UNIT - II

Introduction to Information System

An information system can be defined as a set of interrelated components that collect, manipulate, store data, distribute information to support decision making and provide a feedback mechanism to monitor performance.

It may also help the manager and workers to analyse problems, visualize complex subject, and create new products. Software, Hardware, information system users, computer system connections and information, and the system's housing are all part of an Information System.

Components of Information System

The components that must be combined together in order to produce information system are:

People: Peoples are the most essential part of the information system because without them the system cannot be operated correctly.

Hardware: It is the part of a physical component of an information system which we can touch. The information system hardware includes the computer, processors, monitors, printer, keyboards, disk drives, iPads, flash drives, etc.

Software: It is a set of instruction that tells the hardware what to do. It can be used to organize, process and analyse data in the information system.

Data: Data is a collection of facts. Information systems work with data. These data can be aggregated, indexed, and organized into tables and files together to form a database. These databases can become a powerful tool for every businesses information system.

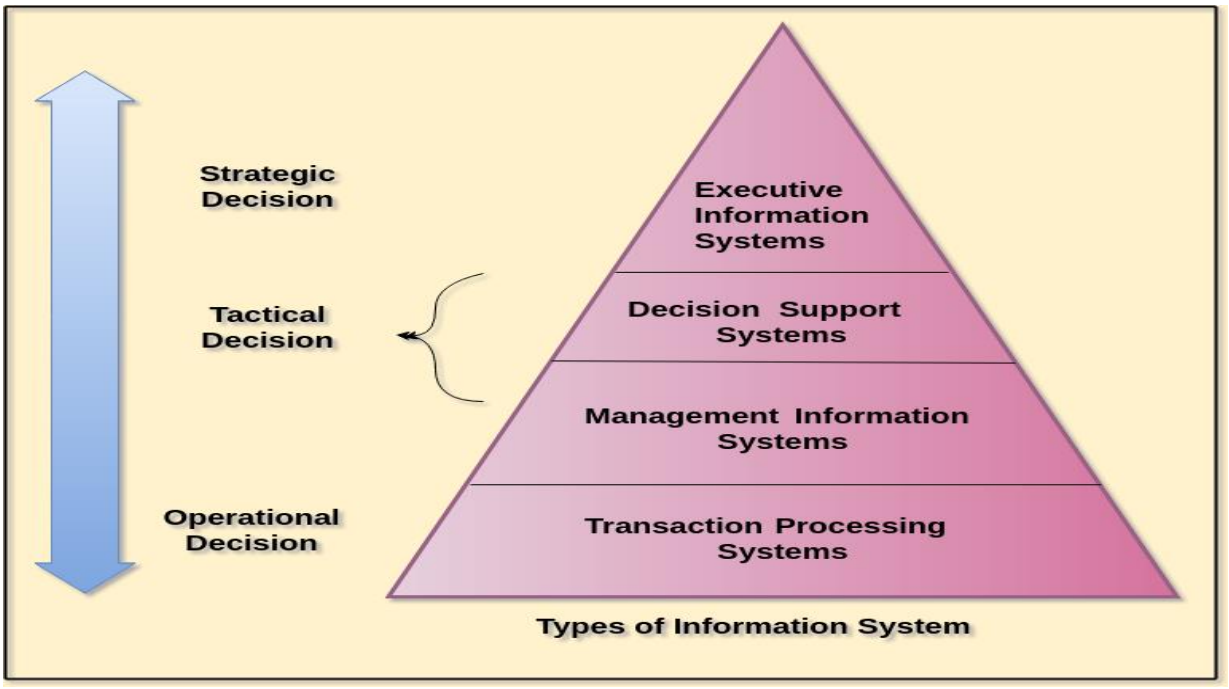
Network: It includes internet, intranet, extranet to provide successful operations for all types of organizations and computer-based information system.

Procedures: It specifies the policies that govern the operation of an information system. It describes how specific method of data are processed and analysed to get the answers for which the information system is designed.

Feedback: It is the component of an information system which defines that an IS may be provided with feedback.

Types of Information system

The information systems can be categorized into four types. These are:



1. Executive Information Systems

It is a strategic-level information system which is found at the top of the Pyramid. Its primary goal is to provide information gathered from both internal and external sources to the senior executives and management to analyse the environment in which the organization operates, and to plan appropriate courses of action for identifying the long-term trends. It can also be used to monitor organization performance as well as to identify opportunities and problems. EIS is designed in such a way that it can be operated directly by executives without the need for intermediaries.

The role of Executive Information Systems are:

- It is concerned for ease of use.
- It supports unstructured decisions.
- It concerned with predicting the future.
- It is highly flexible.
- It is effective.
- It uses both internal and external data sources.
- It is used only at the higher levels of authority.

