

## CHAPTER 10: MANAGE INFORMATION SYSTEM

### 10.1 Introduction

This unit covers the competencies required to manage information system. It involves identification of information system concepts, classification of information systems, management of information resources, Planning of information system, identification of impact of information system in an organization.

### 10.2 Performance Report

- Identified Components of an IS
- Identified Types of Information Systems
- Identified Strategic levels of an Organization
- Identified Functional areas of an MIS
- Classified IS Resources
- Identified IS planning techniques
- Identified IS Acquisition methods

### 10.3 Learning Outcome

#### 10.3.1 List of the Learning Outcomes

These are the key learning outcomes, which make up workplace function:

- Identify information system concepts
- Classify information systems
- Manage information resources
- Information system planning
- Impact of information system in organization

#### 10.3.2 Learning Outcome 1: Identify information system concepts

##### 10.3.2.1 Learning Activities

The following are the performance criteria:

- Definition of MIS and its terms is done
- Components of an IS are identified based on the type of Information System.
- Roles of an IS are identified
- Qualities of an Information System are identified
- Types of Information Systems are identified

Trainees to demonstrate knowledge in relation to:

- Define IS terms
- Components of an IS
- Roles of IS

- Qualities of an IS
- Types of systems
- Open , Closed, Probabilistic, Cybernetic etc

### 10.3.2.2 Information Sheet

**A computer information system** is a system composed of people and computers that processes or interprets information.

**An information system is described as having five components:**

1. Computer hardware. This is the physical technology that works with information.
2. Computer software. The hardware needs to know what to do, and that is the role of software.
3. Telecommunications
4. Databases and data warehouses
5. Human resources and procedures

The role of computer information system is to support the key aspects of running an organization, such as communication, record keeping, decision making, data analysis and more. Companies use this **information** to improve their business operations, make strategic decisions and gain a competitive edge. MIS system includes – collection of information, management of information and incorporating in the database.

Five characteristics of high quality information are **accuracy, completeness, consistency, uniqueness, and timeliness**. Information needs to be of high quality to be useful and accurate. The information that is input into a database is presumed to be perfect as well as accurate.

**Read:** Different types of system: <http://ecomputernotes.com/mis/information-and-system-concepts/typesofsystems>

### 10.3.2.3 Self-Assessment

- i. Define Information system?
- ii. What are characteristics of IS?
- iii. \_\_\_\_\_ is a system composed of people and computers that processes or interprets information.
  - A. A computer information system
  - B. Information system
  - C. Database system
  - D. None of Above

### 10.3.2.4 Tools, Equipment, Supplies and Materials

Computer

### 10.3.2.5 References

- <http://ecomputernotes.com/mis/information-and-system-concepts/typesofsystems>
- <https://www.guru99.com/mis-types-information-system.html>
- Information and Knowledge System (Information Systems, Web and Pervasive Computing: Advances in Information Systems (1<sup>st</sup> edition) authored by Pierre-Emmanuel Arduin, Michel Grundstein, Camille Rosenthal-Sabroux published by Wiley-ISTE; 2015
- Management Information System authored by Anuranjan Misra, published by Laxmi Publications Pvt. Ltd, 2017

### 10.3.3 Learning Outcome 2: Classify information systems

#### 10.3.3.1 Learning Activities

The following are the performance criteria:

- Strategic levels of an Organization are identified
- Classification of Information systems is done
- Information System processing requirements is done
- Functional areas of MIS are identified

Trainees to demonstrate knowledge in relation to:

- Strategic levels of an organization, Operational level, Knowledge level, Tactical level, Strategic level, Classification of IS, TPS (transaction processing), MIS (management, KWS (Knowledge work S), DSS (Decision support system), ESS (Executive support system)
- IS processing requirements
- Functional areas of MIS

