STREAM: **BBA SEMESTER-1**

SUBJECT: **E-COMMERCE&DIGITAL SOLUTIONS FOR BUSINESS**

UNIT-1

INTRODUCTION TO E COMMERCE

1) Introduction to E-Commerce

Commerce refers to all those activities related to service, exchange or facilities that aids exchange. All commercial activities are intended for earning profits. It is through 'commerce' that the goods are produced in an industry reaches to its final consumer; because commerce is a process of distribution of goods from place of its production to place of its consumption.

- For country like India, the growth of e-commerce brings or has rather brought a fortune.
- However, in order to achieve the growth via e-commerce depends on several factors such as adequate physical infrastructure in form of computers, hardware, networks, etc and human resource who can deliver the desired outcome.

2) What is E-Commerce?

Concept of E-Commerce

E in E-Commerce stands for electronic. Thus, we have Electronic Commerce that is gradually becoming an important part of business activities. E-Commerce is systematic and organized process of establishing the network for exchange of goods between producers and consumer.

- E-Commerce has brought a great revolution in the field of business since it allows different parties to transact with each other without meeting personally in a completely secured manner. It allows the entrepreneurs and clients/customers to be more flexible and efficient in their operations and thus enhancing the satisfaction levels of both the concerned parties.

- There are lot of people who think that E-Commerce is online shopping. However, this online shopping is just the tip of an iceberg called E-Commerce. E-Commerce's scope is much wider than perception of most of the people residing in the world.
- To be precise, E-Commerce is a potential ocean of opportunities enabling even small firms to ride on the waves of profit and reach to global markets.
- It is a synergy of physical and virtual business, which is in tune with ever changing business situations thereby bringing revolution and improving the comprehensiveness of Indian economic scenario today.

E-Commerce is:

- Supported with technologies that allows an organization to increase its accuracy and efficiency for processing and carrying out the business transaction.
- It is a system that helps a firm to exchange information within organization, with vendors and for the benefit of all parties involved.

3) Features of E-Commerce

E-Commerce is a new media bringing a paradigm shift in economic scenario of the world.

i) Use of internet service

By the use of wide Area Network, the business firm can perform the transactions across the globe. Thus, it becomes very essential for e-commerce that the internet works efficiently and in a coordinated manner.

ii) E-Business and E-Commerce

E-Business is a comprehensive term while e-commerce is a part of subset of e-business. E-Commerce includes only a form of trading using electronic means to connect buyers and sellers.

iii) Wide scope

The scope of e-commerce is much beyond this idea. It is used in all the sectors for all types of products and at all the levels, i.e., from small scale to multi-nationals.

iv) Popularity

E-Commerce, gradually, is gaining huge popularity due to its convenience, global reach, low cost, higher pace and ease in its operations.

v) Need of an hour

E-Commerce is no longer an alternative. It is now an imperative part of business houses today.

vi) E-Commerce is a **way of business** that uses the power and tools of internet.

4) History and development of E-Commerce

The revolution of e-commerce was noticed or rather initiated in the late 1990s, when people started conceptualizing the opportunities of conducting business electronically. Thus, E-Commerce began nearly two decades ago with the introduction of Electronic Data Interchange (EDI) between the business firms for communication in form of sending and receiving delivery orders, invoices, payment information, etc. Actually speaking, e-commerce began around 1970s when the bigger business firms started creating private networks to share business information with their partners and suppliers.

- In 1992, CompuServe offered online retail products to its consumers.
- Then in 1994, Netscape arrived and facilitated the users with a simple browser to surf through internet which allowed users or buyers to go through various products offered by the different companies on internet.
- Further, in the year 1995, two of the biggest firms, which still exist today, and doing well started their operations on e-commerce platform, namely Amazon and eBay.
- The concept of e-commerce, thus, got boost after that and thus everybody realized that conducting business on e-commerce platform is a real cash cow.
- In the year 1999, spending on internet on retail market reached $20 billion. And after a long wait, India enacted the Information Technology Act, 2000.

5) E-Commerce scenario in India

With the company on booming trend along with development in content industry and a growing skill base, e-commerce and e-business is also booming in India.

- Companies like HUL, Reliance, Tata, Adani, Amul and many more are among those Indian giants that have successfully implemented e-commerce to enhance their businesses.
- Among the Asian countries, India has registered the highest growth in e-commerce with CAGR(Compound Annual Growth Rate) of around 250% The NASSCOM survey also revealed that India grew and is still growing at a very rapid pace in the field of electronic commerce.
- In the last Five years, the infrastructure needed to make e-commerce perform to the best of its ability was adequately built, and that allowed everything to fall in place. The growth

now is prominently visible because there is considerable increase in the number of internet users, acceptance and adaptability of online payments, proliferation of devices that are internet enable like computers, cell phones, tabs, etc and favourable population composition (more youths/youngsters).

- Today, majority of the activities are being done/performed on internet such as buying a movie ticket, vegetables, utensils, paying electricity and telephone bills, ordering food and top of it all the communication, may it be personal, social or professional.

6) <u>Factors responsible for Emergence of E-Commerce/Limitations of Traditional commerce</u>

Internet is a global community wherein private, public small and large companies can trade over the use of internet. Well, as it is always said, 'Necessity is the mother of all the invention.' Traditional commerce was suffering from some serious problems.

i) **<u>Intricacy/problems with paper work</u>**

Commercial transactions were loaded with heavy paperwork. Letters, reports, orders, invoices, etc. Were sent or received through postal system of the country.

i) <u>Wastage of time</u>

Traditional commerce used different services of transportation, insurance, intermediaries, etc.

ii) <u>High costs</u>

The administrative costs were very high as the entrepreneur has to bear high labour cost, storage of data, maintenance, travelling expenses (allowances) etc.

iii) <u>Limited working hours</u>

One of the main limitations of traditional commerce earlier was availability of limited timings for conducting business.

iv) <u>Slow communication</u>

Commerce, then, used traditional means of communications such as telephone, telex or postal services for sending and receiving business information. Traditionally, orders cannot be raised to reflect the demand and no stock availability.

v) <u>Narrow markets</u>

The reach of traditional commerce, compared to e-commerce, was very much limited. Today, through e-commerce, within a click of button, a consumer can find out details regarding the product and service and can contact the trader residing in different corners of the world for initiating the transaction.

