

# **Management Information System**

## **Unit-4**

### **Business Applications of Information Technology**

#### **INTRODUCTION**

Today's businesses rely more heavily on technology than ever before. Information technology is an essential partner in management of our business, regardless of the kind of enterprise we operate. From small businesses run by a single person to huge multi-national corporations, the importance of information technology in any business setting is evident. Computer technology is used across the business world in every department and has become vital to business operations in the modern world.

Without information technology and system support, businesses simply stop! If the internet or phone service goes down in an office, nothing can get done — HR, finance, operations, communications, sales, and all other departments depend on functional computer and information systems to complete their work. Plus, IT and Information Services (or IS) protect the integrity of data and keep it safe from a world of technological threats.

In short, workplaces cannot function without IT and IS professionals. They're a valuable part of every office and business environment.

Undoubtedly, technology is very necessary for Business. It has caused an explosion in commerce and trade; many traditional business models and concepts were revolutionized. Technology has just about changed every aspect of business in a big way and this has never happened this fast before in history. To be more specific, here are a few ways in which information technology has affected business:

#### **1- Communication**

In the business world, communication plays an important role in maintaining the relationship between employees, suppliers, and customers. Therefore, the use of IT we can simplify the way to communicate through e-mail, video chat rooms or social networking site.

#### **2- Time saving**

IT applications can save time in the retrieval of information from a database or website. Rapid searches can be carried out by simply cueing in a keyword such as the name of a customer or a component.

Another way that time can be saved is in the rapid duplication of information. For example, an e-mail can be sent to all of the relevant members of an organization simply by creating a pre-prepared mailing list for all communications of a certain type.

#### **3- Customer Relationship improvement**

Companies are using IT to improving the way of design and manage customer relationship. Customer Relationship Management (CRM) systems capture every relationship a company has with a customer so that a more experience gain is possible.

If a customer makes a call to centre and report an issue, the customer relation officer will be able to see what the customer has purchased, view shipping information, call up the training manual for that item and effectively respond to the issue.

#### **4- Management Information Systems**

Information data is very important for an organization and a valuable resource requirement for the safe and effective care, that enable the company to track sales data, expenditure and productivity as well as information to track profits from time to time, maximizing return on investment and recognize areas of improvement.

#### **5- Security**

Most businesses of the modern era are subject to security threats and vandalism. Technology can be used to protect financial data, confidential executive decisions and other proprietary information that leads to competitive advantages. Simply put, technology helps businesses keep their ideas away from their competition. By having computers with passwords, a business can ensure none of its forthcoming projects will be copied by the competition.

#### **6- Efficiency of operations**

Technology also helps a business understand its cash flow needs and preserve precious resources such as time and physical space. Warehouse inventory technologies let business owners understand how best to manage the storage costs of holding a product. With proper technology in place, executives can save time and money by holding meetings over the Internet instead of at corporate headquarters.

#### **7- Storage**

You are required a computer for data storage for your business. Inventory, sales, receivables and payables stored in Excel, Open Office or a similar program keeps these figures at your fingertips. Accounting software stores your payroll information, tax records and specialized data for your business. Once you are acquainted with a program, you won't know how you functioned without it. You can eliminate much of the physical storage at the office by using information technology to scan and store old personnel and payroll files, tax files or client files. You may need less square footage with information technology.

#### **8- Marketing**

Large and small businesses are on a level playing field on the Internet. You can have a Web presence, take orders, buy merchandise, sell excess or even operate some businesses entirely online. A marketing tool that uses information technology is the Quick Response or QR Code that looks like a bar code but is square. A scan advertises your website address and includes any text you choose. You can use your business management skills to direct employees or contractors to do your Internet marketing, or you can choose to learn a new set of skills in information technology.

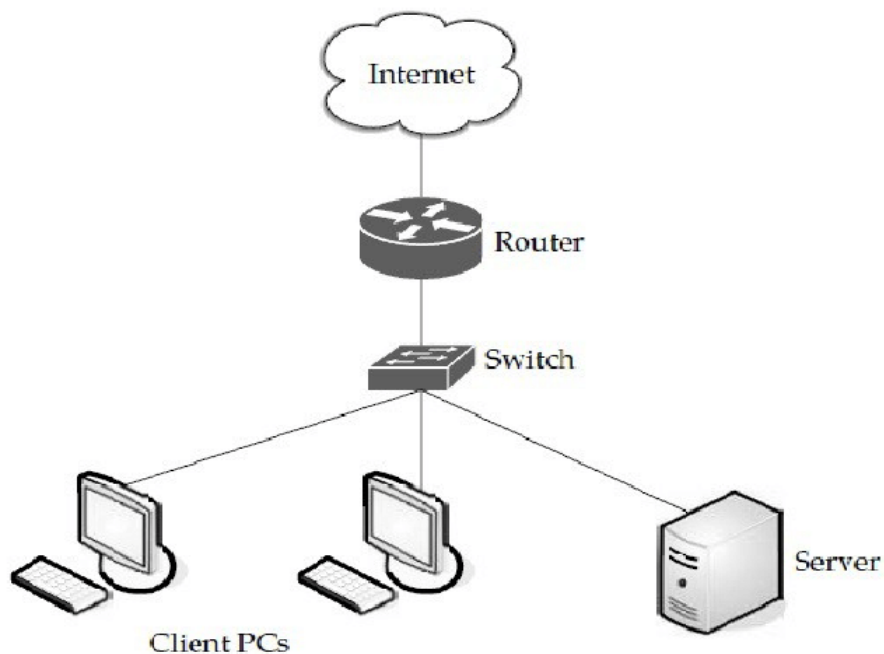
## Internet

The **Internet** is an increasingly important part of everyday life for people around the world. The Internet is a **global network** of billions of computers and other electronic devices. With the Internet, it's possible to access almost any information, communicate with anyone else in the world, and do much more.

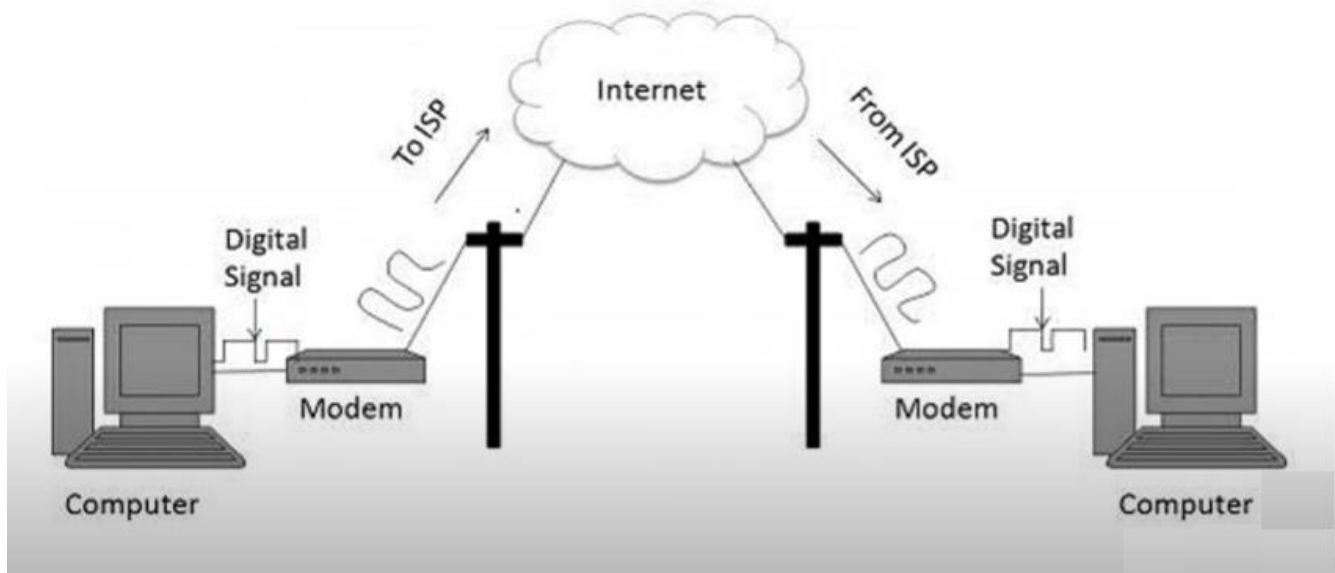
We can do all of this by connecting a computer to the Internet, which is also called **going online**. When someone says a computer is online, it's just another way of saying it's connected to the Internet.