#### 10.3.3.2 Information Sheet

**Operational strategies** refers to the methods companies use to reach their objectives.

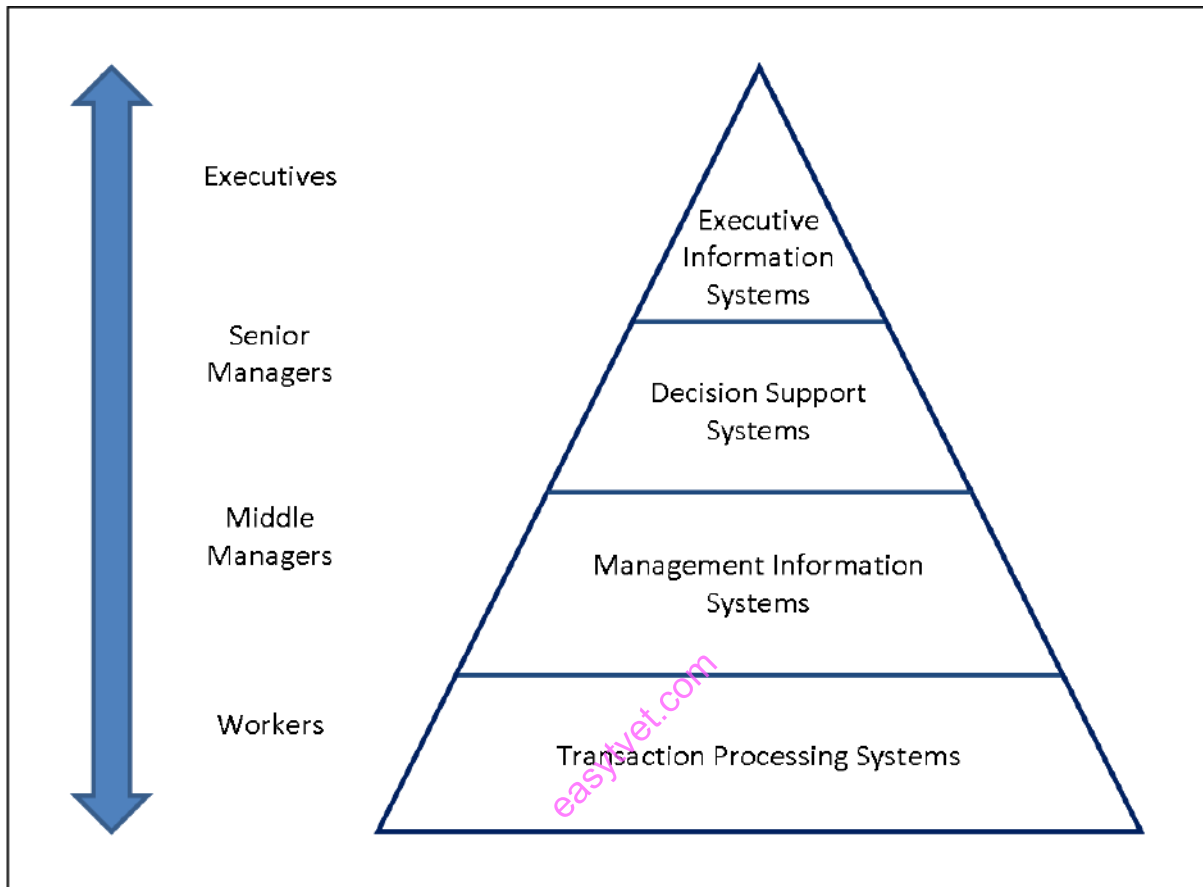
#### **Transaction Processing System (TPS)**

In manufacturing organization, there are several types of transaction across department. Typical organizational departments are Sales, Account, Finance, Plant, Engineering, Human Resource and Marketing. Across which following transaction may occur sales order, sales return, cash receipts, credit sales; credit slips, material accounting, inventory management, depreciation accounting, etc.

**Read:** Types of information system:

- <https://www.managementstudyguide.com/types-of-information-systems.htm>
- [http://www.chris-kimble.com/Courses/World\\_Med\\_MBA/Types-of-Information-System.html](http://www.chris-kimble.com/Courses/World_Med_MBA/Types-of-Information-System.html)

**Management System:** Managers require precise information in a specific format to undertake an organizational decision. A system which facilitates an efficient decision making process for managers is called management support system.



Source: [www.wikiwand.com](http://www.wikiwand.com)

**Figure 86: Management System**

A **Decision Support System** can be seen as knowledge based system, used by senior managers, which facilitates the creation of knowledge and allow its integration into the organization. These systems are often used to analyze existing structured information and allow managers to project the potential effects of their decisions into the future.

**Executive Information Systems** are strategic-level information systems that are found at the top of the pyramid. They help executives and senior managers analyze the environment in which, the organization operates, to identify long-term trends, and to plan appropriate courses of action.

### 10.3.3.3 Self-Assessment

- i. What is an executive information system?
- ii. Give the difference between decision support system and executive information system?

- iii. Choose the correct statement about information system:
- A. A system that comprises a set of interrelated elements that transform data into information.
  - B. A collection of facts that are meaningfully organised and are useful to their users.
  - C. It can exist in the form of text, numbers, images, audio and video.
  - D. It collects information, stores and manipulates it into raw facts.
- iv. The components of an information system are human, hardware, software, procedures and \_\_\_\_\_
- A. field
  - B. data
  - C. information system
  - D. table

#### **10.3.3.4 Tools, Equipment, Supplies and Materials**

Computer, Operation Information System (OIS), Decision Support Systems (DSS)

