

# Unit 1

## Introduction to Enterprise Resource Planning (ERP )

### Definition of Information System

- “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 are combinations of hardware, software, and telecommunications networks that people build and use to collect, create, and distribute useful data, typically in organizational settings.”
- “Information systems are interrelated components working together to collect, process, store, and disseminate information to support decision making, coordination, control, analysis, and vidualization in an organization.”
- As you can see, these definitions focus on two different ways of describing information systems: the *components* that make up an information system and the *role* that those components play in an organization.

### Information System and Its Components

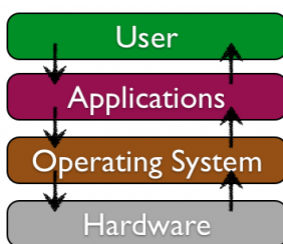
Components of information system	Definitions
Data	Input the system takes to produce information
Hardware	A computer and its peripheral equipment: input, output and storage devices; hardware also includes data communication equipment
Software	Sets of instructions that tell the computer how to take data in, how to process it, how to display information, and how to store data and information
Telecommunications	Hardware and software that facilitates fast transmission and reception of text, pictures, sound, and animation in the form of electronic data
People	Information systems professionals and users who analyse organisational information needs, design and construct information systems, write computer programs, operate the hardware, and maintain software
Procedures	Rules for achieving optimal and secure operations in data processing; procedures include priorities in dispensing software applications and security measures

The first way to describe information systems is that they are made up of five components: **hardware, software, data, people, and process**. The first three, fitting under the technology category, are generally what most students think of when asked to define information systems. But the last two, people and process, are really what separate the idea of information systems from more technical fields, such as computer science. In order to fully understand information systems, students must understand how all of these components work together to bring value to an organization.

## Hardware

Information systems hardware is the part of an information system you can touch – the physical components of the technology. Computers, keyboards, disk drives, iPads, and flash drives are all examples of information systems hardware.

## Software



Software is a set of instructions that tells the hardware what to do. Software is not tangible – it cannot be touched. When programmers create software programs, what they are really doing is simply typing out lists of instructions that tell the hardware what to do. There are several categories of software, with the two main categories being operating-system software, which makes the hardware usable, and application software, which does something useful. Examples of operating systems include Microsoft Windows on a personal computer and Google's Android on a mobile phone.

## Data

The third component is data. You can think of data as a collection of facts. For example, your street address, the city you live in, and your phone number are all pieces of data. Like software, data is also intangible. By themselves, pieces of data are not really very useful. But aggregated, indexed, and organized together into a database, data can become a powerful tool for businesses.

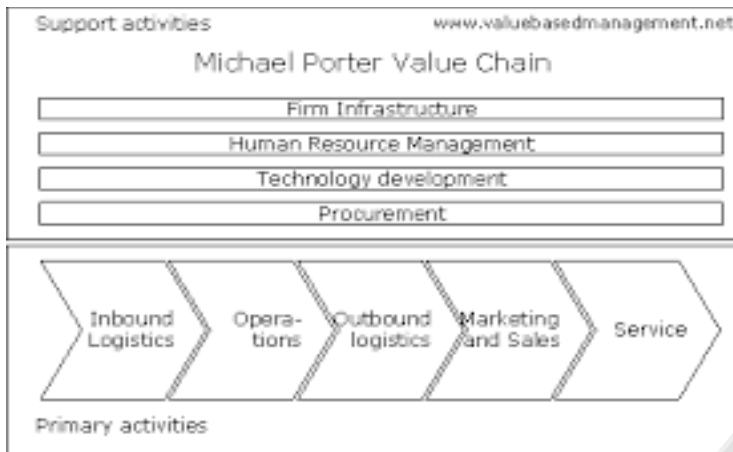
## People

When thinking about information systems, it is easy to get focused on the technology components and forget that we must look beyond these tools to fully understand how they integrate into an organization. A focus on the people involved in information systems is the next step. From the front-line help-desk workers, to systems analysts, to programmers, all the way up to the chief information officer (CIO), the people involved with information systems are an essential element that must not be overlooked.

## Process

The last component of information systems is process. A process is a series of steps undertaken to achieve a desired outcome or goal. Information systems are becoming more and more integrated with organizational processes, bringing more productivity and better control to those processes. But simply automating activities using technology is not enough – businesses looking to effectively utilize information systems do more. Using technology to manage and improve processes, both within a company and externally with suppliers and customers, is the ultimate goal.

## Porters Value Chain:-



The idea of the value chain is based on the process view of organisations, the idea of seeing a manufacturing (or service) organisation as a system, made up of subsystems **each with inputs, transformation processes and outputs. Inputs, transformation processes, and outputs involve the acquisition and consumption of resources - money, labour, materials, equipment, buildings, land, administration and management.** How value chain activities are carried out determines costs and affects profits.