ii) **Difference between**

Traditional Commerce and E-Commerce

Point of Difference	Traditional Commerce	E-commerce
1) Business Transactions	In traditional commerce, business transactions are carried out by humans- through salesmen, agencies, distributors, whole-salers etc.	In E-commerce business transactions are done with computers i.e., by using internet.
2) Requirement	In traditional commerce, the basic requirement is a human being or an individual.	In E-commerce, the basic requirement is a computer since all the work is done through computers.
3) Cost of resource used	In traditional commerce, transaction cost is higher due to large number of people are employed and necessity of bigger space.	In E-commerce, transaction cost is low as less space and a smaller number of people are required
4) Investment	In traditional commerce, companies require more space as they have to employ a greater number of people. Hence the investment is more.	In-E-commerce investment is low as they have to hire a small space.
5) Geographical situation	In traditional commerce, the sales area of a company depends highly on the geographical situation of company.	In E-commerce, geographical situation is of the company is less important. The company can do business through internet worldwide.
6) Chances of mistake	Chances of errors or mistakes are more since all the work is done by individuals.	Chances of errors or mistakes is less as all the work is done through computers.

7) Time used and expense	In traditional commerce, time taken by men to market and sell the product is more. Hence it turns out to be more expensive.	In E-commerce, time taken is less since marketing is selling is done through internet and supported by electronic devices. Hence is less expensive
8) Communication expense	In traditional commerce, heavy postage/courier expenses, phone charger, dealer charges have to made.	Postage/courier, phone charges and dealer charges can be reduced to minimum.
9) Customers	In traditional commerce, customers have to be made to be visit the shops/stores or demonstrations have to be organized at homes/offices.	In E-commerce, customers have to be encouraged to visit the company's website from where they can get information about various products, their features, prices etc.
10) Buying options	In traditional commerce, the buying options for customers are limited to local or state or national level.	In E-commerce, the buying options for customers are unlimited. They can visit various websites, compare prices and features of various products/services and decide on the product they wish to buy.

8) Merits of E-Commerce

i) Boosts/increased sales

E-Commerce offers a variety of products through websites round the clock which also facilitates the customers with easy comparison of prices, quality and other aspects of the products.

ii) Leads to impulse buyers

A customer might not be very sure of buying the product and might have no intention to buy while going through the website.

iii) 24 x 7 x 365

One reason E-Commerce is gaining wide-spread popularity is because of convenience it offers to its customers. People can have access to such websites 24x7 and thus can place order, gain information or can perform transaction with the companies without any barrier of time.

iv) Simple usage

The tools and methods of E-Commerce are very easy to use. It does not involve any rocket science techniques and expertise for its usage.

- Further E-Commerce is also supported by M-Commerce (Mobile Commerce) to make things even better. Merely surfing through websites, one can transact business worth millions of rupees in just few minutes across the globe.

v) Wide scope

This is the best part of doing online business as small, medium or large enterprise irrespective of size can generate lot of business for their firms. Thus, the scope of E-Commerce is wide enough to enables even small entrepreneurs to compete with big companies.

vi) Boosts revenues and savings

Doing business through internet can increase net worth of organizations. It generates lot of savings, as it is possible to business with less than half of resource through E-Commerce than the traditional one.

vii) Immediate/instant payment

According to current trend, people do not carry much cash with them, not do they like to carry cheque or travelers' cheques with time. Plastic money rules of these traditional instruments. Through the usage of ATM, Debit cards or credit Cards, amounts get immediately transferred to the seller's account and goods can be sent instantly to the customers.

viii) Ever expanding market base

Because of internet and web services, the world has become a global village today. Cross border in different corners of the world can negotiate with their offers without any communication barriers.

ix) Cost effective

With least of resources an entrepreneur can conduct its business through E-Commerce. It supports E-marketing where there is no cost of printing or stationery. It generates online sales where the seller does not require any showroom or offices, eliminates the margin of intermediaries and agents.

x) Direct contact

There are no business intermediaries in E-Commerce. It consists of only two parties, i.e., buyer and seller. It establishes Business-to-consumer (B2C) contact.

xi) Provide a competitive edge

The success of E-Commerce is evidence that people have accepted and appreciated by selecting the internet merchant who accepts secured payments compared to ones who do not.

xii) Security and privacy

Engineers and researchers have developed a few systems that reduces the possibility of cyber-crime. For examples, the secure socket layer (SSL) or secure electronic transactions support a high level of security and privacy to both the concerned parties.

xiii) Customers loyalty

Online buyers tend to return to websites since it offers variety of benefits if they are satisfied and happy with their first experience with the seller.

9) Demerits of E-Commerce

i) Lack of awareness

It is very much necessary for an entrepreneur to understand the environment before they sail their ship of business into the ocean of an environment.

ii) Poor infrastructure

India has to go a long way as far as progress of E-Commerce is concerned. It is just into its infancy stage. If infrastructure is adequately provided, E-Commerce shall grow exponentially.

- Today India needs major players who can come forward and contribute their pie of technology.

iii) Lack of confidence/sceptical attitude

Though India is on a path of progress for E-Commerce, majority of the population is hesitant or sceptical in dealing through E-commerce.

- The entire E-Commerce fraternity should understand that customers are extremely demanding in today's era and hence such companies should speed up towards the process of surpassing all their expectation and challenges.

iv) <u>Increasing cyber-crimes and lack of comprehensive cyber laws</u>

Another alarming factor that hampers the growth of E-Commerce is ever-growing cyber-crimes like issues related to personal information being leaked, problems related to e-payment, security issues, etc.

- In India, cyber laws are not very effective. Experts suggests that separate cyber laws and amendments are required to many existing laws like companies Act, evidence Act, Copyright Act, Bankers Book Evidence Act, etc.

v) <u>Absence of tax laws</u>

Internet has no geographical boundaries. Cross border transaction are easily possible. An important question that arises here is about the tax to be charged on transactions over internet.

vi) <u>Stock dilemma</u>

Entrepreneurs are often found in dilemma in deciding the quantity of stock that is to be offered. Sometimes it may so happen that advertise products or services are not available for sale.

vii) <u>Lack of skilled and expert talent</u>

Lack of skilled and trained personnel hamper the growth of implementation of E-commerce in India. A handful of such experts are absorbed and placed in foreign companies worsening the situation.

