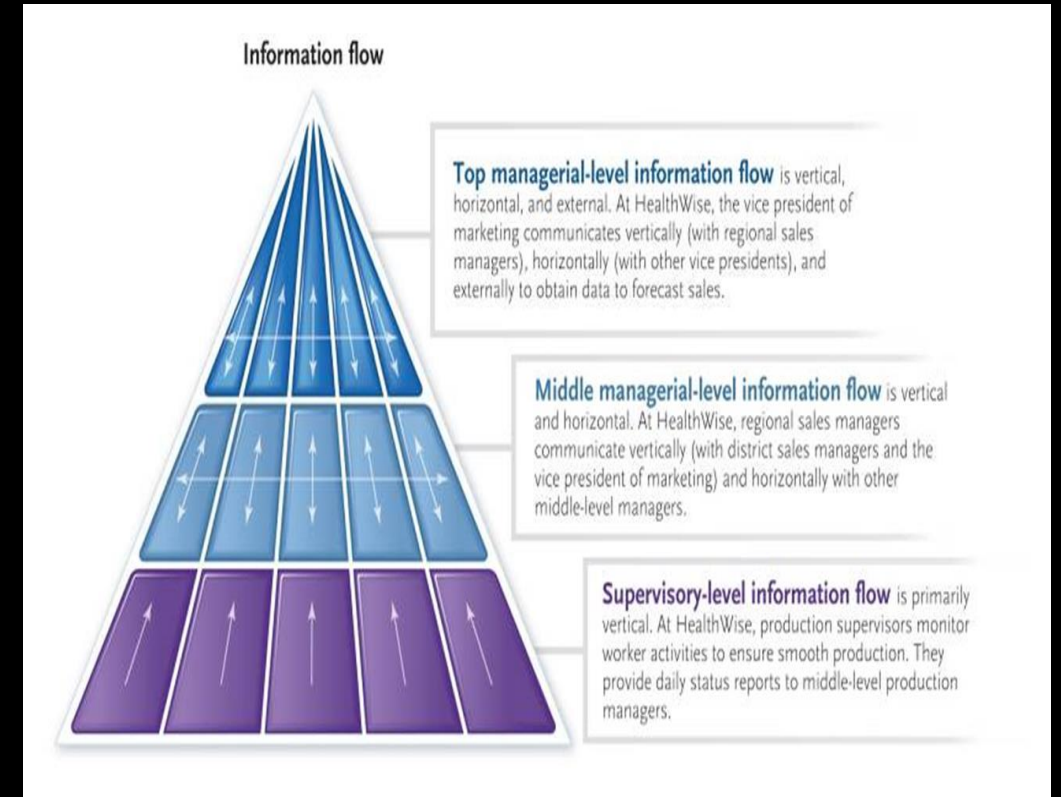
Almost always requires information from the “below” and from all departments; therefore, information is vertical; they also need information outside the organization from external sources. (Vertical, horizontal, and external)