The internet is a globally connected network system that uses **TCP/IP** to transmit data via various types of media. So we can say that the internet is a network of global exchanges – including private, public, business, academic and government networks – connected by guided, wireless and fiber-optic technologies.

The terms internet and World Wide Web are often used interchangeably, but they are not exactly the same thing; the internet refers to the global communication system, including hardware and infrastructure, while the web is one of the services communicated over the internet.



The **World Wide Web**—usually called the **Web** for short—is a collection of different **websites** we can access through the Internet. A **website** is made up of related text, images, and other resources. Websites can resemble other forms of media—like newspaper articles or television programs—or they can be interactive in a way that's unique to computers.

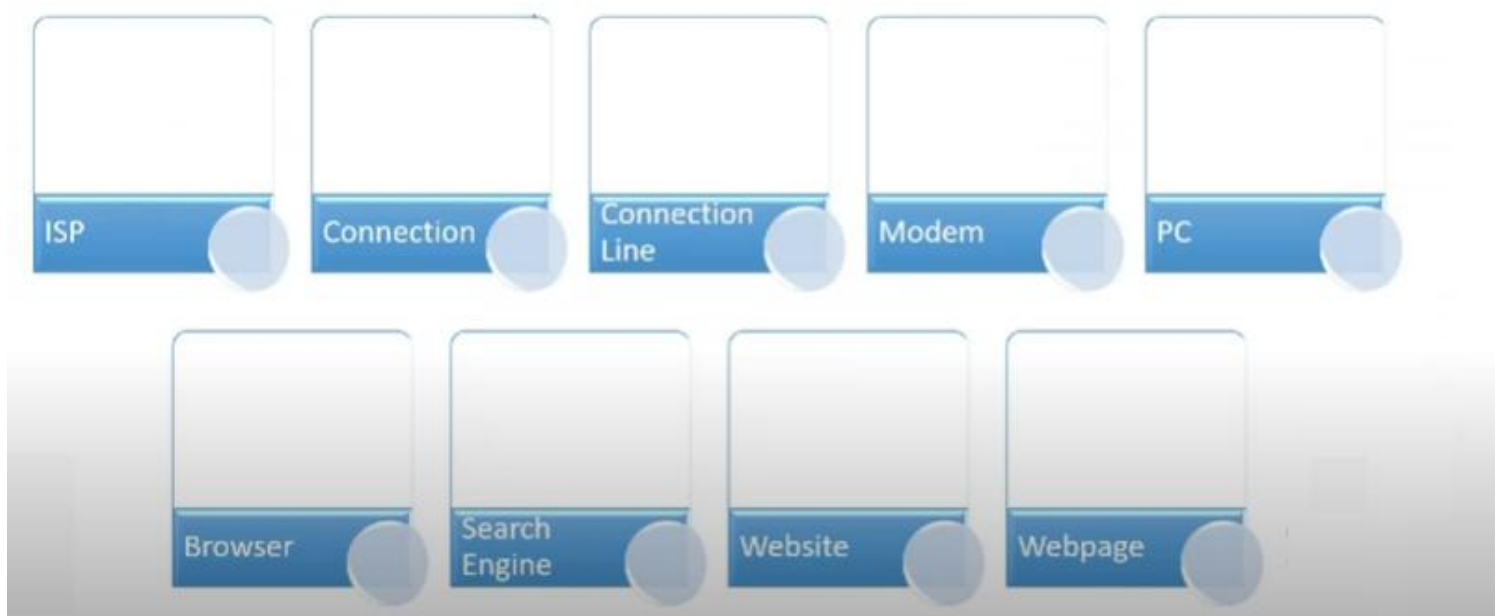


The purpose of a website can be almost anything: a news platform, an advertisement, an online library, a forum for sharing images, or an educational site like us!

Once you are connected to the Internet, you can access and view websites using a type of application called a **web browser**. Just keep in mind that the web browser itself is not the Internet; it only displays websites that are stored on the Internet.

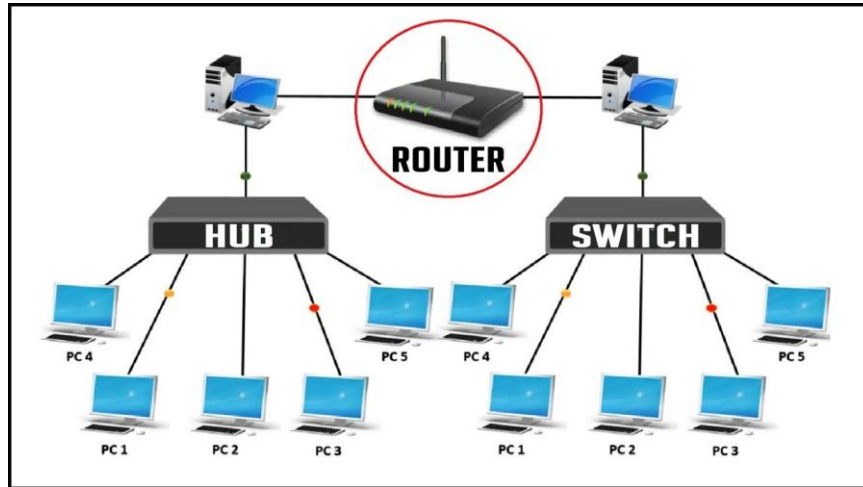
When you visit a website, your computer sends a request over these wires to a **server**. A server is where websites are stored, and it works a lot like your computer's hard drive. Once the request arrives, the server retrieves the website and sends the correct data back to your computer.

## Requirements



To connect to the Internet we need the following four things:

1. A **computer**
2. A **modem** and **telephone line** (if you are using dial up access)  
A data line of some sort (if you are not using dial up access)
3. An **Internet browser** (software) and software to connect us to the ISP
4. An **account** with an Internet Service Provider (ISP)



These things work together in the following way:

- The **Computer** is essential.
- The **Modem** is necessary if we are using a telephone line to access the Internet. It translates the language that computers talk into a language that can travel across the phone lines, and vice versa.
- The **ISP** is our gateway to the Internet. We access the ISP over the phone line, and the ISP will connect us to the Internet. The ISP provides us with e-mail and access to the Internet. It does this through thousands of dollars worth of hardware and software, which the average user can not afford. You will have an account with the ISP - we will pay month charges in return for accessing the Internet through the ISP. This account will come with a user name and a password that we use to log on to the Internet.

We need two lots of software to connect to the Internet. The first is the software that connects us to our ISP. This is different for each ISP. Some ISP's will give us a disk with the connection software on it. Other ISP's will use the connecting software that comes with the operating systems Windows 95, OS7 and OS8. They will give us the settings to put into this software.

