MODULE 1

INFORMATION SYSTEMS

OUTLINES

- Meaning of information
- Types of Information
- Classes of Information
- Characteristics of Information
- Cost of Management
- Data Processing Cycle
- Information Systems for Decision Making
- Types of Information System:
  - TPS
  - MIS
  - DSS
  - GDSS
  - ESS
  - OAS
  - KWS
  - Expert System

What is Information?

Information is series of data that have been arranged into a useful and meaningful form for the user. Information is knowledge that is passed from one person to another.

Data and **information** are used interchangeably in the field of information. They represent different things.

Types of Information

Basically, there are two types of information. These are:

- **Official Information**: This information originates from official and most often reliable source. Information on notice board, bulletins, memos, circulars and minutes of meetings are official information.

- **Unofficial**: This information originates from grapevines, otherwise known as rumors. In most cases, there is element of truth in such information even though often times, they are not reliable.

Classes of Information

Information is classified as follows:

- **According to form** (i.e. written, visual or oral)
- **According to frequency** (i.e. Real time, hourly, daily, weekly, monthly, bi monthly, quarterly, semiannually and yearly).
- **According to type** (i.e. Detailed or Aggregated).
- **According to levels of management** (i.e. strategic, tactical and operational information).
- **According to usage** (i.e. used for control, decision making and planning).
- **According to source** (i.e. internal information, external or government).

Characteristics of Information

The characteristics of information will determine the value to be placed on the information. The characteristics that contribute to the value of information are:

- **Accuracy:** All information should be accurate to a reasonable degree to be acceptable.
- **Timeliness:** Information should be available on time for the user. Information that arrives late or is out of date is entirely useless.
- **Completeness:** Information should present a complete and total picture of a problem or a solution. It should be understood to those who need it.
- **Consistency:** The information should not be self-contradictory.
- **Conciseness**: information should be presented in a form to avoid overload. The user of information should determine the amount of detail that is needed.
- **Usefulness**: The information should be in a form that makes it capable of being used.
- **Relevance**: Information produced or made available should relate specifically to the issue at hand.
- **Cost**: Information should be optimal in value. The expenses incurred in accessing the information should not be greater than the benefits.

Cost of Management

Since data incur cost, while information creates value, the following are some of the cost of information, which can be seen as the cost of data:

- Cost of collection and recording the basic data
- Cost of processing information
- Cost of the time to read, understand and digest the information by managers
- Cost of storage and subsequent retrieval of information.
- Cost of printing, duplicating and distributing the reports

Data Processing Cycle

Data processing is the execution of a systematic sequence of operation performed upon data to transform the series of data into information. It involves collection of raw materials (figures and facts etc.) and performing sequential operations on it to become information. The data that requires processing could be names and scores of students in a school for their results computation.

The stages of processing data is made up of four steps as follows:

- **Data Collection**: This is the gathering and recording of raw data in a logical manner. It involves the use of pre designed source documents, such as invoices, receipts, purchase orders and labor time card. Data can also be captured and entered directly into the computer online.
- **Data Classification**: This is the batching, verifying and sorting of data. Batching is the assembling of source documents of a similar nature such as purchase invoices. Verifying has to do with the accuracy and integrity of data. Sorting is the arrangement of data according to a predesigned code e.g. receipts number, employee number. Data is classified to reduce data errors and frauds and prepares data for the next processing step.
- **Data Maintenance/Summarization**: This encompasses calculating, comparing, summarizing and storing data. Calculating is the aggregation and dis- aggregation involving mathematical operation. Examples include comparing totals such as total basic salary, total debtors and total gross pay.
- **Report Generation**: This is the final step in the data processing cycle. The report generated can either be stored for future use or produced and communicated to the right user(s).

Information Systems for Decision Making

An information system can be defined technically as a set of interrelated components that collect (or retrieve), process, store, and distribute information to support decision making and control in an organization.

Most businesses are increasingly using information system to support management decision making by all types and levels of managers. Several types of information system are available to support a variety of management decision making.

Types of Information Systems

Transaction Processing Systems (TPS)

TPS is an information system that performs the recording and processing daily routine transaction generated through the occurrence of business activities. They are used for routine tasks in which data items or transactions must be processed so that operations can continue. Example of TPS includes handling of sales orders, purchase orders, payroll items and stock records.

Management Information System (MIS)

MIS is a CBIS that produces standardized reports in summarised, structured form. MIS uses a database created by TPS and it integrates the database of the different departments.

Decision Support System (DSS)

DSS combines data, analytical tools, and models to support semi-structured and unstructured decision making. DSS use data collected by TPS to evaluate business models and assist managers in making tactical decisions. *A DSS does not make decisions,* but allow the manager consider a number of alternatives and evaluate them under a variety of potential conditions.

Group Decision Support System (GDSS)

Group Decision Support System, or GDSS, consists of interactive software that allows for making decisions by a group of participants. The goal of a GDSS is to improve the productivity of a group to come to a decision. A GDSS is sometimes refereed to as a “computerized collaborative work system”

Types of Information Systems …cont.

Executive Information System (EIS)

EIS also called Executive Support System (ESS) provides strategic information tailored to the needs of executives, top management and other decision makers. It is a highly interactive tool/system for helping managers to identify and address problems and opportunities by collecting, analysing, and presenting data in a format easy to use for them.

Office Automation System (OAS)

OAS refers to the varied computer machinery and software used to digitally create, collect, store, manipulate, and relay office information needed for accomplishing basic tasks and goals. Raw data storage, electronic transfer, and the management of electronic business information comprise the basic activities of an office automation system.

Expert System (ES)

ES is a form of decision support system that allows users to benefit from expert knowledge and information. It is a computer-based application that attempts to incorporate as much knowledge of a particular discipline in a database as is held by expert practitioners and theorists in the field. An ES assists with decision making, where the process of analysing the problem calls for the application of logical reasoning rather than computation work.

Review Questions

1. Differentiate data and information.
2. Highlight the characteristics of good information.
3. Write short notes on the following:
   a. CBIS
   b. TPS
   c. OAS
   d. ES
4. Highlight the basic steps in the data processing cycle.

References

- Adejola, P. A (2012): Electronic Accounting & Reporting: Information Technology (IT) Empowerment Tool for Professional Accountants; Rainbow Prints, Abuja- Nigeria.

- Ojuola, O.K. (2014): Corporate Information System (CIS): A Concise Compilation for White Knight Professional Tutors, Abuja