Most organisations engage in hundreds, even thousands, of activities in the process of converting inputs to outputs. These **activities (Value)** can be classified generally as either **primary or support activities** that all businesses must undertake in some form. According to Porter (1985), the primary activities are:

- **Inbound Logistics-** involve relationships with suppliers and include all the activities required to receive, store, and disseminate inputs.
- **Operations-** are all the activities required to transform inputs into outputs (products and services).
- **Outbound Logistics-** include all the activities required to collect, store, and distribute the output.
- **Marketing and Sales-** activities inform buyers about products and services, induce buyers to purchase them, and facilitate their purchase.
- **Service-** includes all the activities required to keep the product or service working effectively for the buyer after it is sold and delivered.

Secondary activities are:

1. **Procurement** - is the acquisition of inputs, or resources, for the firm.
2. **Human Resource management** - consists of all activities involved in recruiting, hiring, training, developing, compensating and (if necessary) dismissing or laying off personnel.
3. **Technological Development** - pertains to the equipment, hardware, software, procedures and technical knowledge brought to bear in the firm's transformation of inputs into outputs.
4. **Infrastructure** - serves the company's needs and ties its various parts together, it consists of functions or departments such as accounting, legal, finance, planning, public affairs, government relations, quality assurance and general management.

### Role Of ERP in Organization

**What is ERP and How Does it Work?**



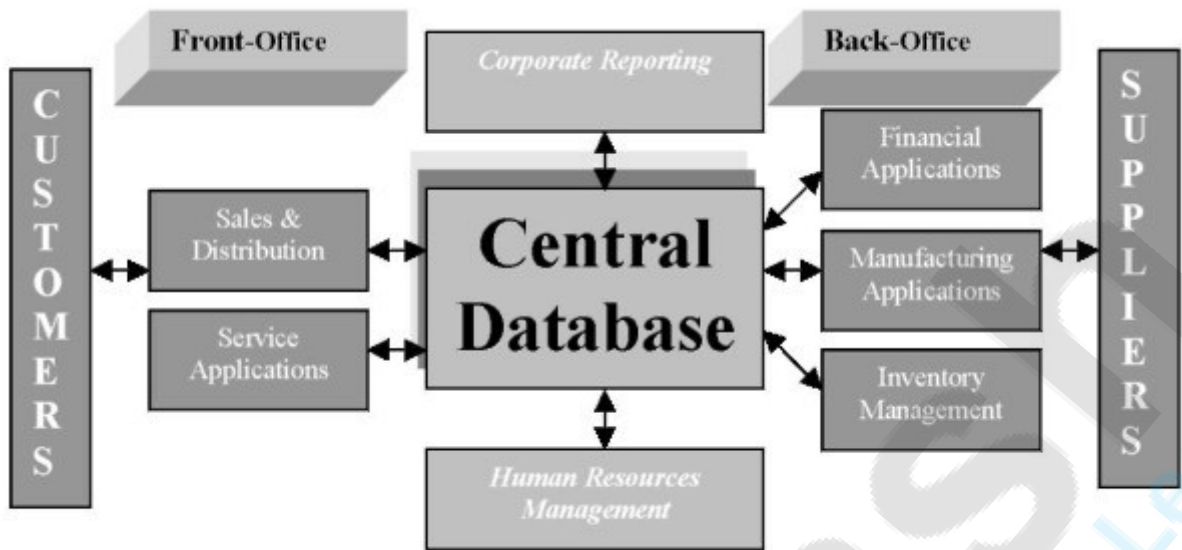
1. Enterprise Resource Planning (ERP) is a business process management software.
2. This is used by an organization to manage the office and automate the business functions. These system make the data easily accessible and more usable in terms or organization of files.
3. This allows accurate planning by the company and have result oriented approach.

4. The company can also schedule the daily activities with the help of ERP software solutions. It also helps in managing the finances well.
5. These software play a very crucial role in the development of a company.
6. ERP solutions also help in managing the records of the employees and allow the employer to plan the growth accordingly.
7. This also allows the company to have fluent communication with the clients.
8. It is a very cost effective system and the benefits are always greater than investment. This helps in long-term planning and management.
9. This eliminates the need of multiple management software. It helps to integrate the interaction between marketing, sales, quality control, product processes, supply lines, stocks, human resource module, customer relationship management, information technology, and many other functions in a single database.
10. It reduces the chances of typing errors and re-entry.
11. Enables the company to use a single software and maintain one database for the whole company.

### **ERP software Why is Important for Business?**

- ERP tools help in managing accounts, employee records and internal and external factor affecting the company.
- It reduces cost in the long term by increasing the productivity.
- Reduces the time and effort of managing records as compared to the paper records.
- The merger of financial and operational information allows the company to analyse the business needs and act in a more effective manner.
- By combining all the records in one whole, ERP makes the management of data easier and more productive.
- Apart from records, ERP also helps in the management of material and ensures that no material is lost or stolen. It would also automate the process of buying and maintaining material after analyzing the stock.
- Helps the company to predict market trends and decide the course of action accordingly.
- Allows the company to expand business using the internet.