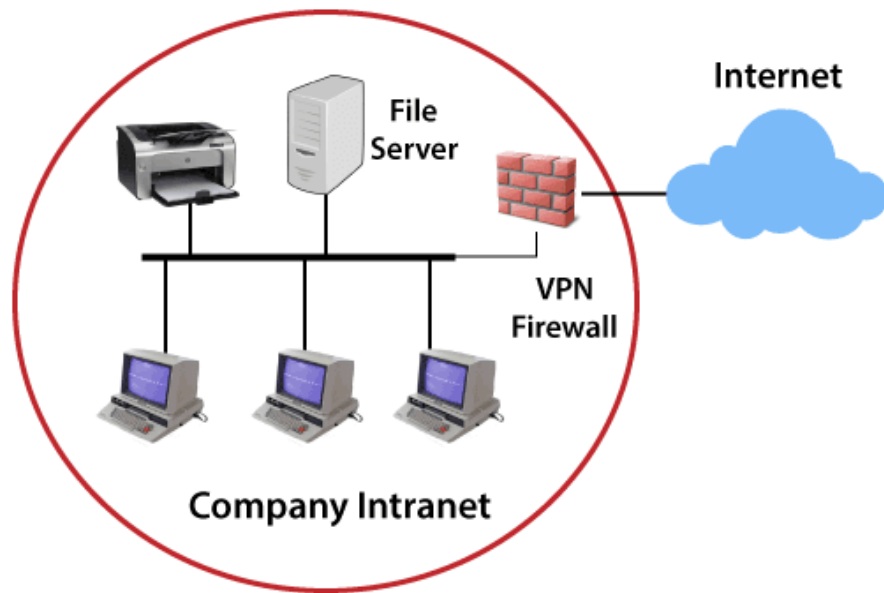
The second lot of software you need is a **Browser**. Browsers go and get web pages and display them on your computer.

## Intranet

An intranet is a computer network for sharing information, collaboration tools, operational systems, and other computing services within an organization, usually to the exclusion of access by outsiders.

Its primary purpose is to help employees securely communicate with each other, to store information, and to help collaborate.

For example, a business may create an intranet to allow employees to securely share messages and files with each other.

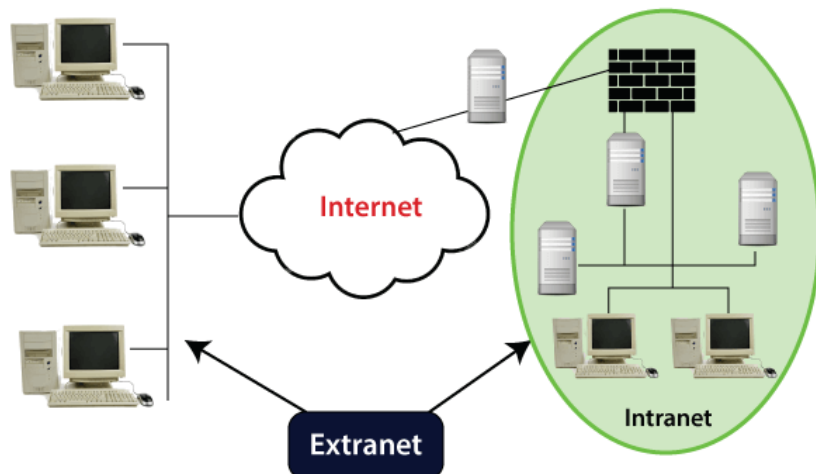


## Extranet

An extranet is an intranet that can be partially accessed by authorized outside users, enabling businesses to exchange information over the internet in a secure way. It is accessible to some people from outside the company, or possibly shared by more than one organization.

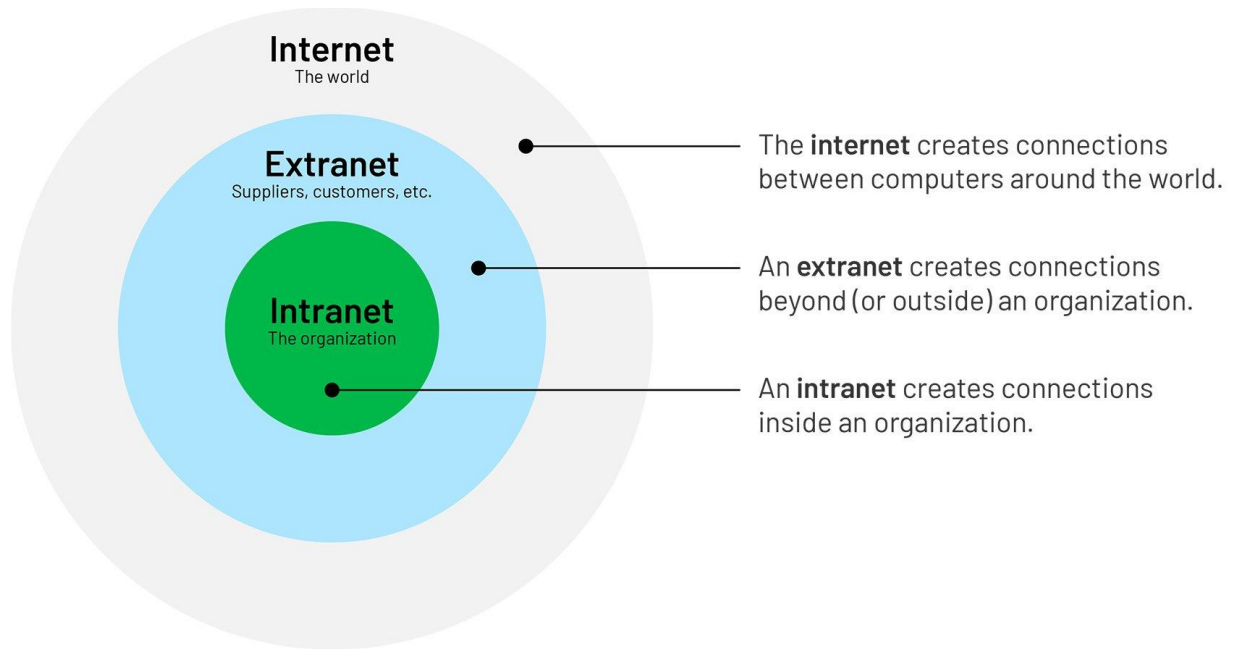
This network system is basically used for business to business (B2B) purposes. This system basically allows the outside users of an organization, like partners, suppliers, vendors and other stakeholders to remain in touch with the activities of organization.

Information and data access performed through a proper account or link system. This is a best network system to keep in touch with market position and share a large amount of data to partners in a timely manner.



## Difference between Internet, Intranet and Extranet

Point of difference	Internet	Intranet	Extranet
Accessibility of network	Public	Private	Private
Availability	Global system.	Specific to an organization.	To share information with suppliers and vendors it male the use of public network.
Coverage	All over the world.	Restricted area up to an organization.	Restricted area up to an organization and some of its stakeholders or so.
Accessibility of content	It is accessible to everyone connected.	It is accessible only to the members of organization.	Accessible only to the members of organization and external members with logins.
No. of computers connected	It is largest in number of connected devices.	The minimal numbers of devices are connected.	The connected devices are comparable with Intranet.
Owner	No one.	Single organization.	Single/ Multiple organizations.
Purpose of the network	Its purpose is to share information throughout the world.	Its purpose is to share information throughout the organization.	Its purpose is to share information between members and external, members.
Security	It is dependent on the user of the device connected to network.	It is enforced via firewall.	It is enforced via firewall that separates internet and extranet.
Users	General public.	Employees of the organization.	Employees of the organization which are connected.
Policies behind setup	There is no hard and fast rule for policies.	Policies of the organization are imposed.	Policies of the organization are imposed.
Maintenance	It is maintained by ISP.	It is maintained by CIO. HR or communication department of an organization.	It is maintained by CIO. HR or communication department of an organization.
Relation	It is the network of networks.	It is derived from Internet.	It is derived from Intranet.



## E-Commerce

E-commerce is the buying and selling of goods or services via the internet, and the transfer of money and data to complete the sales. It's also known as electronic commerce or internet commerce.

E-commerce has helped businesses establish a wider market presence by providing cheaper and more efficient distribution channels for their products or services.

These business transactions occur either as business-to-business (**B2B**), business-to-consumer (**B2C**), consumer-to-consumer (**C2C**), or consumer-to-business (**C2B**).