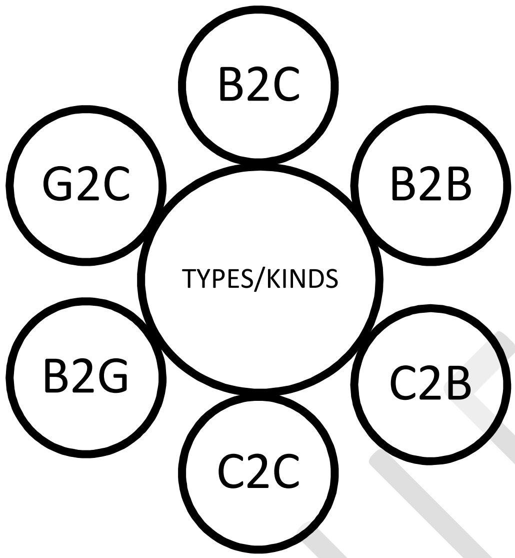
viii) <u>Internet outrage</u>

E-commerce pays the price for internet outrage. Failure in network can create commotion or havoc in the minds of people transacting through e-commerce. It industries are expected to work upon their networks and geographical reach to reduce such outrages.

10) <u>Types/Kinds/Levels of E-Commerce</u>

Electronic commerce is the practice/process of carrying out commercial transactions electronically over the use of internet.

➢ Types of E-Commerce, also known as levels of E-Commerce, are carried out mainly at following levels.



1) B2C – Business to Consumer
2) B2B – Business to Business
3) C2B – Consumer to Business
4) C2C – Consumer to Consumer
5) B2G – Business to Government
6) G2C – Government to Consumer

1) <u>Business to Consumer (B2C)</u>

Business to consumer is a basic website/platform available for the consumers to buy goods and avail services. It involves selling of goods and services to consumers and end-users.

➢ The consumer can place an order without going to the shop and get it delivered at his house/office. Thus, it is a process of selling of retail goods on the internet. For Example: Amazon, Flipkart, Rediff, Myntra, Snapdeal, etc.

❖ **<u>Benefits</u>**

1) <u>24 x 7 x 365</u>

It offers to consumer sales and services right round the world for 24 hours a day, seven days a week and 365 days a year.

2) Differentiation through individuality

It is highly likely that when companies can supply product to consumer's house then they might as well as be tailored-made too, if required.

3) Less capital investment

By making the product available online and then selling it, helps reduce the capital investments to a considerable level. Company selling the product online does not have to establish an enterprise physically to sell the product. Only an internet connection and a little cyber space to put a website is required that is only a one-time investment.

4) Better knowledge of customer's needs

Customization of the product or service for the wide range of consumers gives the firm a better idea about the tastes, preferences and expectations of their target market.

5) Shopping as experience

An online purchase made by the consumer is more satisfying than a regular. The consumer has chosen the product after assessing all the option. Consumer has all the resources and facts on hand before making the decision.

2) Business-to-Business(B2B)

The concept of Electronic Data Inter-change (EDI), which is discussed at length in this chapter, is quite visible and practices under Business-to-Business e-commerce.

❖ **Benefits**

1) 24 x 7 x 365

This merit of availability of service round-the-clock for all the days will be there in every e-commerce models. The participant in B2B model has access to the business environment 24 x 7 x 365.Thus, the opportunity of conducting business is not restricted to office hours only.

2) Reduction in paper-work

Due to introduction of electronic data interchange (EDI), Physical transfer of documents, invoices, orders, etc, will be reduces to minimum.

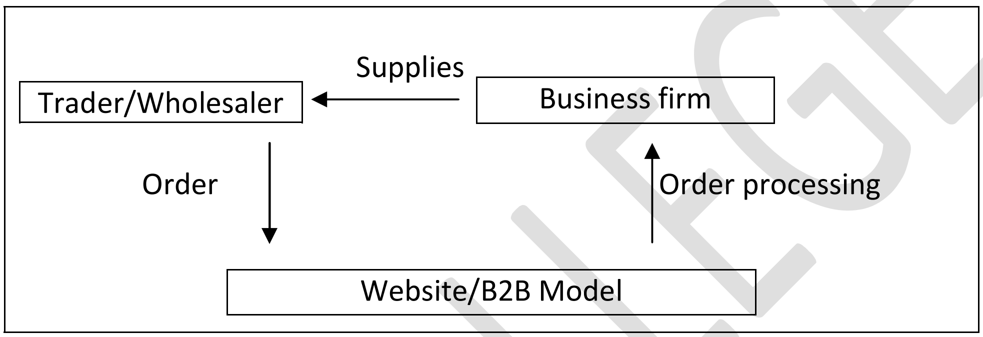
3) Reduction in order processing and delivery

B2B e-commerce involves an internet-enabled initiative to form commercial linkages with various enterprises, dealer, distributor, warehouse owner or manufacturer.

4) Wide scope

The scope in B2B model is greater than B2C models as the participants are highly learned and in order to be competitive, they would adapt to the needs of the industry.

❖ **B2B Model**



3) Consumer to Business (C2B)

This is relatively a new phenomenon in the field of e-commerce. E-commerce at every stage empowers the consumer and strategically redefines the c concept of business. In consumer to business (C2B) model, the clients/consumers suggest an affordable price for a product/service which is he/she is willing to pay.

➢ C2B is also looked from the perspective of value creation. Here, the consumers may give their valuable suggestions, reviews, few useful ideas, etc.

➢ The **major benefit** of this type of model is that it helps business firms to develop and modify the product or service quickly and make it available for the use in a better way as expected by the target market.

