كلية المنصور الجامعة

Al – Mansour University College

Computer Science and Information System Department

4th Stage / Information System

Course 1

Management Information System

Lecture_05

Information and System Concepts

By

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3.1 Information System

Information is data that has been processed intoa form that is meaningful to the recipient (USER) and is of real or perceived value in current or prospective actions or decisions.

Information systems (IS) are formal, sociotechnical, organizational systems designed to collect, process, store, and distribute information. In a sociotechnical perspective, information systems are composed by four components: task, people, structure (or roles), and technology.

There are various types of information systems, for example: transaction processing systems, decision support systems, knowledge management systems, learning management systems, database management systems, and office information systems. Critical to most information systems are information technologies, which are typically designed to enable humans to perform tasks for which the human brain is not well suited, such as: handling large amounts of information, performing complex calculations, and controlling many simultaneous processes.

The six components that must come together in order to produce an information system are:

1- Hardware: The term hardware refers to machinery. This category includes the computer itself, which is often referred to as the central processing unit (CPU), and all of its support equipment. Among the support, equipment are input and output devices, storage devices and communications devices.

2- Software: The term software refers to computer programs and the manuals (if any) that support them. Computer programs are machine-readable instructions that direct the circuitry within the hardware parts of the system to function in ways that produce useful information from data. Programs are generally stored on some input/output medium, often a disk or tape.

1- Data: Data are facts that are used by programs to produce useful information. Like programs, data are generally stored in machine-readable form on disk or tape until the computer needs them.
2- Procedures: Procedures are the policies that govern the operation of a computer system. "Procedures are to people what software is to hardware" is a common analogy that is used to illustrate the role of procedures in a system.
3- People: Every system needs people if it is to be useful. Often the most overlooked element of the system are the people, probably the component that most influence the success or failure of information systems. This includes "not only the users, but those who operate and service the computers, those who maintain the data, and those who support the network of computers .
4- Feedback: it is another component of the IS, that defines that an IS may be provided with a feedback (Although this component isn't necessary to function).

3.2 Types of Information system

The "classic" view of Information systems found in figure(3.1), in the 1980s was a pyramid of systems that reflected the hierarchy of the organization, usually transaction processing systems at the bottom of the pyramid, followed by management information systems, decision support systems, and ending with executive information systems at the top.

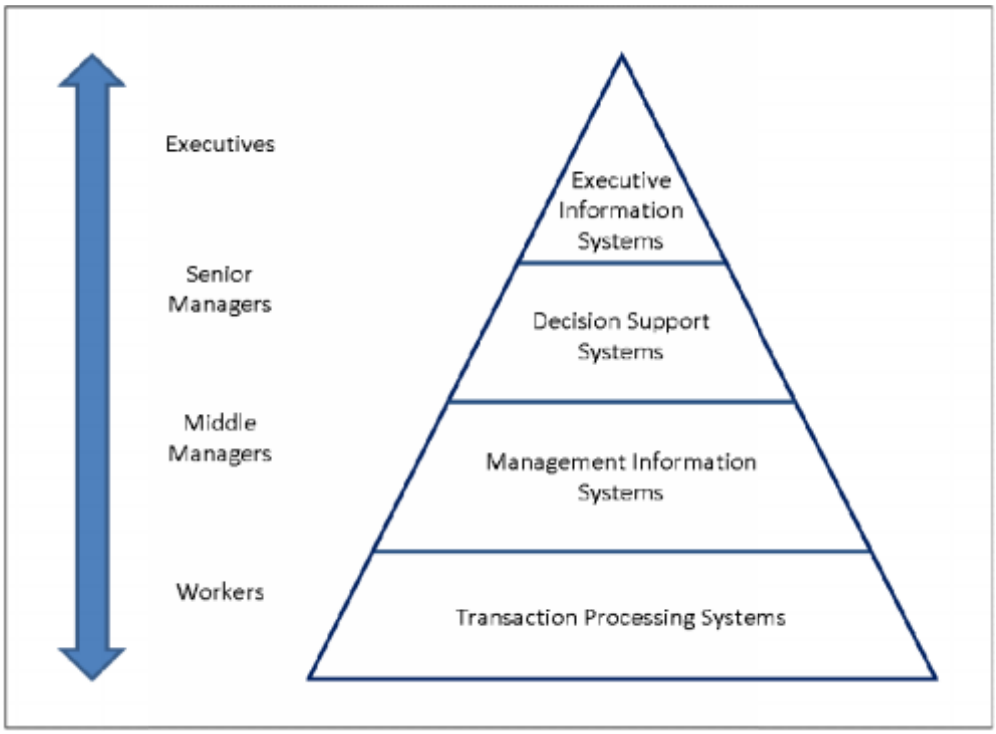

Figure (3.1): Four Level of Pyramid of Systems

A number of new technologies have been developed and new categories of information systems have emerged, Some examples of such systems are:

- **data warehouses**
- **enterprise resource planning**
- **enterprise systems**
- **expert systems**
- **search engines**
- **geographic information system**
- **global information system**
- **office automation**

3.3 Information Technology Development

Information technology departments in larger organizations tend to strongly influence the development, use, and application of information technology in the business. A series of methodologies and processes can be used to develop and use an information system. Many developers use a systems engineering approach such as the system development life cycle (SDLC), to systematically develop an information system in stages. The stages of the system development lifecycle are planning, system analysis and requirements, system design, development, integration and testing, implementation and operations and maintenance.

System development is done in stages which include:

- **Problem recognition and specification**
- **Information gathering**
- **Requirements specification for the new system**
- **System design**
- **System construction**
- **System implementation**
- **Review and maintenance**