## Features

- **Non-Cash Payment** – E-Commerce enables the use of credit cards, debit cards, smart cards, electronic fund transfer via bank's website, and other modes of electronics payment.
- **24x7 Service availability** – E-commerce automates the business of enterprises and the way they provide services to their customers. It is available anytime, anywhere.
- **Advertising / Marketing** – E-commerce increases the reach of advertising of products and services of businesses. It helps in better marketing management of products/services.
- **Improved Sales** – Using e-commerce, orders for the products can be generated anytime, anywhere without any human intervention. It gives a big boost to existing sales volumes.
- **Support** – E-commerce provides various ways to provide pre-sales and post-sales assistance to provide better services to customers.
- **Inventory Management** – E-commerce automates inventory management. Reports get generated instantly when required. Product inventory management becomes very efficient and easy to maintain.
- **Communication improvement** – E-commerce provides ways for faster, efficient, reliable communication with customers and partners



## **ADVANTAGES**

### **1. A Larger Market**

Ecommerce allows you to reach customers all over the country and around the world. Your customers can make a purchase anywhere and anytime, especially more people are getting used to shopping on their mobile devices.

### **2. Lower Cost**

With the advance in ecommerce platform technologies, it has become very easy and affordable to set up and maintain an ecommerce store with a low overhead. Merchants no longer have to spend a large budget on TV ads or billboard, nor worry about the expense for personnel and real estate.

### **3. More Opportunities to "Sell"**

Merchants can only provide a limited amount of information on a product in a physical store. On the other hand, ecommerce websites allow the space to include more information such as demo videos, reviews, and customer testimonials to help increase conversion.

### **4. Time Saving**

It literally speeds up the buying process because when someone thinks of buying one specific product from the physical store which is very far and not easily available. Here how the ecommerce helps the customer to avail the specific product easily and speedily.

Easily retarget your customers.

### **5. Easier to encourage an impulse buy**

Impulse buying is one of the techniques where it works as a common behavior of customer's perception towards a particular product. It is related to the control of human psychological behavior which is like some people possess personality traits that can be said as impulse buying tendencies.

### **6. Reviews Available**

It has so many positive recommendations which can give more values to your **ecommerce website** and help customers to build more trust over a particular product. It can help you to be clear and more visible about the product that helps you with more product selection too. All of the reviews are valuable to customers, which can really help a lot to built trust over the products and services.

### **7. Provide flexibility to the customer to buy product 24/7.**

It has more flexibility over the regular store because the services are available 24/7 and though helps to serve you the services at anytime and anyplace.

### **8. No Geographical limitation**

Tap the global market from the day one. It is like the customer will have access to the online store from anywhere in the world, which can globally be accessed. This is what every customer is looking forward to having as their service because sometimes customers are not able to find a particular product which not available at the store location but though online store works like a magic to provide them with multiple options. So, that they can be avail the services easily.

## **Enterprise Solutions**

Enterprise applications are specifically designed for the sole purpose of promoting the needs and objectives of the organizations.

Enterprise applications provide business-oriented tools supporting electronic commerce, enterprise communication and collaboration, and web-enabled business processes both within a networked enterprise and with its customers and business partners.

## **Services Provided by Enterprise Applications**

Some of the services provided by an enterprise application include –

- Online shopping, billing and payment processing
- Interactive product catalogue
- Content management
- Customer Relationship Management
- Manufacturing and other business processes integration
- IT services management
- Enterprise Resource Management
- Human Resource Management
- Business Intelligence Management
- Business Collaboration and Security
- Form Automation

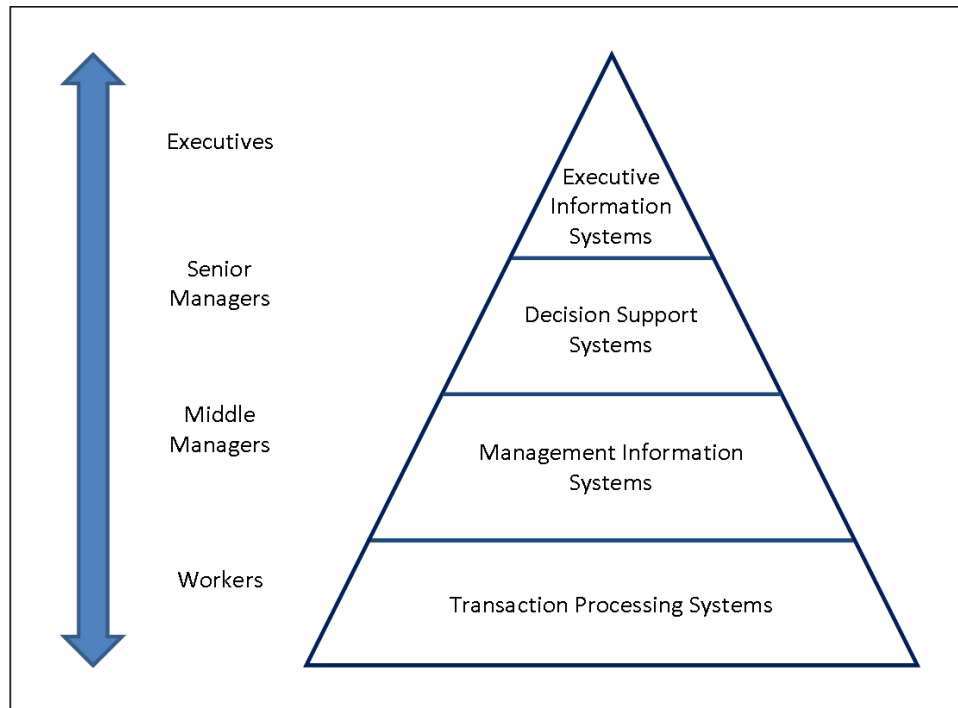
## **Most Commonly Used Enterprise Applications**

Multitude of applications comes under the definition of Enterprise Applications. In this section, let us briefly cover the following applications –

- Management information system (MIS)
- Enterprise Resource Planning (ERP)
- Customer Relationship Management (CRM)
- Decision Support System (DSS)
- Knowledge Management Systems (KMS)
- Content Management System (CMS)
- Executive Support System (ESS)
- Business Intelligence System (BIS)
- Enterprise Application Integration (EAI)
- Business Continuity Planning (BCP)
- Supply Chain Management (SCM)

## Information system for managerial decision support

Many Organizations are also tapping versatility and power of Computers by designing and developing systems tailored to meet the specific needs. An increasing number of Managers rely on computers and information system to make decision. Managers and different level in an organization make different kind of decision making (operational, tactical and strategic) so that the kind of information necessary to support their decision are also different. Accordingly different types of information systems are designed to meet the various information needs of managers.



There are four types of Information System: **Transaction Processing System (TPS)**, **Management Information System (MIS)**, **Decision Support System (DSS)** and **Executive Information System (EIS)**. The type of information system used by an organization depends on its information needs.

## Managing Information Technology

**Information technology management (IT management)** is the process whereby **all resources related to information technology** are managed **according to an organization's priorities and needs**. This includes **tangible resources** like **networking hardware, computers and people**, as well as **intangible resources** like **software and data**.

The central **aim** of IT management is to **generate value through the use of technology**. To achieve this, business strategies and technology must be aligned.

Information technology management includes many of the basic functions of management, such as **staffing, organizing, budgeting and control**, but it also has functions that are unique to IT, such as **software development, change management, network planning and tech support**.

Generally, IT is used by organizations to support and compliment their business operations. The advantages brought about by having a dedicated IT department are too great for most organizations to pass up. Some organizations actually use IT as the center of their business.



## **Security & Ethical challenges**

Security is important for a number of reasons, specifically when it comes to protecting the privacy and sensitive data of customers, safeguarding the finances of an online business, preventing fraud and financial scams and defending the reputation of an online store as a safe place to conduct transactions.