#### **10.3.3.5 References**

- [http://www.chris-kimble.com/Courses/World\\_Med\\_MBA/Types-of-Information-System.html](http://www.chris-kimble.com/Courses/World_Med_MBA/Types-of-Information-System.html)
- Information and Knowledge System (Information Systems, Web and Pervasive Computing: Advances in Information Systems (1<sup>st</sup> edition) authored by Pierre-Emmanuel Arduin, Michel Grundstein, Camille Rosenthal-Sabroux published by Wiley-ISTE; 2015
- Management Information System authored by Anuranjan Misra, published by Laxmi Publications Pvt. Ltd., 2017

### **10.3.4 Learning Outcome 3: Manage information resources**

#### **10.3.4.1 Learning Activities**

The following are the performance criteria:

- Information resource management concepts are identified
- IS resources are determined
- Classification of IS Resources is done.
- Importance of managing information resources is identified

Trainees to demonstrate knowledge in relation to:

- Information resource management concepts: IS resources, Hardware, Software, Databases, Networks, Procedures, Security facilities, Physical buildings, Classification of IS Resources
- Importance of managing information resources

#### 10.3.4.2 Information Sheet

**Information Resource Management (IRM)** is a broad term in IT that refers to the management of records or information or data sets as a resource. This can relate to both business or government goals and objectives.

A **hardware resource includes** all physical devices and materials used in information processing. Specially, it includes not only machines, such as computers and other equipment, but also all data media, that is, all tangible objects on which data is recorded, from sheets of paper to magnetic disks.

A **Software Resources** includes all sets of information processing instructions. This generic concept of software includes not only the sets of operating instructions called programs, which direct and control computer hardware, but also the sets of information processing instructions needed by people, called procedures.

**Read:** Information system resources: <http://infoallsearch.blogspot.com/2013/02/information-system-resources.html>

The main components of information systems are computer **hardware and software, telecommunications, databases and data warehouses, human resources, and procedures.**

**Resource management is important** because it enables utilization planning, it provides you with an overview of everyone and everything and it makes planning and management transparent.

#### 10.3.4.3 Self-Assessment

- i. Define Information Management Resources?
- ii. What are components of IS?
- iii. What is the definition of MIS?
  - A. The proper way to address an unmarried woman
  - B. An acronym for "Missing In Space"
  - C. A computer system that organizes data and creates reports
  - D. Software that dictages the movements of a business

#### 10.3.4.4 Tools, Equipment, Supplies and Materials

Computer, Operating system, Operation Information System (OIS), Decision Support Systems (DSS)

#### 10.3.4.5 References

- <https://www.techopedia.com/definition/7722/information-resource-management-irm>
- <https://www.gantt.com/blog/why-is-resource-management-important>

- Information and Knowledge System (Information Systems, Web and Pervasive Computing: Advances in Information Systems (1st edition) authored by Pierre-Emmanuel Arduin, Michel Grundstein, Camille Rosenthal-Sabroux published by Wiley-ISTE; 2015
- Management Information System authored by Anuranjan Misra, published by Laxmi Publications Pvt. Ltd. 2017

### **10.3.5 Learning Outcome 4: Information system planning**

#### **10.3.5.1 Learning Activities**

The following are the performance criteria:

- Definition of IS planning is done
- Importance of planning is identified
- IS planning process is done
- IS planning techniques are identified
- Project planning is done
- IS Acquisition methods are identified

Trainees to demonstrate knowledge in relation to:

- Definition of IS planning
- Importance of planning
- IS planning process
- IS planning techniques q Project planning
- Causes of project failure and success
- Types of IS Acquisition methods
- In house
- Off the shelf
- Hire, outsource

#### **10.3.5.2 Information Sheet**

**Information Systems Planning** is critical in developing and executing successful strategic plans in huge firms at global level for reach out and servicing end customer.

**Following are the importance of planning:**

- Increases efficiency
- Reduces business-related risks
- Facilitates proper coordination
- Aids in organizing
- Gives right direction
- Keeps good control
- Helps to achieve objectives
- Motivates the personnel

- Encourages creativity and innovation
- Helps in decision making

### **Six planning approaches and techniques**

- Stages of growth
- Critical success factors
- Competitive forces model
- Value chain analysis
- Internet value matrix
- Linkage analysis planning

A **project management system** is a means of managing a **project by planning**, organizing, and managing its different required aspects.

### **Here are just some of the most common causes of project failure:**

- Poorly defined **project** scope
- Inadequate risk management
- Failure to identify key assumptions
- Project managers who lack experience and training
- No use of formal methods and strategies
- Lack of effective communication at all levels

**Read:** Type of acquisition system:

<https://www.britannica.com/topic/information-system/Acquiring-information-systems-and-services>

#### **10.3.5.3 Self-Assessment**

- What are the technics of planning?
- Define project panning.
- What are common cause of project failure?
- Prepare a scope for collecting primary and secondary student's demographic data collection. What may be some of the variables considered for the purposes of data. How different stakeholder holder may access and use such data effectively.

