

INFORMATION SYSTEMS - TYPES AND DEVELOPMENT

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Abstract: Information systems (IS) is the study of complementary networks of hardware and software that people and organizations use to collect, filter, process, create, and distribute data. Information systems connect business and computer science using the theoretical foundations of information and computation to study various business models and related algorithmic processes within a computer science discipline. Computer Information System(s) (CIS) is a field, studying computers and algorithmic processes, including their principles, their software and hardware designs, their applications, and their impact on society while IS emphasizes functionality over design [1].

Key words: Information System, enterprise, data warehouse, search engines, expert systems, global information.

1. Types of Information Systems

The 'classic' view of Information systems found in the textbooks in the 1980s was of 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. Although the pyramid model remains useful, since it was first formulated a number of new technologies have been developed and new categories of information systems have emerged, some of which no longer fit easily into the original pyramid model (Fig. 1).

Some examples of such systems are:

- [data warehouses](#)
- [enterprise resource planning](#)
- [enterprise\(industrial\) systems](#)
- [expert systems](#)
- [search engines](#)
- [geographic information system](#)
- [global information system](#)
- [office automation.](#)

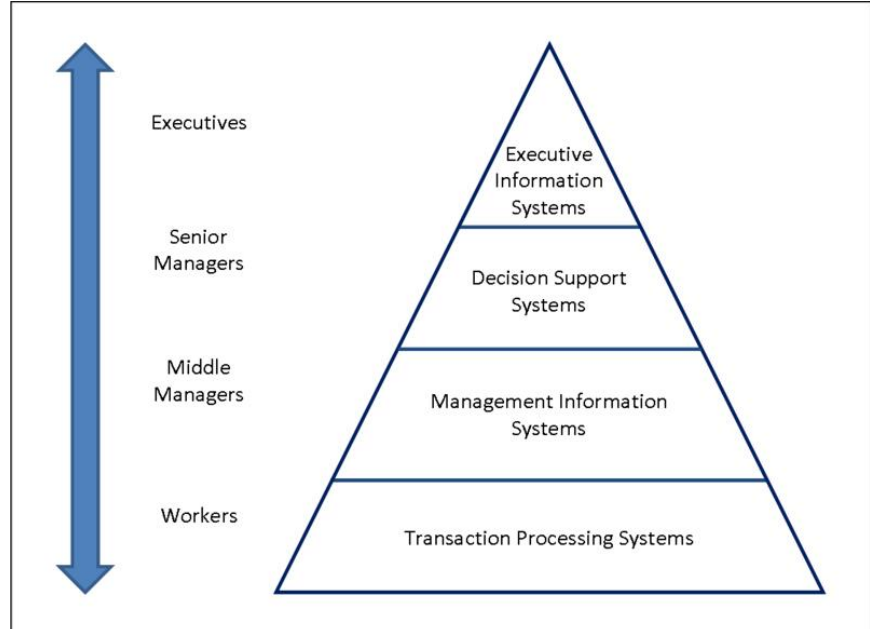


Fig. 1

A Computer(-Based) Information System is essentially an IS using computer technology to carry out some or all of its planned tasks. The basic components of computer based information system are:

- **Hardware-** these are the devices like the monitor, processor, printer and keyboard, all of which work together to accept, process, show data and information
- **Software-** are the programs that allow the hardware to process the data
- **Databases-** are the gathering of associated files or tables containing related data

- *Networks*- are a connecting system that allows diverse computers to distribute resources
- *Procedures*- are the commands for combining the components above to process information and produce the preferred output.

2. Information Systems career pathways

Information Systems have a number of different areas of work:

- IS strategy
- IS management
- IS development
- IS iteration
- IS organization.

There is a wide variety of career paths in the information systems discipline. Workers with specialized technical knowledge and strong communications skills will have the best prospects. Workers with management skills and an understanding of business practices and principles will have excellent opportunities, as companies are increasingly looking to technology to drive their revenue [2].

3. Information Systems Development

Information technology departments in larger organizations tend to strongly influence information technology development, use and application in the organizations, which may be a business or corporation. A series of methodologies and processes can be used to develop and use an information system. Many developers have turned and used a more engineering approach such as the **System Development Life Cycle** (SDLC) which is a systematic procedure of developing an information system through stages that occur in sequence. An Information system can be developed in house (within the organization) or outsourced. This can be accomplished by outsourcing certain components or the entire system. A specific case is the geographical distribution of the development team (Offshoring, Global Information System).

A computer based information system, following a definition of Langefors [2], is:

- a technologically implemented medium for recording, storing, and disseminating linguistic expressions
- as well as for drawing conclusions from such expressions

which can be formulated as a generalized information systems design mathematical program.

4. Components

An Information System (IS) consists of five basic resources, namely:

- Personnel, which consists of IT specialists (such as a Database Administrator or Network Engineer) and end-users (such as Data Capture Clerks)
- Hardware, which consists of all the physical aspects of an information system, ranging from peripherals to computer parts and servers
- Software, which consists of System Software, Application Software and Utility Software
- Networks, which consists of communication media and network support
- Data, which consists of all the knowledge and databases in the IS [2].

Conclusion:

An information system can be a mainframe, mid-range or network computer concept that allows distributed processing for a group of users accessing the same software application. These systems provide management with control over their data, with various tools to extract data or view data structures and records. The role of an information system is to faster a data management environment that is robust and can be expanded according to an organizations' strategic plan for information processing. An information system also satisfies diverse information needs in an organization.

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