Security is the prevention that ensures safe transaction through the internet. It consists of protocols that safeguard people who engage in business. We need to gain our customers' trust by putting in place security basics. Such basics include:

- Privacy
- Integrity
- Authentication
- Non-repudiation

### **1. Privacy**

Privacy includes preventing any activity that will lead to the sharing of customers' data with unauthorized third parties. Apart from the organization that a customer has chosen, no one else should access their personal information and account details.

A breach of privacy occurs when organization let others have access to such information. An organization should put in place at least a necessary minimum of **anti-virus, firewall, encryption, and other data protection**.

## 2. Integrity

Integrity is another crucial concept of Security. It means ensuring that any information that customers have shared online remains unaltered. The principle states that the organization is utilizing the customers' information as given, without changing anything. Altering any part of the data causes the customers to lose confidence in the security and integrity of the organization.

## 3. Authentication

The principle of authentication in security requires that both the organization and the customer should be real. They should be who they say they are. The business should prove that it is real, deals with genuine items or services, and delivers what it promises. The customer should also give their proof of identity to make the organization feel secure about the online transactions. It is possible to ensure **authentication** and **identification**.

## 4. Non-repudiation

Repudiation means denial. Therefore, Non-repudiation is a legal principle that instructs company and customers not to deny their actions in a transaction. The business and the customer should follow through on the transaction part that they initiated. Organizations can feel less safe since it occurs in cyberspace with no live video. It confirms that the communication that occurred between the two players indeed reached the recipients. Therefore, a party in that particular transaction cannot deny a signature, email, or a purchase.

Information systems have made many businesses successful today. Some companies such as Google, Facebook, EBay, etc. would not exist without information technology. However, improper use of information technology can create problems for the organization and employees.

## Cyber-crime

Cyber-crime refers to the use of information technology to commit crimes. Cyber-crimes can range from simply annoying computer users to huge financial losses. The growth of smart phones and other high-end Mobile devices that have access to the internet have also contributed to the growth of cyber-crime.

## Types of cyber-crime

1. **Financial Frauds** – It happens when a cybercriminal uses stolen credit card data. Another form of credit card fraud is when the fraudster steals our personal details and identity to enable them to get a credit card.
2. **Phishing Attacks**- It is one of the common security threats where hackers masquerade as genuine businesses and send emails to clients to trick them into revealing their sensitive information by simply presenting them with a [fake copy of our legitimate website](#) or anything that allows the customer to believe the request is coming from the business.

Common phishing techniques include emailing our customers or our team with fake “you must take this action” messages. This technique only works our customers follow through with the action and provide them access to their login information or other personal data which the hacker can exploit as per his benefit.

3. **Spamming**- Where emails are known as a strong medium for higher sales, it also remains one of the highly used mediums for spamming. Nonetheless, comments on our blog or contact forms are also an open invitation for online spammers where they leave infected links in order to harm us. They often send them via social media inbox and wait for us to click on such messages.
4. **DOS Attacks**-A Denial-of-Service (DoS) attack is an attack meant to shut down a machine or network, making it inaccessible to its intended users. DoS attacks accomplish this by flooding the target with traffic, or sending it information that triggers a crash.
5. **Brute Force Attacks**- These attacks target our online store’s admin panel in an attempt to figure out our password by brute-force A brute force attack uses trial-and-error to guess login info, encryption keys, or find a hidden web page. Hackers work through all possible combinations hoping to guess correctly.
6. **Malware**- A malware attack is a common cyberattack where malware (normally malicious software) executes unauthorized actions on the victim's system. Hackers may design a malicious software and install on our IT and computer systems without our knowledge. These malicious programs include spyware, viruses, Trojan horses, and ransomware.  
  
The systems of our customers, admins, and other users might have Trojan Horses downloaded on them. These programs can easily swipe any sensitive data that might be present on the infected systems and may also infect our website.
7. **e-Skimming**- E-skimming involves infecting a website’s checkout pages with malicious software. The intention is to steal the clients’ personal and payment details. Skimming is an illegal practice used by identity thieves to capture credit card information from a cardholder surreptitiously. Fraudsters often use a device called a skimmer that can be installed at ATM machines to collect card data.
8. **SQL Injections**- SQL injections are cyber-attacks intended to access our database by targeting our query submission forms. Attacker can inject SQL of their choosing into the database and delete, copy, or modify the contents of the database. An attacker can also modify cookies to poison a web application's database query.

By using above mentioned attacks cyber-attack can perform following crimes as

### **Identity theft**

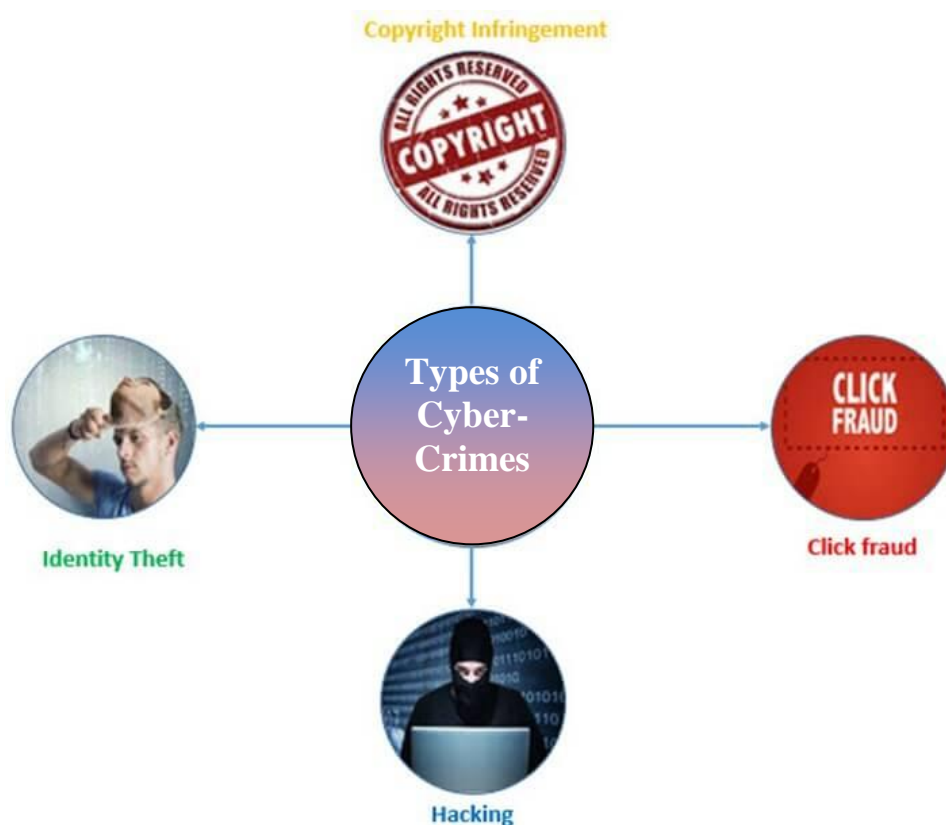
Identity theft occurs when a cyber-criminal impersonates someone else identity to practice malfunction. This is usually done by accessing personal details of someone else. The details used in such crimes include social security numbers, date of birth, credit and debit card numbers, passport numbers, etc.

Once the information has been acquired by the cyber-criminal, it can be used to make purchases online while impersonating him-self to be someone else. One of the ways that cyber-criminals use to obtain such personal details is phishing. **Phishing involves creating fake websites that look like legitimate business websites or emails.**

**For example**, an email that appears to come from YAHOO may ask the user to confirm their personal details including contact numbers and email password. If the user falls for the trick and updates the details and provides the password, the attacker will have access to personal details and the email of the victim.

If the victim uses services such as PayPal, then the attacker can use the account to make purchases online or transfer funds.