#### **10.3.5.4 Tools, Equipment, Supplies and Materials**

Network Diagram, Gantt chart, Transaction Processing Systems (TPS) Operation Information System (OIS Decision Support Systems (DSS) Enterprise resource planning (ERP)

#### **10.3.5.5 References**

- <https://www.civilserviceindia.com/subject/Management/notes/information-systems-planning.html>
- <https://kalyan-city.blogspot.com/2012/02/importance-of-planning-why-planning-is.html>
- <https://www.projectsmart.co.uk/15-causes-of-project-failure.php>



- Information and Knowledge System (Information Systems, Web and Pervasive Computing: Advances in Information Systems (1st edition) authored by Pierre-Emmanuel Arduin, Michel Grundstein, Camille Rosenthal-Sabroux published by Wiley-ISTE; 2015
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### 10.3.6 Learning Outcome 5: Impact of information system in organization

#### 10.3.6.1 Learning Activities

The following are the performance criteria:

- Trends of IS Aare identified
- Organizational change in management is done
- IS maintenance is done
- Ethical issues in IS are identified
- Legal issues in IS are identified

Trainees to demonstrate knowledge in relation to:

- Trends of IS, Negative impacts, Positive impacts, Ethical, Non-disclosure NDA, Privacy, Data integrity, Code of conduct, Legal issues, Warrants, Bridge of contracts, Computer crimes, IS maintenance

#### 10.3.6.2 Information Sheet

Technology is a double-edged sword when it comes to bringing people together. On the one hand, it makes it easier for co-workers to communicate and collaborate as they make use of email and team-chat sites. Technology saves money for business by saving time, such as the hours that would be required to compile reports by hand. In addition, meaningful and up-to-date information helps organizations to quickly recognize problems and opportunities and respond proactively. However, computers, software and the training required to maintain and upgrade them can be expensive.

The key negatives of the Information System is that in case data is not secured it can be used by malicious agencies to manipulate for personal gains. When there are data hacks, personal information, business information is susceptible to risk and lead to distrust and limited privacy.

**Read:** Positive and negative effects of IS: <https://bizfluent.com/list-6943594-positive-negative-effects-technology-business.html>

**A non-disclosure agreement (NDA)**, also known as a confidentiality agreement (CA), confidential disclosure agreement (CDA), proprietary information agreement (PIA) or secrecy agreement (SA), is a legal contract between at least two parties that outlines confidential material, knowledge, or information that the parties wish to share with one

another for certain purposes, but wish to restrict access to or by third parties.

**Privacy** is the ability of an individual or group to seclude themselves, or information about themselves, and thereby express themselves selectively.

**Data integrity** is the maintenance of, and the assurance of the accuracy and consistency of, data over its entire life cycle, and is a critical aspect to the design, implementation and usage of any system, which stores, processes, or retrieves data.

**A code of conduct** is a set of rules outlining the social norms, religious rules and responsibilities of, and or proper practices for, an individual.

**A warranty** is a manufacturer's or seller's promise to stand behind its product and correct problems if the product fails due to a manufacturing defect or because it doesn't work as promised.

**Computer crimes** is substantive criminal law involving computers, which encompasses computer misuse crimes such the Computer Fraud and Abuse Act as well as general crimes often committed using computers such as identify theft, criminal copyright and child pornography offenses.

**Maintenance** is the process of modifying an information system to continually satisfy organizational and user requirements.

### 10.3.6.3 Self-Assessment

- i. What is data integrity?
- ii. Differentiate between data integrity and privacy?
- iii. Explain negative and positive impact of Information System?
- iv. What is warranty?
- v. When a report is produced periodically, it is called what?
  - A. Drill-Down Report
  - B. Key-Indicator Report
  - C. Demand Report
  - D. Scheduled Report
- vi. Case situation: An NGO has selected you for developing their software for collection of data related to farms and their agricultural produce. As part of the agreement, they have asked to you sign a NDA. What are the clauses that might be added in the NDA. What are the things you need to keep in mind while signing the NDA. What might be the liabilities?
- viii. Go through the warranty card for the following items – laptop, mobile, keyboard, mouse etc.

### 10.3.6.4 Tools, Equipment, Supplies and Materials

Computer, Internet connectivity, operating system

#### 10.3.6.5 References

- <http://www.umsl.edu/~joshik/msis480/chapt16.htm>
- <https://definitions.uslegal.com/l/legal-issue/>
- <https://bizfluent.com/list-6943594-positive-negative-effects-technology-business.html>
- Information and Knowledge System (Information Systems, Web and Pervasive Computing: Advances in Information Systems (1<sup>st</sup> edition) authored by Pierre-Emmanuel Arduin, Michel Grundstein, Camille Rosenthal-Sabroux published by Wiley-ISTE; 2015
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