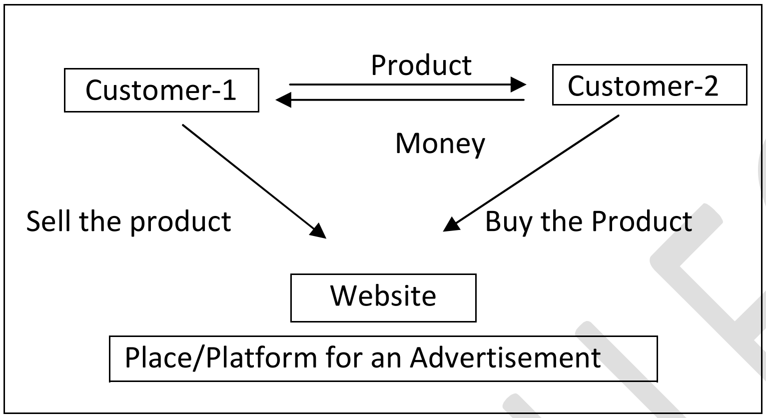
4) Consumer-to-Consumer (C2C)

C2C e-commerce is a platform given to the consumers to interact with each other in order to close the deals. Here, the consumer can virtually buy and sell any products provided they are being sold by another consumer. This type of-commerce is just a virtual version of old auction house.

- This form of model is most preferred when the consumer wants to sell off his or her own products (existing/second hand) to another.

<u>Examples</u>: Quikr, e-bay,

❖ **<u>B2B Model</u>**



5) <u>Business to Government(B2G)</u>

Business to Government, also known as public sector marketing, is an e-commerce model in which business firm deals with government by selling products and services. Here the business firms have something that the government needs for regional and/or national development. Public sector undertakings/agencies post tender in form of Request for Quotations (RFQs), Request for Information (RFIs), Request for Proposals (RFPs), etc. and then sellers respond to it.

- In additional to these, B2G e-commerce models is used by the companies to pay taxes and various government duties.

❖ **<u>Features/Usefulness</u>**

1) B2G model of e-commerce lets the business firms and government **share and exchange of important information** needed to conduct the operations effectively.
2) B2G is one of the finest models that facilitates **Platform for government transaction** across the country with business firms.
3) B2G model, if implemented effectively, can help government **cut down a huge amount of cost** which is very much essential for the developing country like India.
4) By making it online, government can constantly **verify and monitor** the progress and effectiveness of the business deals.

5) B2G model also claims to develop and maintain certain amount of transparency in the business conduct.

6) Government to Customer(G2C)

The main objective is this particular is to approach the citizens of the country through the support of website. Such websites are created by local, state or central government to provide services like registration for marriage, registration for birth certificate, registration for death certificate, RTI, PAN card, passport applications, driving license applications, government draws for house allotment, etc.

Examples:

1) Aadhar Card (www.uidai.gov.in)
2) Rajkot Municipal-(www.rmc.gov.in)
3) Passport Registration-(www.passportindia.gov.in)

UNIT-2

DIGITAL MARKETING

1) Introduction, Concept and Meaning

The arrival of computers and internet has revolutionized the economy as a whole. You name a sector and internet will have a major role to play. For instance, IT, Banking, Communication, Tourism, Education and many more. The use of internet has become even more prominent with the advent of mobile/cell phones. It is very apt to call internet as a force as it has forced people to use the services.

By using internet services, the business firm can practically cover the markets all over the world. Thus, advent of computer and internet has actually revolutionized the marketing strategies and practices of the companies all over the world. As a result, majority of the business firms around the world will make their presence on the internet. And few of them has actually shifted their operations entirely online as well. Thus, internet marketing/e-marketing is all about promoting and selling the products and services, including market research and advertising on virtual world using internet service.

E-Marketing may not eliminate or replace traditional form of marketing, but it certainly can reduce time, money and effort of both, company and consumers, in order to conduct business. Promoting a product via internet is very much easy and advisable keeping in mind the volume of 'Social Media Users.'

2) <u>Definitions of E-Marketing</u>

"Achieving marketing objectives through applying digital technologies."

- Smith and Chaffey

3) <u>Challenges before Traditional Marketing</u>

E-Marketing/Online marketing has become quite dominant in today's world which actually have created some problems with traditional channels of marketing. Day-in and Day-out more and more organizations are switching towards online marketing and selling their products. Following are the major reasons/challenges that hinder the growth of traditional marketing and question its long-term survival:

i) <u>Limited reach</u>

Unlike online marketing, traditional marketing has limited reach when it comes to market coverage. When a product is promoted on internet, it has a potential to cover the global market, but the market coverage gets restricted when the company uses traditional promotional tools like newspaper, magazines, radio, etc.

ii) <u>Cost consideration</u>

Promoting a product/service through traditional marketing tools may cost the firm dearly as the advertisements in newspaper, magazines, radio, televisions etc, require heavy expenditure and thus, makes it difficult for the firm to make arrangement and still get a limited coverage. Again, it will cost you every time you run a new campaign. Further, companies have to bear the expenditure for delivering it through various channels of distribution.

iii) <u>Difficult to measure the impact</u>

It is quite difficult to measure the impact of a firm's promotional effort when traditional marketing tools are used. Firm would not be able to know whether the promotional effort had worked or not, for a long time. While in case of online marketing, the firm would be able to know in real time what is working and what is not and can adapt very quickly to improve on the effort.

iv) Customization is difficult

With traditional marketing effort, it is difficult for the firm to target a specific segment. It becomes even more difficult to target individual customer requirement. In case of online marketing, the firm would be able to track whether a viewer has looked into the firm's product portfolio and accordingly it can suggest similar products.

v) Minimum interaction

Interaction with the target audience in case e-marketing is possible and in fact, it is encouraged. The firm can ask its prospective consumers to take action, give their suggestions, rate the product and provide feedback after the purchasing and using the product. This way a firm cam quickly improve upon the product quality and can serve the market in better way.

4) Advantages of online/E-Marketing

i) Reduction of cost

Promoting the product/service using internet is less costly as compared to promoting it through traditional media of advertising. Traditional media namely, print media, audio/visual, hoardings, outdoor publicity, etc.

ii) Measurement of impact

It is easy to measure the impact of a firm's promotional effort when marketing is done through internet. A firm would be able to know whether the promotional effort had worked or not.

iii) interaction

Marketing on internet increases the interaction between the companies and consumers to a great extent, which is actually necessary. People can give their feedback and suggestions about products and services of the firm by posting comments on websites.

iv) Global reach

Like we have some built-in features of electronic equipment, e-marketing also comes with few built-in benefits and one of them is worldwide reach. Promoting a product/services through internet automatically gives the business firm a global reach. Consumers from any part of the world and at any time can surf through the products of the firms and can initiate the purchase.