Other phishing techniques involve the use of fake Wi-Fi hotspots that look like legitimate ones. This is common in public places such as restaurants and airports. If an unsuspecting user logs on to the network, then cyber-crimes may try to gain access to sensitive information such as usernames, passwords, credit card numbers, etc.



### **Copyright infringement**

Piracy is one of the biggest problems with digital products. Websites such as the pirate bay are used to distribute copyrighted materials such as audio, video, software, etc. Copyright infringement refers to the unauthorized use of copyrighted materials.

Fast internet access and reducing costs of storage have also contributed to the growth of copyright infringement crimes.

### **Click fraud**

Advertising companies such as Google AdSense offer pay per click advertising services. Click fraud occurs when a person clicks such a link with no intention of knowing more about the click but to make more money. This can also be accomplished by using automated software that makes the clicks.

### **Hacking**

Hacking is used to by-pass security controls to gain unauthorized access to a system. Once the attacker has gained access to the system, they can do whatever they want. Some of the common activities done when system is hacked are;

- Install programs that allow the attackers to spy on the user or control their system remotely
- Deface websites
- Steal sensitive information. This can be done using techniques such as SQL Injection, exploiting vulnerabilities in the database software to gain access, social engineering techniques that trick users into submitting id's and passwords, etc.

### **Information system Security**

MIS security refers to measures put in place to protect information system resources from unauthorized access or being compromised. Security vulnerabilities are weaknesses in a computer system, software, or hardware that can be exploited by the attacker to gain unauthorized access or compromise a system.

People as part of the information system components can also be exploited using social engineering techniques. The goal of social engineering is to gain the trust of the users of the system.



**Guaranteeing effective information security has the following key aspects –**

- Preventing the unauthorized individuals or systems from accessing the information. To achieve this we can use **firewalls**.
- Maintaining and assuring the accuracy and consistency of data over its entire life-cycle.



- Ensuring that the computing systems, the security controls used to protect it and the communication channels used to access it, functioning correctly all the time, thus making information available in all situations.
- Ensuring that the data, transactions, communications or documents are genuine. It can be achieved by using **authentication techniques** like **OTP** (One Time Password).
- Ensuring the integrity of a transaction by validating that both parties involved are genuine, by incorporating authentication features such as "**digital signatures**".
- Ensuring that once a transaction takes place, none of the parties can deny it, either having received a transaction, or having sent a transaction. By this we can achieve '**non-repudiation**' principle.
- Safeguarding data and communications stored and shared in network systems.

### **Information system Ethics**

Ethics refers to rules of right and wrong that people use to make choices to guide their behaviors. Ethics in MIS seek to protect and safeguard individuals and society by using information systems responsibly. Most professions usually have defined a code of ethics or code of conduct guidelines that all professionals affiliated with the profession must adhere to.

In a nutshell, a code of ethics makes individuals acting on their free will responsible and accountable for their actions. An example of a Code of Ethics for MIS professionals can be found on the British Computer Society (BCS) website.

### **Information Communication Technology (ICT) policy**

An ICT policy is a set of guidelines that defines how an organization should use information technology and information systems responsibly. ICT policies usually include guidelines on;

- Purchase and usage of hardware equipment and how to safely dispose them
- Use of licensed software only and ensuring that all software is up to date with latest patches for security reasons
- Rules on how to create passwords (complexity enforcement), changing passwords, etc.
- Acceptable use of information technology and information systems
- Training of all users involved in using ICT and MIS

With great power comes great responsibility. Information systems bring new opportunities and advantages to how we do business but they also introduce issues that can negatively affect society (cybercrime). An organization needs to address these issues and come up with a framework (MIS security, ICT policy, etc.) that addresses them.

## **Advanced Concepts in Information Systems**

### **Enterprise Resource Planning**

ERP is an abbreviation for Enterprise Resource planning. Enterprise resource planning (ERP) is a system used by companies to manage and integrate the important parts of their businesses. Many ERP software applications are important to companies because they help them implement resource planning by integrating all of the processes needed to run their companies with a single system.



#### **Benefits of the ERP are:**

1. Optimization of business processes.
2. Accurate and timely access to reliable information.
3. The ability to share information between all components of the organization.
4. Elimination of unnecessary operations and data.
5. Reduction of time and costs of proceedings
6. Then, as each module of the ERP system enters the same real-time database, another advantage is that no duplicate records or playback operations, i.e., redundancy is avoided.
7. The performance of all work units that make up their business because better use time is increased. If you previously had to make reports and take them from one place to another, now the time is spent on other activities.
8. To improve performance and save time, optimize the control and analysis of management decisions there in the long term, reduced costs for the company.
9. Another obvious advantage is in terms of customer service, because the response time is reduced attention to them.
10. When a company has an ERP system is more competitive in the environment in which it operates.

All the below-mentioned modules can be found in an ERP system:

- Human Resource
- Inventory
- Sales & Marketing
- Purchase
- Finance & Accounting
- Customer Relationship Management(CRM)
- Engineering/ Production
- Supply Chain Management (SCM)

Each component mentioned above is specialized to handle the defined business processes of the organization. Let us go through the introduction of the various modules.

### **Human Resource Module(HR):**

Human Resource module helps to HR team for efficient management of human resources. HR module helps to manage employee information, track employee records like performance reviews, designations, job descriptions, skill matrix, time & attendance tracking. One of the important submodules in the HR module is Payroll System which helps to manage salaries, payment reports etc. It can also include Travel Expenses & Reimbursement tracking. Employee Training tracking can also be managed by ERP.

### **Inventory Module:**

Inventory module can be used to track the stock of items. Items can be identified by unique serial numbers. Using that unique numbers inventory system can keep track of item and trace its current location in the organization.

e.g. you have purchased 100 hard disks, so using inventory system you can track how many hard disks are installed, where they are installed, how many hard disks are remaining etc.

Inventory module includes functionalities like inventory control, master units, stock utilization reporting etc. There may be an integration of the inventory module with the purchase module of ERP.

### **Sales Module :**

Typical sales process includes processes like Sales queries & inquiry analysis & handling, quotation drafting, accepting sales orders, drafting sales invoices with proper taxation, dispatch/Shipment of material or service, tracking pending sales order. All these sales transactions are managed by the sales module of ERP. CRM module can take the help of the Sales module for future opportunity creation & lead generation.

### **Purchase Module:**

As the name indicates, purchase modules take care of all the processes that are part of the procurement of items or raw materials that are required for the organization. Purchase module consists of functionalities like supplier/vendor listing, supplier & item linking, sending quotation request to vendors, receiving & recording quotations, analysis of quotations, preparing purchase orders, tracking the purchase items, preparing

GRNs(Good Receipt Notes) & updating stocks & various reports. Purchase module is integrated with Inventory module & Engineering/production module for updating of stocks.

### **Finance & Accounting module:**

Whole inflow & outflow of money/capital is managed by the finance module. This module keeps track of all account-related transactions like expenditures, Balance sheet, account ledgers, budgeting, bank statements, payment receipts, tax management etc. Financial reporting is an easy task for this module of ERP. Any Financial data that is required for running the business is available on one click in Finance module.

### **Customer Relationship Management (CRM) module:**

CRM department is helping to boost the sales performance through better customer service & establishing a healthy relationship with customers. All the stored details of the customer are available in the CRM module. CRM module helps to manage & track detailed information of the customer like communication history, calls, meetings, details of purchases made by the customer, contract duration etc. CRM module can be integrated with the Sales module to enhance sales opportunities.

### **Engineering / Production module:**

Production module is a great help for the manufacturing industry for delivering the product. This module consists of functionalities like production planning, machine scheduling, raw material usage,(Bill of material)preparation, track daily production progress production forecasting & actual production reporting.