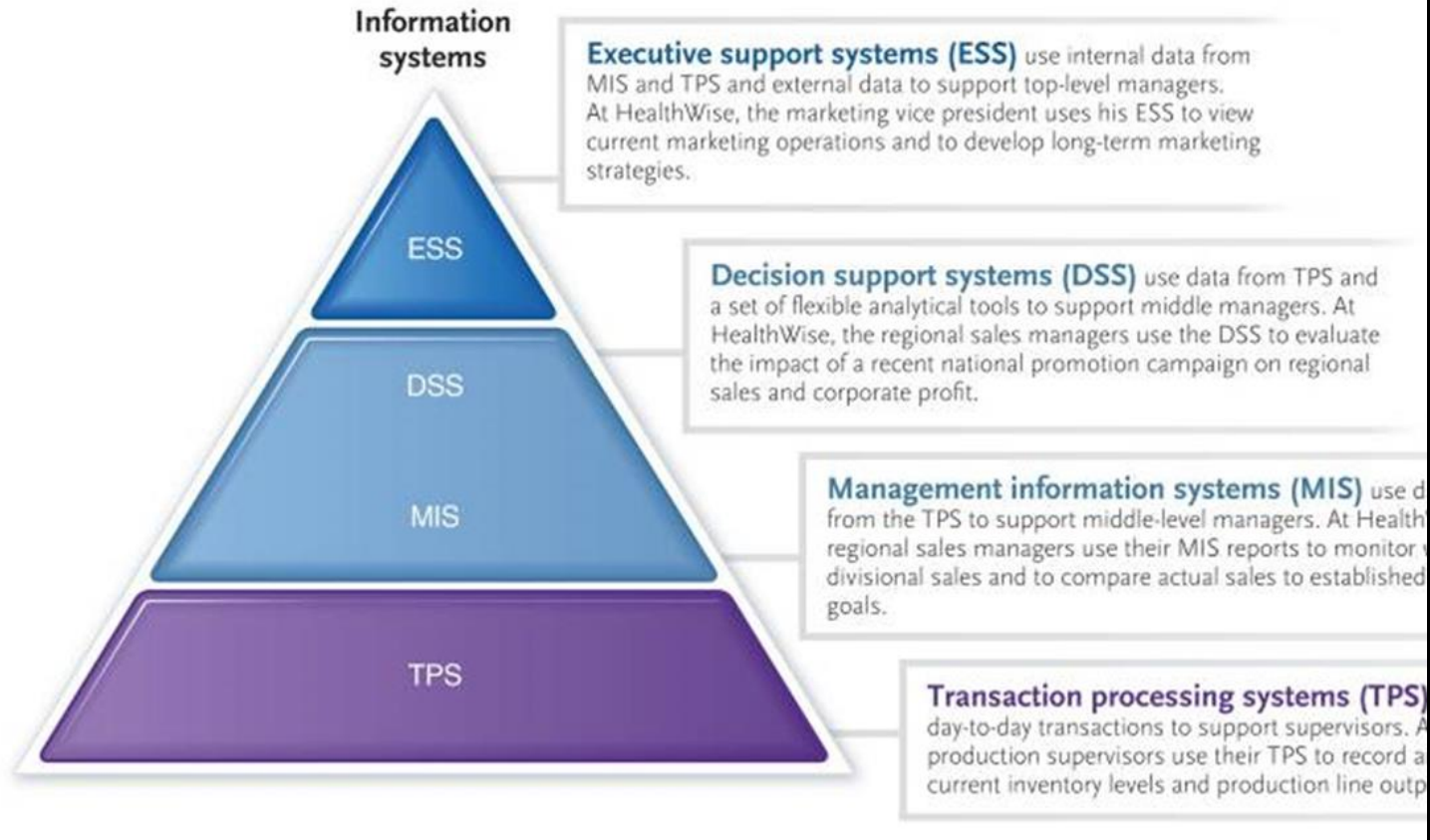
Middle management :

The information flow is both vertical and horizontal across functional lines.(Vertical and horizontal)

Supervisor :

Supervisors communicate mainly with their middle management and the workers they supervise underneath their level of management. (Primarily vertical)





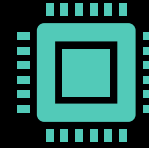
COMPUTER-BASED INFORMATION SYSTEM

- Almost all organizations have computer-based information systems
- Four types of computer-based information systems that help track and keep information flowing in the amount and direction organization needs to stay on track:
- **TPS** : Transaction processing system; records day-to-day transactions; foundation for other information systems
- **MIS** : Management information system; summary of detail from TPS; produces standard reports for management
- **DSS** : Decision support system; data source: flexible analytical tool; assists managers with solutions for a wide range of problems; uses the TPS
- **ESS** : Executive support system is also referred to as the Executive information system (EIS) (Key Term) ; highly summarized information presentations; gives senior management a broad company view, assists with strategic planning; sourced internally from TPS and MIS, and from external sources