5) Disadvantages of Online/E-Marketing

i) Security issues

Security of data/information floated on internet is still an issue. Many people, who use internet as a medium to conduct their dealings, face the problem of security. However, business firms take due care to protect and secure the data through encryption but still at times are not able to maintain full security.

ii) Dependent on technology

Marketing the products/services using internet requires some basic infrastructural arrangements such as computer, server, website, internet connection etc. Without these technologies, a firm cannot operate on an electronic platform.

iii) Transparency

Display of the products/services online, helps consumers to go through each minor detail before taking the purchase decision. However, at the same time, the competitors also get access to the information of product offered by the business firm along with its pricing strategies.

iv) Worldwide competition due to globalization

E-Marketing provides the benefits of global reach to the business firm. But at the same time, it exposes the firm to global competition as well. Market in the global world is more competitive and advanced. Business firm have to really work hard in order to compete with the global firms.

6) Methods/Techniques of E-Marketing

The whole perspective of marketing process has undergone a considerable change due to advent of technology. Promotional tools, especially advertising is a big industry and until now it has only been a one-way street, where the target consumers would passively take in what the advertisers had to say. The business firms hoped that the consumers would remember the music, jingle, tagline, logo or slogan long enough to make a visit to the store and purchase the product. This has changed by the arrival of internet. Internet made it a two-way communication process and thus put the consumers on a driving seat.

i) E-mail

Electronic Mail is one of the old and first methods invented to promote the products/service of the business firm when using e-marketing tools. Most companies develop a customer database, to which they send emails regularly. The emails may carry new schemes and offer, information about new product, improvement over the existing product, etc.

ii) Banners

The concept of putting the banner is very much old. Like we put banner on the crossroads or at some important commercial centres, here in case of online marketing, we put banners on relevant websites with few important headlines and a catchy image.

iii) Skyscrapers

A skyscraper is a tall or extra-long thin banner advertisement usually placed on the right or left side of a website or a web page.

iv) Streaming video and audio

Streaming videos is just like watching a television commercial but only the platform is different. In present times, promotion during audio and video streams has become popular medium wherein advertisement are made to play by the medium when people watch or listen video and audio respectively online.

v) Interstitials

One of the popular forms of promotional tools is interstitials. At times when the user is opening or is waiting for the website to open, an advertisement will appear on the screen waiting for website for user's response.

vi) Sponsorships

Sponsorship on internet is again one of the popular medium to promote a firm's product. It may vary from simple sponsorships of an e-mail to a much more sophisticated site sponsorship deal. For instance, there is an app on Google Play Store named 'in-shorts' wherein the user can go through the news in just sixty words.

DIGITAL PAYMENTS AND SECURITY ISSUES

A) Digital payments

Any company or organization, whether big or small and operating at local, national or international level, which conducts their business or internet has to define the payment method, which is one of the major issues on e-commerce platform.

1) Credit cards/debit cards

Credit card/debit card is one of the primary modes used for electronic payments on the internet. Across the world, it accounts for almost 70% of the payments in the electronic commerce transactions. Payment settled through credit cards/debit card is very economical as compared to paper intensive payments.

A number of banks in the country are encouraging people to use credit card. Credit cards, in your country, became popular with the arrival of foreign banks in the banking industry. The concept of credit card dates back to 1950 with the launch of charge cards in Diners Club in United States of America. However, it became more popular when it started operating on magnetic strip from 1970.

RBI framed guidelines on credit card operations and requested all the commercial banks and non-banking financial companies (NBFCs) to implement these guidelines immediately.

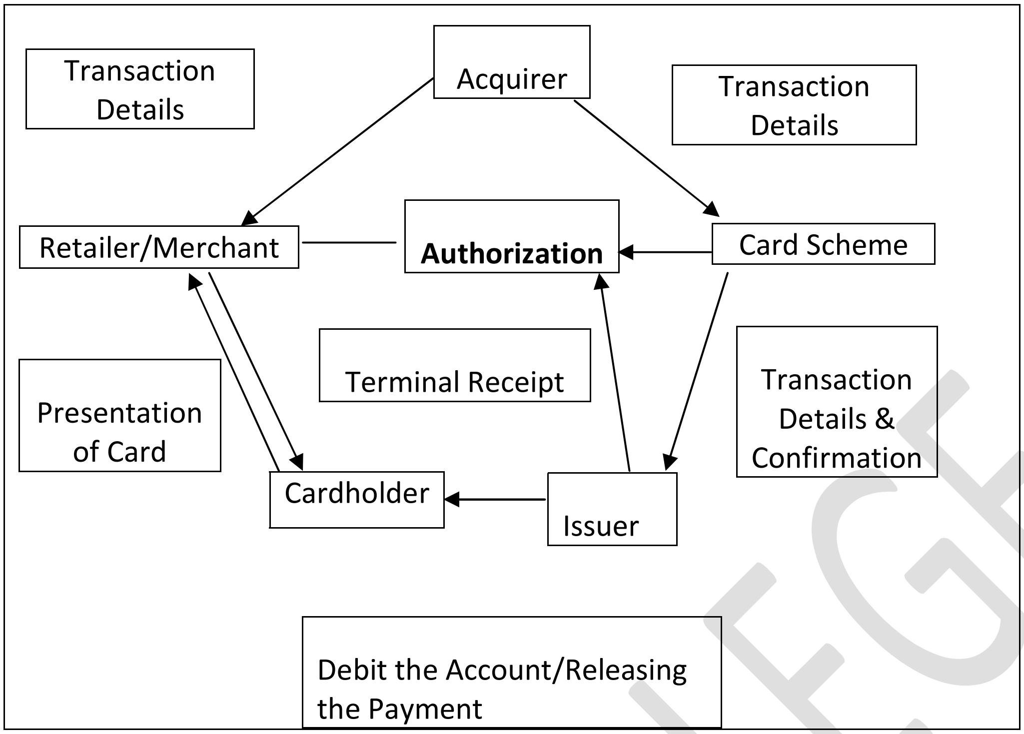
1) Concept and Meaning

Credit Card/Debit card is a small plastic card giving the right to its owner to purchase goods and services based on the owners promise to pay for these goods and services. It enables the holder to buy certain goods and services without paying immediately.