### **Supply Chain Management (SCM):**

SCM module manages the flow of product items from manufacturer to consumer & consumer to manufacturer. Common roles involved are a manufacturer, Super Stockiest, Stockiest, distributors, retailers etc. SCM involves demand & supply management, sales returns & replacing process, shipping & transportation tracking etc. Today many SMBs face challenges in their process automation. ERP is a great help for such organizations. ERP can efficiently streamline the business operations of the organization. Above introduction of modules can help you to choose & customize the ERP modules depending on your organization's requirements.

### **MIS vs ERP**

**MIS** is used for the general management and use of information. It helps organize and store data collected from various sources in a single database and makes related reports. **ERP** is used to plan and automate business processes.



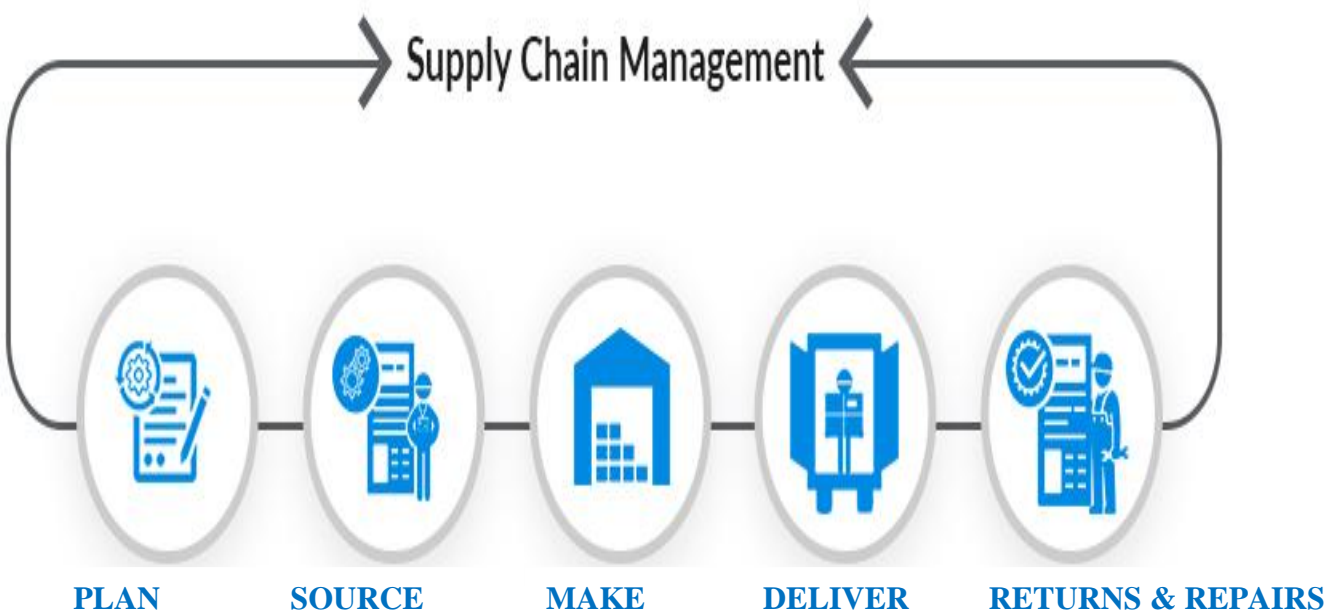
## Supply Chain Management

- SCM- Supply Chain Management is the management of the **flow of goods and services** and includes all processes that transform **raw materials into final products**. It involves the active streamlining of a business's supply-side activities to maximize customer value and gain a competitive advantage in the marketplace.
- It 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.

### SCM Involves Following Steps

#### Stage 1: Planning

Planning involves a wide range of activities. Companies must first decide on their operations strategy. Whether to manufacture a product or component or buy it from a supplier is a major decision.



#### Stage 2: Source

- This aspect of supply chain management involves organizing the procurement of raw materials and components.
- Procurement is the acquisition of goods and services at the best possible price, in the right quantity and at the right time.
- When sources have been selected and vetted, companies must negotiate contracts and schedule deliveries.

### **Stage 3: Making**

This stage is concerned with assembling, making of products, storing of product, scheduling of production activities, testing of products, packing and release. Companies must also manage rules for performance, data that must be stored, facilities and regulatory compliance.

### **Stage 4: Deliver / Distribution**

Another most important component of supply chain management is contributing to direct/indirect integration with the consumers. It has a significant contribution to surge the brand image of the firm. Finished goods and services, as demanded by consumers, have to meet expectations through the company's delivery channels and logistics services. To have a seamless delivery, the firm utilizes various freights – road, air and rail.

The delivery stage includes any trial period or warranty period, customers or retail sites must be invoiced and payments received, and companies must manage import and export requirements for the finished product.

### **Stage 5: Returns & Repairs**

Return is associated with managing all returns of defective products, including identifying the product condition, authorizing returns, scheduling product shipments, replacing defective products and providing refunds. Returns also include “end-of-life” products (those that are in the end of their product lifetime and a vendor will no longer be marketing, selling, or promoting a particular product and may also be limiting or ending support for the product).

## **Customer Relationship Management**

CRM- Customer Relationship Management is the technology used to manage relations with customers and potential customers. A CRM system helps organizations build customer relationships and streamline processes so they can increase sales, improve customer service, and increase profitability.

CRM is to manage interactions with customers and potential customers. A CRM system helps organizations build customer relationships and streamline processes so they can increase sales, improve customer service, and increase profitability.

### **Goals of CRM**

- Provide better customer services.
- Cross sell product, Cross-selling is a strategy of providing existing customers the opportunity to purchase additional items offered by the seller.
- Cross-selling involves offering the customer items that complement the original purchase in some manner more effectively.
- The telecommunications industry is a prime example of this type of sales activity. When establishing local telephone service, the new subscriber is often invited to enjoy other telecommunications options offered by the service provider. These may include long distance packages, cell phone services, or high-speed Internet services.

- Up selling involves promoting upgrades or add-ons to customers that are extra purchases and increase sales. When you up sell, you offer the customer another product for purchase.
- Incentives are crucial features of up selling. Incentives such as a discount and/or free shipping give the customer good reasons to purchase something extra right away.
- Helps sales staff close deals faster
- Increase customer revenue
- Personally recognizing customers;
- Offering appropriate value and great service to encourage repeat business;
- Ensuring that employee and customer satisfaction continues to improve.
- Beating the competition by offering a better product, competing on the service experience rather than price alone.

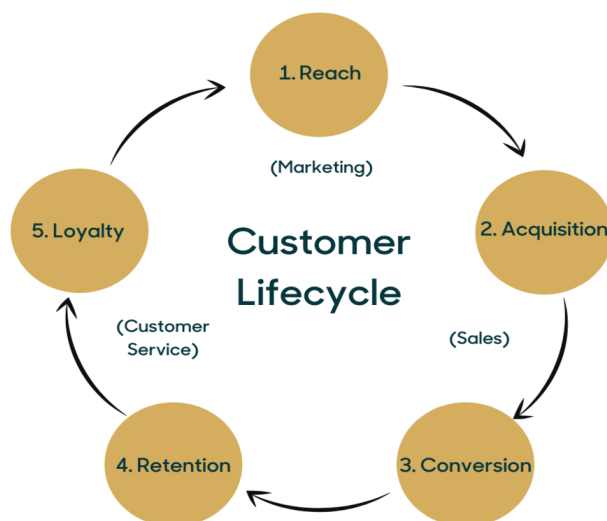
## **Steps of CRM Process**

The CRM process is a strategy for keeping every customer interaction personalized and meaningful that consists of five main steps. A customer relationship management system (CRM system) provides the data and functionalities your team needs to execute this strategy—and ultimately turn leads into customers.