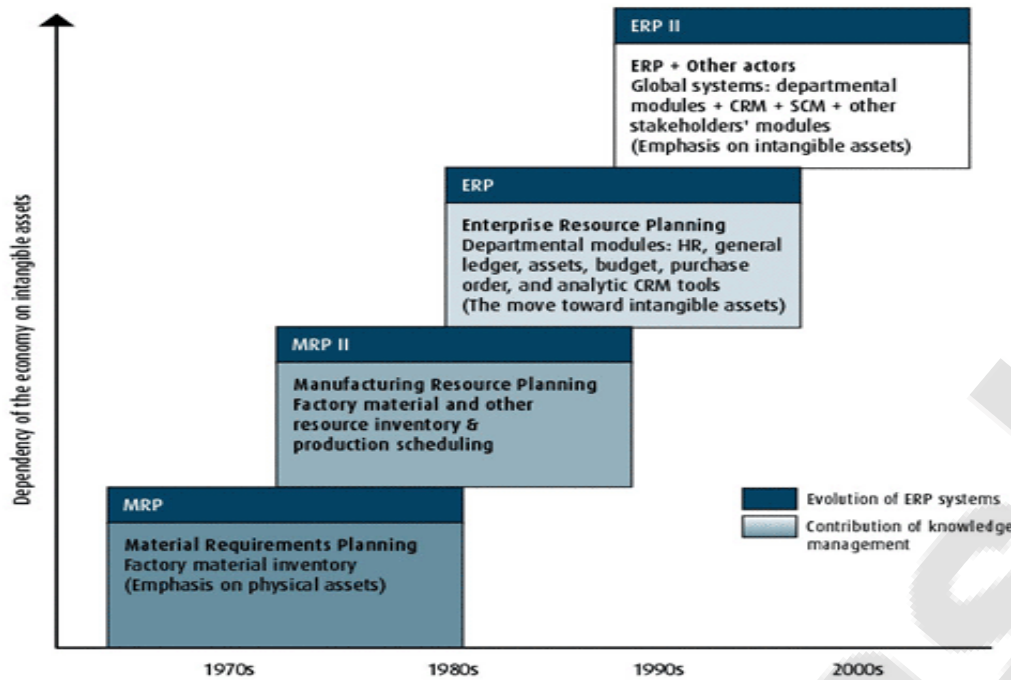




### Evolution of ERP system:

- **ERP systems surfaced in the market in the late 1980s and the beginning of the 1990s, targeting mainly large complex business organizations.** During the 1960s, most organisations designed, developed, and implemented centralised computing systems, mostly automating their inventory control systems using inventory control (IC) packages.
- Material requirements planning (MRP) systems were developed in the 1970s and involved mainly planning the product or parts requirements according to the master production schedule.
- Following this route, new software systems called manufacturing resources planning (MRP II) were introduced in the 1980s with an emphasis on optimizing manufacturing processes by synchronising the materials with production requirements. MRP II included areas such as shop floor and distribution management, project management, finance, human resource, and engineering.
- Based on the technological foundations of MRP and MRP II, ERP systems integrate business processes including manufacturing, distribution, accounting, finances, human resource management, project management, inventory management, service and maintenance, transportation providing accessibility, visibility, and consistency across the enterprise.

2000s	Extended ERP
1990s	Enterprise Resource Planning (ERP)
1980s	Manufacturing Resources Planning (MRP II)
1970s	Material Requirement Planning (MRP)
1960s	Inventory Control (IC) Packages



### Three-Tier Architecture of ERP system

ERP applications are most commonly deployed in a distributed and often widely dispersed manner. While the servers may be centralized, the clients are usually spread to multiple locations throughout the enterprise.

Generally there are three functional areas of responsibility that is distributed among the servers and the clients. First, there is the (1.) **database component** - the central repository for all of the data that is transferred to and from the clients. Then, of course, the (2.) **clients** - here raw data gets inputted, requests for information are submitted, and the data satisfying these requests is presented. Lastly, we have the (3) **application component** that acts as the intermediary between the client and the database. Where these components physically reside and how the processes get distributed will vary somewhat from one implementation to the next. The two most commonly implemented architectures are outlined below.

**Two-tier Implementations** In typical two-tier architecture, the server handles both application and database duties. The clients are responsible for presenting the data and passing user input back to the server. While there may be multiple servers and the clients may be distributed across several types of local and wide area links, this distribution of processing responsibilities remains the same.

### **Three-tier Client/Server Implementations**

In three-tier architectures, the database and application functions are separated. This is very typical of large production ERP deployments. In this scenario, satisfying client requests requires two or more network connections. Initially, the client establishes communications with the application server. The application server then creates a second connection to the database server.