The operation of credit is quite simple. The banks or any other non-banking company issues a small plastic card named credit card to its account holders or customers. The holder of the credit card may use it for various purposes such as shopping, payment and settlement, booking tickets, etc. When the holder of the card uses it, he/she does have to pay the amount immediately.

Every credit card issued by the bank, or a non-banking finance company will be supported by a credit card company and card network such as VISA, MASTERCARD, Capital One, American Express, etc.

2) **Working/process/operations of Credits Cards**



1) Cardholder/Owner

The cardholder presents the card issued by the bank or financial institution to the shopkeeper. The shopkeeper will then place the card on a terminal or, we see him swiping the card through the terminal and will ask the cardholder to punch in the password. The customer will then put in the unique PIN in order to proceed with the transaction.

2) Retailer/Merchant/Shopkeeper

A retailer is a person or an institution who sells goods or services to the customer, in this case, the cardholder. The retailer, after the authorization from cardholder, sends the details of the customer's purchase to the bank who will then process the transaction and will send the details of the same to the relevant card issuer for the authorization and settlement.

3) Acquirer

An acquirer is the banker of the merchant who is responsible for receiving the transaction details from the retailer's terminal and pass it to the card issuer through card scheme for authorization and completing the processing of the transaction.

4) Card Scheme

Card schemes are the institutions or organizations who regulate, manage and control the operations and clearing of credit card settlement transactions according to the card schemes (rules and regulations).

- VISA Card, Maestro, MasterCard, American Express, Diners Club, JCB, etc., are some of the popular card schemes operators across the globe.

5) Issuer

Issuer is the banker or any financial institution that provides the facility of payment via using credit card to their customers.

2) National Electronic Funds Transfer (NEFT)

1) Concept and Meaning

The question of currency exchange is still an additional burned in case of such cross border transaction. In order to facilitate immediate inter-city money transfer of funds and ensure effective customer service, Reserve Bank of India introduced an electronic funds transfer mechanism.

- Electronic Funds Transfer (EFT) is a system whereby any person/institution who wants to make payment to another person/company can approach his banker and make cash payment or give instruction/authorization to transfer funds directly from his own account to the bank account of the receiver/beneficiary. The details such as full name of receiver, bank account number, account type, bank name and branch, city, etc, of the receiver or payee needs to be furnished to the banker at the time of requesting for such transfer so that the amount reaches the payee's account correctly and promptly.

- The website of Reserve Bank of India displays the details of banks and the cities where NEFT facility is available. NEFT normally takes place on the same day or at the most, the next working day depending on the time of requesting/effecting such funds transfers.

2) How it works?

In NEFT, the clearing or transfer of money happens in batches. There was a time when we had only 6 batches through which the money gets transferred. But now the NEFT processing it continuous. There is no daily limit of batch processing. It works on Deferred Net Settlement (DNS) basis.

3) Benefits/Usefulness/Features or NEFT

A) 24x7x365

By introduction of NEFT, transacting during office hours is no longer a limitation for the business firms. A person/company can transfer funds to another at any time using NEFT.

B) Faster Mode of Transfer

NEFT is one of the faster modes of transfer of funds wherein the transferor can transfer the funds to the transferee or beneficiary within 24 hours or at the most the next working day.

- NEFT offers quite flexibility and decent pace to transfer money from one place to another. In today's era, the need for NEFT is very much needed as everyone wants to perform the transaction as quickly as possible.

C) <u>Customer Savvy</u>

Electronic Funds Transfer is a customer friendly system and is very easy to operate. Again, it is customized or can be customized to suit the requirements of the individual customers.

D) <u>Reduction in time, money and effort</u>

Using NEFT to transfer funds is so convenient that the beneficiary does not have to go to the bank to perform the transaction. The amount will directly be credited to his/her account by the transferor from his own bank. This indeed saves a lot of time and effort for the business firm, and they can, thus, focus their precious time in other productive tasks rather than wasting it on mechanical jobs.

E) <u>Secured</u>

Transferring the funds electronically ensures safer mode of transference due to built-in security systems. The data/information, which is being exchanged electronically, gets transferred on secured private networks of the banks and any unauthorized access in denied/prohibited by the multiple layers of security.

3) <u>Real Time Gross Settlement (RTGS)</u>

1) <u>Concept and Meaning</u>

Real Time Gross Settlement (RTGS) system is a funds transfer mechanism where transfer of money takes place from one bank to another on a 'Real Time' and on a 'Gross bases.' Settlement in a real time means payment transaction is not subject to any waiting period.

- The RTGS system is primarily for large volume transactions. The minimum amount to be remitted through RTGS IS Rs. 2, 00,000 there is no upper limit for RTGS transaction.
- The beneficial bank has to credit the customer's account within 2 hours of receiving the funds transfer message.
- The RTGS service window is available from 9 a.m. to 3 p.m. on weekdays.

2) **<u>Details required for RTGS transactions</u>**

- Name of the beneficiary customers
- Name of the beneficiary bank
- Amount to be remitted
- Account number of the beneficiary
- Account number of the remitter
- IFSC code of the receiving bank
- Any other details asked by the bank

3) <u>Difference between NEFT and RTGS</u>

NEFT is an electronic funds transfer mode that operate on a deferred net settlement (DNS) bases which settles the transaction in batches. In DNS, the settlement takes place at a particular point of time. All transactions are held up till that time. For instance, NEFT settlement takes place 6 times a day during weekday's i.e. 9:30 am, 10:30 am, 12:00 pm, 1:00 pm, 3:00 pm and 4:00 pm. Any transaction initiated after a designated settlement time would have to wait till the text designed time.

Contrary to this, in RTGS, transactions are processed continuously throughout RTGS business hours.

4) <u>Unified payment interface (UPI)</u>

1) <u>Concept and Meaning</u>

Unified payment interface (UPI) was introduced by National Payment Corporation of India (NPCI), an entity regulated by RBI. It was established in December 2008 and started working from April 2009.

- A part from UPI, NPCI also offer products like, RuPay, National Common Mobility Card, Bharat Interface for Money (BHIM) and Bharat Bill Payment System.

<u>What is UPI…?</u>

Unified Payments Interface (UPI) is a system that powers multiple bank accounts into a single mobile application (of any participating bank), merging several banking features, seamless fund routing & merchant payments into one hood.