2. Decision Support Systems

A DSS or Decision Support System is a computer application program used by senior managers to analyse the business data and presents it in that form in which the users can make business decisions more easily. These systems are usually interactive and can be used to solve ill-

structured problems in an organization. It helps in exchanging the information within the organization.

The role of Decision Support System are:

- It supports ill-structured or semi-structured decisions.
- It is used by senior managerial levels.
- It has analytical and/or modeling capacity.
- It is concerned with predicting the future.

3. Management Information Systems

MIS or Management Information System is the use of information technology, people, and business processes to record, store, manipulate, and process data to produce meaningful information. These information helps decision makers to make day to day decisions correctly and accurately. It is used to make a tactical decision (middle-term decision) to ensure the smooth running of an organization. It also helps to evaluate the organization's performance by comparing previous outputs with current output.

The role of Management Information Systems are:

- It is based on internal information flows.
- It supports relatively structured decisions.
- It is inflexible and has a little analytical capacity.
- It is used by lower and middle managerial levels.
- It deals with the past and presents rather than the future.

4. Transaction Processing Systems

TPS or transaction processing system is a type of information processing system for business transactions that involve the collection, storage, modification and retrieval of all data transaction of an enterprise. The characteristics of a Transaction Processing System includes reliability, performance, and consistency. A TPS is also known as real-time processing.

The role of Transaction Processing System are:

- It produces the information for other systems.
- It is used by operational personnel plus supervisory levels.
- It is efficiency oriented.

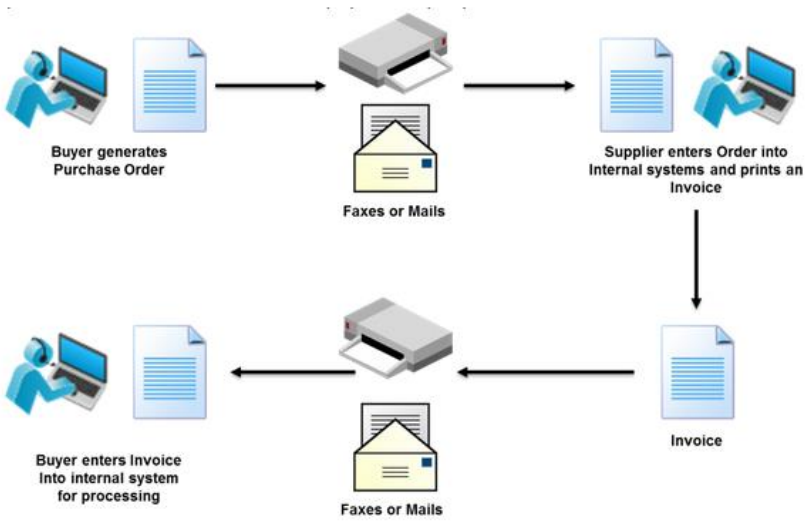
Electronic Data Interchange

Electronic Data Interchange (EDI) is the electronic interchange of business information using a standardized format; a process which allows one company to send information to another

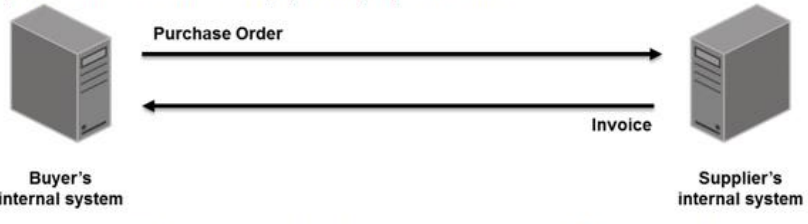
company electronically rather than with paper. Business entities conducting business electronically are called trading partners.

Many business documents can be exchanged using EDI, but the two most common are purchase orders and invoices. At a minimum, EDI replaces the mail preparation and handling associated with traditional business communication. However, the real power of EDI is that it standardizes the information communicated in business documents, which makes possible a "paperless" exchange.

The traditional invoice illustrates what this can mean. Most companies create invoices using a computer system, print a paper copy of the invoice and mail it to the customer. Upon receipt, the customer frequently marks up the invoice and enters it into its own computer system. The entire process is nothing more than the transfer of information from the seller's computer to the customer's computer. EDI makes it possible to minimize or even eliminate the manual steps involved in this transfer.