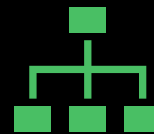
TRANSACTION PROCESSING SYSTEMS (TPS)



RECORDS DAY-TO-DAY
TRANSACTIONS IN A
DATABASE



ALSO CALLED DATA
PROCESSING SYSTEMS
(DPS)

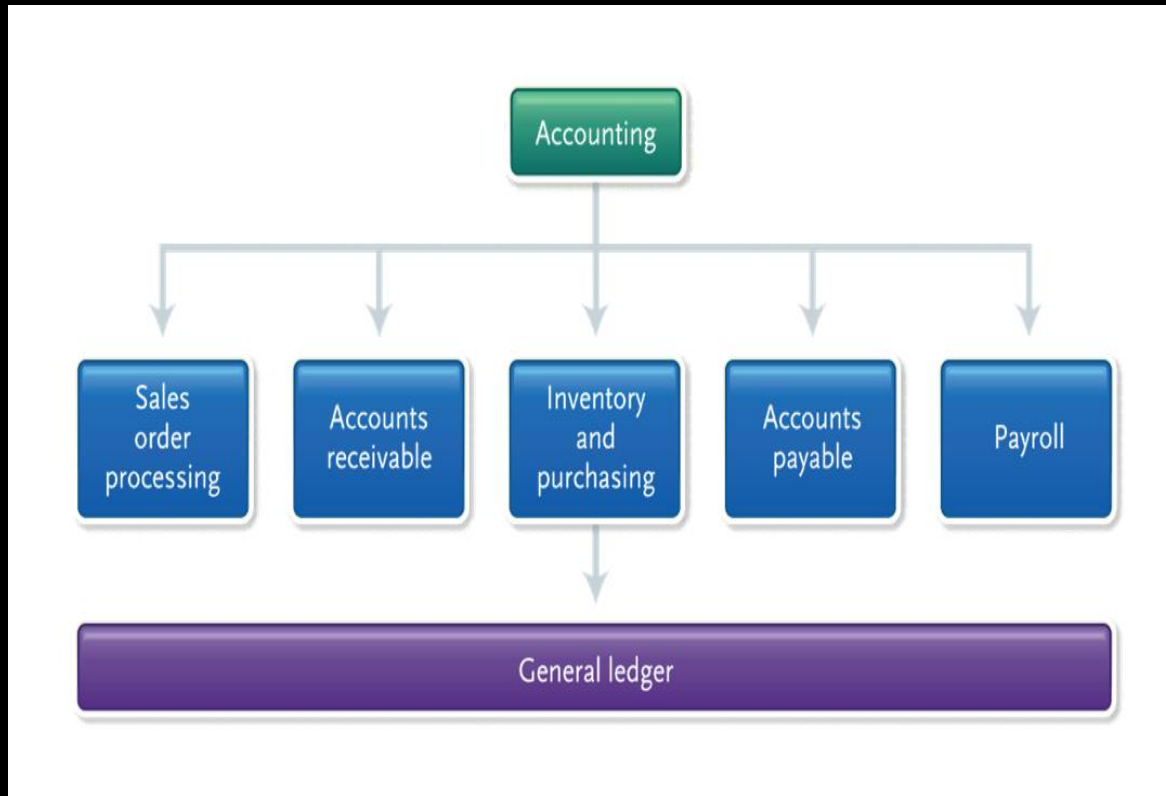


FOUNDATION FOR OTHER
INFORMATION SYSTEMS
WITHIN ORGANIZATION



ONE OF THE MOST
ESSENTIAL USES OF A TPS
IS IN ACCOUNTING

TPS IN ACCOUNTING



The accounting area is one of the most essential areas in an organization with six major activities:

- a) **Sales order processing** – records customer requests. This usually starts the flow of information
- b) **Accounts receivables** – records money received from or owed by customers
- c) i) **Inventory** – parts and finished goods that the company has in stock
 - Inventory control system (Key Term) : Keeps record of each kind of part or finished good in the warehouse
- ii) **Purchasing** is the buying of materials and services
 - Purchase order (Key Term) is a form used
- d) **Accounts payables** – money the company owes its suppliers for materials and services it has received
- e) **Payroll** – concerned with calculating employee paychecks
- f) **General ledger** – keeps track of all summaries of all the foregoing transactions and produces...
 - Income Statements (Key Term) – show a company's financial performance
 - Balance sheets (Key Term) – list the overall financial condition of an organization

MANAGEMENT INFORMATION SYSTEM (MIS)

- Produces standardized reports to support decision-making by middle managers.
- Integrates data and summarizes details from databases in a structured form.
- Produces predetermined reports : periodic reports, exception reports and demand reports.
- MIS use databases; DBMS required to integrate the databases of the different departments
- A computer-based information system that produces standardized reports in summarized, structured form :
 - a) Periodic – produced at regular intervals
 - b) Exception – call attention to unusual events
 - c) Demand – opposite of periodic, is produced only upon request

DECISION SUPPORT SYSTEM (DSS)

- Flexible tool for analyzing data for decision-making purposes
- Enables managers to get answers to unexpected and generally non-recurring problems
- Reports do not have a fixed format
- Microsoft Access is often used to provide an easy front-end interface for performing SQL decision support queries
- DSS is quite different from transaction processing system
- Gives a summary of the data
- Helps decision makers analyze unanticipated situations
- DSS helps user (management or otherwise) make decisions
- For larger problems a group decision support system (GDSS) (Key Term) is used

PARTS OF DSS

User

- A decision-maker, like yourself
- someone who has to make decisions

System software

- Essentially the operating system
- Easy to learn and use

Data

- Internal data – data from within the organization
- External data – data gathered from outside the organization

Decision models :

- Strategic models

- Assists top level management in long-range planning

- Tactical models

- Assists middle-management control the work
- Financial and sales promotion planning

- Operational models

- Assists lower-level managers accomplish the daily activities and objectives

EXECUTIVE SUPPORT SYSTEM (ESS)

Designed for top management

Sophisticated software for presenting, summarizing, and analyzing data, but specifically designed to be easy-to-use

Provides immediate access to a company's key performance indicators

Emphasis on ease of use so that executives may operate without extensive training

Easy, direct access about the company's performance; highly summarized information to help make decisions; combines internal data from TPS and MIS with external data

OTHER INFORMATION SYSTEM

Information workers

- Communication and distribution - data workers; include but not limited to secretaries, clerks,
- Creation - knowledge workers; engineers, and scientists

Office automation systems (OASs)

- support the activities of data workers by managing documents, communications, and scheduling. Secretaries and clerks are data workers
- Project Managers – programs designed to schedule, plan, and control project resources
- Video conferencing systems – computer systems using the computer and Internet that allow people located at various geographical locations to communicate and conduct in-person meetings

Knowledge work systems (KWSs)

- CAD/CAM (computer-aided design/computer-aided manufacturing) (Key Term) – used by design and manufacturing engineers

CAREER IN IT



Information systems managers oversee the work of programmers, computer specialist, systems analysts, and other computer professionals



Employers look for individuals with strong technical backgrounds, with a Master's degree, strong leadership and communications skills



Information systems managers can expect to earn from \$79,000 to \$129,500 annually



A LOOK TO THE FUTURE

Information overload. It may have a negative effect.

E-mail is one of the major sources of overload.

E-mail and cell phones allow communication in nearly any location. Also can be main source of too much information.

How to handle e-mail:

- Be selective -- With e-mails, look first at the subject line in an e-mail; read only those of direct and immediate interest.
- Remove – After reading an e-mail, respond if necessary; then either file it or delete it.
- Protect – Limit your e-mail by giving your address to only those who need it.
- Be brief – When responding, be concise and direct.
- Stop spam –Spam is unwanted email advertisements. Avoid mailing lists, complain to those who send spam, and ask to have your name removed from their mailing list.
- Don't respond – You do not have to respond to an e-mail. Respond only to those worthy of your time.