- **Cashless India, GOI**

2) <u>Pre-requisites of UPI</u>

- A bank account, that is operational
- Mobile number should be linked with bank account

- Smart mobile phone with stable internet facility
- Debit card for setting and re-setting PIN
- Application for UPI to be installed in the mobile phone

3) How it works…?

Unit Device	User initiates the transaction and validates the credentials
Payer PSP	Amount releases from unit device and payer PSP will validate
NPCI	Receives the payment from payer PSP, authorizes the transaction
Payee PSP	Receives the response from NPCI, translates the response with either
Payer Bank	Authenticates the response and debits the account and provide debit response to
Payee Bank	Receives credit request from NPCI, credits the account with the amount and: ➢ Responds to NPCI ➢ Responds to payee PSP ➢ Notifies the payer

For Example:

Unit Device : Customer/Account Holder
Payer PSP: Phone Pay
Payee PSP: Paytm
Payer Bank: SBI
Payee Bank: Bank of Baroda

There are six participants in the transaction, namely, customer, payer payment service provider (PSP), Payee PSP, NPCI, payer bank and payee bank. The whole transaction happens on NPCI infrastructure.

- The NPCI does a translation (generally internal) where it verifies the details of UPI and sends it to payee PSP (Paytm). Payee PSP translate the request sent by NPCI and responds, with either accept or reject, with an actual bank account number registered with UPI id.

Participants

1) Payer-Payment Service Provider (PSP)
2) Payee-Payment Service Provider (PSP)

3) Remitter Bank
4) NPCI
5) Bank Account HOLDERS
6) Merchants

4) Benefits of UPI

1) Customers

a) UPI is available 24x7. Hence, a customer can make payment anytime whenever he/she has convenience and time
b) UPI can help synchronize multiple bank accounts in a single application. Customers can choose the bank account through which they want to make payment.
c) Payment happens in a few clicks without hassle and is more secure.

2) Banks

a) Universal application for transaction, hence bank does not have to create and circulate.
b) Transacting through UPI offers safety, security and innovation which attracts more users. This will reduce footfalls in bank.
c) UPI is used at multiple places for payment and with ease.
d) Runs on existing infrastructure of banking sector, hence easy in inculcating transaction processing and reporting.

3) Merchants

a) Sellers enjoy collecting money from UPI as they don't have to store any virtual address of the customers.
b) Processing is quick and easy as compared to card transactions.
c) Most suitable option for e-commerce and m-commerce transactions.
d) It helps in solving the problems associated with cash on delivery.
e) Sellers can cater to those customers who does not use debit or credit card.

4) E-Wallets/Digital Wallets

1) Concept and Meaning

A physical wallet normally contains Cash, Identity cards, Business Cards, Credit/Debit Cards, Receipts and records, few photographs of near and dear and other miscellaneous items that a person requires in a day-to-day life.

A digital wallet imitates the same functions performed by physical wallet but on a different platform. Digital wallets validate/authenticate the consumer through the use of digital certificates, stores and transfers the value and secures the payment process from customer to the retailer or merchandize.

The digital wallet supports credit card, digital credit card, digital cheque, etc.

❖ **Benefits**

- The major benefit of digital wallets is that if offers convenience to the consumer in making payments and lower transaction costs because order entry can be accelerated.
- Consumers, with the use of e-wallets, do not have go to bank and withdraw money for making payment for their shopping.
- With a digital wallet, consumers are not required to fill out forms to purchase online products.
- Retailers/sellers also gets substantial benefit from digital wallets though lower transaction costs, enlarged marketing and branding opportunities, easier customer retention and conversion of visitors into buyers, and some reduction in fraudulent transactions.
- The financial intermediary who establishes digital wallets gets an opportunity of earning processing fees on every transaction.

❖ **Drawback**

The major drawback of digital wallet is the reluctance of people to adapt to this channel of payment and settlement as there are many questions which lingers in the minds of consumers such as who is the owner of the digital wallet, where does the private information gets stored, who has an access to these private information and many more.

1) Categories/Types

a) Client Based Digital Wallets

Client based digital wallets are software or applications which the consumers install in their computer or now-a-days in cell phones. The consumer feeds in all the required details in the software for conducting transaction.

b) Server Based Digital Wallets

Server based digital wallet does not require consumer to install a software application. Thus, Information that used to get stored in consumer’s computer will be stored on the computers/serves of merchant/financial institution. In order words, the organization supporting the digital wallet service will maintain consumer’s digital wallet account on their servers.

2) Payment Banks

1) Introduction and History

On 23 September 2013, Committee on Comprehensive Financial Service for Small Business and Low Income Households, headed by Nachiket Mor, was formed by the RBI. On 7 January 2014, the Nachiket Mor Committee submitted its final report. Among its various recommendations, it recommended the formation of a new category of bank called 'Payments Bank'. On 17 July 2014, the RBI released the draft guidelines for payment banks, seeking comments for interested entities and the general public. On 27 November, RBI released the final guidelines for payment banks.

❖ **Conditions**

- The bank should be fully networked from the beginning. The bank can accept utility bills.
- It cannot form subsidiaries to undertake non-banking activities. The bank cannot undertake lending activities. 25% of its branches must be in the unbanked rural area.
- The bank must use the term "payments bank: in its name to differentiate it from other types of banks.
- The banks will be licensed as payments banks under section 22 of the Banking Regulation Act, 1949, and will be registered as public limited company under the Companies Act, 2013.

Examples

i) Aditya Birla Nuvo
ii) AirtelM-Commerce Service
iii) Cholamandalam Distribution Services
iv) Departments of Posts
v) Paytm
vi) Vodafone M-Pesa
vii) FINO Pay Tech
viii) Tech Mahindra and many more…

2) Objective

i) Small savings accounts and
ii) Payments/remittance services to migrant labour workforce, low income households, small businesses, other unorganized sector entities and other users.

3) Scope of Activities

- Acceptance of demand deposits. Payment's bank will initially be restricted to holding a maximum balance of Rs. 1, 00,000 per individual customer.

- Issuance of ATM/debit cards. Payments banks, however, cannot issue credit cards.

4) <u>Deployment of Funds</u>

The payments bank cannot undertake lending activities. A part from amounts maintained as Cash Reserve Ratio (CRR) with the Reserve Bank on its outside demand and time liabilities.