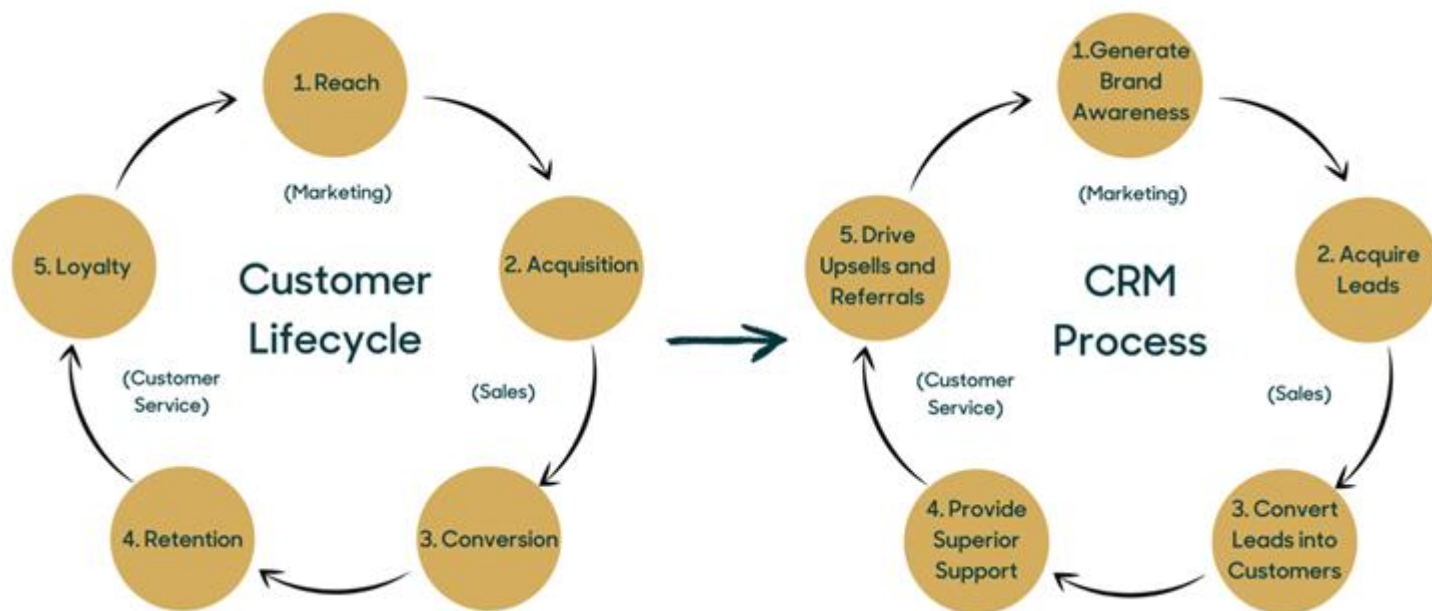
To understand the steps of the CRM process, we have to understand the customer lifecycle.

There are five key stages in the CRM cycle:

1. Reaching a potential customer
2. Customer acquisition
3. Conversion
4. Customer retention
5. Customer loyalty



Every stage in the customer lifecycle corresponds with an actionable step in the CRM process. The key knows what those steps are and how to execute them.



## Five steps in the CRM process

### **1. Generate brand awareness**

The first step to acquiring new customers is to introduce them to our business. The marketing team typically takes on this task through a number of measures

- Learning about your target audience.
- Segmenting your target audience.
- Creating marketing campaigns that speak to those target demographics.

### **2. Acquire leads**

Introducing our brand to a potential customer is just the beginning of the CRM process. From there, we have to encourage them to learn more about our business and engage with it.

Depending on how our company is structured, this lead acquisition step could be a marketing or sales team responsibility — or both.

### **3. Convert leads into customers**

We've successfully engaged with our leads, and they're interested. Now it's time to turn those leads into customers.

To do so, sales reps must first be skilled at identifying how interested leads are and, specifically, whether they're interested enough to make a purchase. A CRM system is very helpful here. The historical data from past successful sales can be used to identify lead-qualification criteria.



#### **4. Provide superior customer service**

We've successfully converted our lead into a customer. Great! But the CRM process doesn't end when a customer converts. In order to grow as a company, we need to retain customers. How do we keep that customer coming back? Excellent service from support is the answer.

Customer service is the biggest factor that determines a consumer's loyalty to a brand. Conversely, poor customer service can cost our customers and negatively impact our reputation. Support teams must be able to deliver superior support whenever, wherever, and however their customers expect it.

Most of customers say being able to resolve their issue quickly is the most important aspect of a good customer service experience. With CRM software, support agents can easily access the historical customer information they need to resolve a ticket quickly.

#### **5. Drive Upsells and Referrals**

When we think of a returning customer, we imagine a customer continually coming back to the same business to buy the products they know and love. But there is another key way existing customers provide value — by upgrading to other products.

- **Upsell-** Invite customers to buy the same product they've selected but give them the option to access more features at a higher price. For example, if you sell fitness trackers online, let customers know they can also buy models with a pedometer and calorie tracker vs. the basic model that only tracks heart rate.
- **Referrals- Customer referrals** are one of the most powerful selling and marketing tools available. In fact, the best source of new business is a **referral** from a satisfied **customer**.

Referral marketing is a word-of-mouth initiative designed by a company to incentivize existing customers to introduce their family, friends and contacts to become new customers.

## **Procurement Management**

Procurement management is the systematic approach used for buying all the goods and services needed for a company to stay sustainable. Manage your procurement well, and it will add value to all your business practices and save your both time and money.

Procurement Management Information System (PMIS) is a smart system which collects stores and synthesizes the procurement related information all over the country. It is an online based central and integrated data management system concerning to the procurement activities.

Today, different organizations employ various management techniques to carry out the efficient functioning of their departments. Procurement management is one such form of management, where goods and services are acquired from a different organization or firm.

All organizations deal with this form of management at some point in the life of their businesses. It is in the way the procurement is carried out and the planning of the process that will ensure the things run smoothly.

But with many other management techniques in use, is there any special reason to use this particular form of management to acquire goods and services? Yes, this is one of the frequent questions asked regarding procurement management.

Procurement management is known to help an organization to save much of the money spent when purchasing goods and services from outside. It also has several other advantages.

### **How Does Procurement Management Works?**

Following are the four main working areas of concerns when it comes to procurement management. The following points should be considered whenever procurement process is involved:

- Not all goods and services that a business requires need to be purchased from outside. It is for this reason that it is very essential to weigh the pros and cons of purchasing or renting these goods and services from outside.
- You would need to have a good idea of what you exactly require and then go on to consider various options and alternatives. Although there may be several suppliers, who provide the same goods and services, careful research would show you who of these suppliers will give you the best deal for your organization.
- The next step typically would be to call for bids. During this stage, the different suppliers will provide you with quotes.

This stage is similar to that of choosing projects, as you would need to consider different criteria, apart from just the cost, to finally decide on which supplier you would want to go with.

- After the evaluation process, you would be able to select the best supplier. You would then need to move on to the step of discussing what should go into the contract. Remember to mention all financing terms how you wish to make the payments, and so on, so as to prevent any confusion arising later on, as this contract will be binding.



## Procurement Management Process

This Procurement Management process will help you to purchase goods and services from external suppliers. It gives you a complete procurement process and procurement procedures, which explain step-by-step, how to purchase from suppliers.

This procurement process will also help you to:

- Identify the goods and services to procure
- Complete Purchase Orders and issue to suppliers
- Agree on delivery timeframes and methods
- Receive goods and services from suppliers
- Review and accept the items procured
- Approve supplier payments

This Procurement Management Process will enable you to:

- Identify supplier contract milestones
- Review supplier performance against contract
- Identify and resolve supplier performance issues
- Communicate the status to management

Procuring goods and services from external suppliers can be a critical path for many projects. Often, the performance of the supplier will reflect on the performance of the overall project team. It's therefore crucial that you manage your supplier's performance carefully, to ensure that they produce deliverables which meet your expectations.

This Procurement Management Process will help you do this to get the most out of your external supplier relationships.