The EDI process looks like this — no paper, no people involved:



The process improvements that EDI offers are significant and can be dramatic. For example, consider the difference between the traditional paper purchase order and its electronic counterpart:

A Traditional Document Exchange of a Purchase Order	An EDI Document Exchange of a Purchase Order
This process normally takes between three and five days.	This process normally occurs overnight and can take less than an hour.
Buyer makes a buying decision, creates the purchase order and prints it. Buyer mails the purchase order to the supplier. Supplier receives the purchase order and enters it into the order entry system. Buyer calls supplier to determine if purchase order has been received, or supplier mails buyer an acknowledgment of the order.	Buyer makes a buying decision, creates the purchase order but does not print it. EDI software creates an electronic version of the purchase order and transmits it automatically to the supplier. Supplier's order entry system receives the purchase order and updates the system immediately on receipt. Supplier's order entry system creates an acknowledgment an transmits it back to confirm receipt.

Benefits of Using EDI:

- It's fast – streamlined business processes mean that documents can be exchanged in minutes,
- It's accurate – manual data entry errors are eliminated,
- It's secure – you receive confirmation that your documents have arrived safely,
- It cuts costs – of printing, copying, filing, storage and postage, and of repetitive, labour intensive tasks, administration and disputes caused by data entry errors,
- It happens in real-time – informing and speeding up business decisions and response times,
- It's great for business – you're part of a connected trading community and can build more productive relationships with suppliers and customers alike,
- It's great for cash flow – payment schedules are shorter and more reliable,
- It's flexible – you can integrate your EDI system with your back office accounts, warehouse or ERP systems for greater business efficiency.

Supply Chain management

Supply chain management is the handling of the entire production flow of a good or service — starting from the raw components all the way to delivering the final product to the consumer. A company creates a network of suppliers ("links" in the chain) that move the product along from the suppliers of raw materials to those organizations that deal directly with users.

Definition

A supply chain consists of all the activities and entities that are involved in extracting, processing, manufacturing, distributing and selling the products to the ultimate customers.

However, the concept of SCM is much broader than that of the marketing channels as SCM goes back to a distant starting point / root and includes the raw material suppliers.

For example, Raw material suppliers → Logistics Services Providers → Manufacturer → Logistics Services Providers → Intermediaries/ Retailers → Consumers

Benefits of supply chain management

Supply chain management creates a number of benefits that translate to higher profits, better brand image and greater competitive advantage. These include the following:

- better ability to predict and meet customer demand;
- better supply chain visibility, risk management and predictive capabilities;
- fewer process inefficiencies and less product waste;
- improvements in quality;
- increased sustainability, both from a societal and an environmental standpoint;
- lower overhead;
- improvements in cash flow; and
- more efficient logistics.

Five stages of supply chain management

Supply chain management can be broadly categorized into five steps or areas:

Plan. Using supply chain analytics and materials management features in ERP systems, organizations create strategic plans to meet customer demand for product and avoid a bullwhip effect.

Source. Organizations identify and select vendors that can supply materials in a streamlined and efficient way according to agreements. Supply chain collaboration starts at this stage and is important throughout the supply chain management process.

Make. In this stage, products are manufactured. It includes scheduling the production, testing, ensuring compliance requirements are followed, packing, storage and release. Multiple machines are likely to be involved, especially for larger companies, and these increasingly use technologies such as IoT and AI to work more efficiently.

Deliver. The delivery stage pertains to logistics and focuses on getting finished goods to consumers, in whatever manner of transportation is needed. As the Amazon effect has grown, especially as a result COVID-19, more focus is on doorstep delivery. Greater emphasis is now also on supply chain leaders working more closely with customer service. Inventory management and warehouse management systems are especially crucial at this stage.

Return. The return stage includes all product returns, including defective products and products that will no longer be supported. This stage also includes elements from other stages, including inventory and transportation management.

Example of SCM
The most basic version of a supply chain includes a company, its suppliers and the customers of that company. An example would be: raw material producer, manufacturer, distributor, retailer and retail customer.

CRM

- CRM stands for **Customer Relationship Management.**
- CRM is combination of a variety of strategies used for managing the companies relationships and interactions with potential customers.
- It helps you improve profitability.
- It is the strongest and the most efficient approach in maintaining and creating relationships with customers.
- CRM helps in understanding the customer's needs and behaviors.
- It defines appropriate actions for retaining customers such as special incentive programs.

- It involves a process of continuously gathering data at all customer points and then turning that data into knowledge for building more profitable customer relationships.

Features of CRM

- CRM fulfills customer needs effectively and maintains a long-term deal.
- CRM is customized by an organization to manage and administrate its customers and vendors in an efficient manner to achieve excellence.
- It considers customer satisfaction.
- It focuses on customer loyalty, retention and complaints.
- It delivers better information and services regarding all the products and brands to the customer.

Importance of CRM

- CRM foresees customer needs effectively and increases business.
- CRM includes a historical view and analysis of all the acquired customers.
- It contains each and every bit of customer details making it easy to track customers and determine the most profitable ones.
- It is very cost effective.
- It reduces the process time and increases the productivity.