❖ <u>e-RUPI</u>

1) <u>Concept and Meaning</u>

E-RUPI is powered by National Payment Corporation of India (NPCI) and is supported by Department of Financial Services (DFS) and National Health Authority (NHA).

- E-RUPI is a currency in itself and does not have concept of payer and payee banker. It is design on block chain technology, and it replaces physical wallet currency that a person carries.

2) <u>How it Works?</u>

Suppose Government wants to provide free health check-ups to MGNREGA workers at a particular health centre nearby or Government wants to sponsor some medical service to BPL families.

- In order to provide this facility, Government would approach a banker and make payment in lumpsum based on the number of workers/families under consideration.
- E-RUPI is a 'Leak-Proof' way for Government to provide subsidies. Here, there is no intervention of any authority in the process. This contactless system is easy, safe and secure as it keeps the details of the beneficiaries completely confidential.

Currently, following banks provide e-RUPI services

- State Bank Of India
- HDFC Bank
- Axis Bank
- Punjab National Bank
- Bank of Baroda
- Canara Bank
- Indusind Bank
- ICICI Bank

❖ <u>Benefits of e-RUPI</u>

1) <u>To the Service Providers</u>

- It is end-to-end digital transaction and does not require any physical issuance of any card or voucher. This leads to cost reduction.
- Voucher issue and usage/redemption can be tracked easily.
- It is quick, safe and contactless. Voucher is authorized via a verification code shared by the beneficiary, hence reduces the chances of any corruption.

2) <u>To the End-User</u>

- The beneficiaries do not have to carry any print outs of voucher or physical copy.
- The process of redeeming the voucher is easy, simple and faster.
- The beneficiaries' details will be kept confidential as they are identified and treated by a voucher in form of SMS or QR code. So, no need to give any KYC details to the service provider.

B) <u>SECURITY ISSUES</u>

1) <u>Security in Cyberspace/Security Issues in E-Commerce</u>

For most honest and law-abiding people, the internet provides a global marketplace by providing access to citizens and businesses worldwide. For the people with criminal intent, the internet has created an entirely new and lucrative platform to steal and carry out their malicious act.

- The advantage of anonymity on the internet helps many criminal in placing fake orders with the retailers operating online, stealing information by interrupting or intercepting website by using various kinds of viruses.
- One of the primary reasons for not reporting cybercrime by the merchants is that of fear of losing the trust of customers.
- The cost of such an attack is difficult to quantify because it not only involves monetary losses but also damages the reputation of the companies operating on e-commerce platform. To conclude, the overall number of cybercrimes is rising and amount of losses suffered is growing rapidly.

A) <u>Essentials of Good E-Commerce Security</u>

Defining a secure commercial transaction is a difficult affair or rather assuming an impossible hypothesis. Even the traditional commercial transaction does not offer 100% security.

- In e-commerce, face similar risks faced by participants of traditional commerce. All types of crimes whether it is theft, burglary, breaking and entering, robbing or trespassing are present in e-commerce.
- With strong Government-laws and favourable organizational policies and procedures will support the new technology adoption and diffusion in the economy. In the words

Garfinkel and Spanfford, good e-commerce security requires a set of laws, procedures, policies, and technologies, which, to the extent feasible, protect individuals and organizations from unexpected behavior in the e-commerce marketplace.

1) Integrity

Integrity means ability to ensure that the information that is displayed on a website or being transmitted and received over the internet should not/has not been altered or tampered in any way by an unauthorized person.

- Merchant/companies dealing with e-commerce should make certain arrangement or should employ highest security levels so that the integrity of the information supplied over internet never gets altered.

2) Authenticity

Authenticity is the facility or ability to recognize the person or organization with whom a person/user is dealing with. A question that frequently pops up into the minds of consumers is that how they should be able to know with whom they are dealing with. In order words, how does a consumer know that the merchant operating the website is the one who he says he is or claims to be? Likewise, from the merchant's perspective, they would have a question about the real identity of the consumers.

3) Confidentiality

Confidentiality is the ability to ensure that data or information is available to those who have the authority to access them. Most of the people will have a query regarding who can read my messages or who has the access to information provided on website.

4) Privacy

Many people confuse privacy with confidentiality. Both are fundamentally different though they are, at times, used synonymously. While confidentiality is often concerned with the viewing of the personal message or information by unauthorized personnel, privacy is concerned with the ability to control the use of those personal messages.

5) Availability

Once the companies launch the website and starts its operations on a larger commercial scale, these services should be available at all the time in order for the consumer to get access anytime they want.

2) Kinds of Threat and Crime

The possibility of committing crime on cyber world take place on three basic fronts namely client, server and communication channel.

A) <u>Malicious Code</u>

Malicious code, also popularly known as a Malware, consists of varieties of threats namely virus, worms, Trojan and bad applet.

- **<u>Virus</u>**

A virus, very popular term, is actually a computer program that has ability to reproduce or replicate itself and spread among other files. By spreading, it destroys files, reformats the computer's hard drives and causes various problems in running the applications properly.

- **<u>Worms</u>**

While virus spreads from file to file by duplicating feature, a worm is intended and designed to spread from computer to computer. Worm uses a computer network to spread itself among various computers.

- **<u>Trojan Horse</u>**

The term Trojan horse is derived from the Greek Mythology where the Greeks used a gigantic unfilled (hollow) wooden statue of a horse to conceal themselves to enter into the city of Troy.

- **<u>Bad applets</u>**

An applet is a small application program that can be called up for use while working in another application. A bad applet is a program/application that attacks the systems of web surfers which gets activated merely by surfing a website and downloading any application from the website.

B) <u>Hacking and Vandalism</u>

The term hacking means gaining an unauthorized access to a computer system. According to The Economic Times, hacking is an attempt to exploit computer system or a private network inside a computer. In other words, it is the unauthorized access to take control over computer network security for some illegitimate purpose.

Cyber vandalism, on the other hand, is intentionally disturbing, disrupting and/or even destroying a site. Cyber vandals edit online contents in a malicious manner by adding, removing or modifying the content, which is offensive in nature. Mr. David L. Anderson in his paper 'The New Vandal' defined cyber vandals, as individuals who damage information infrastructures purely for their own enjoyment and pleasure.

- **<u>Types</u>**

1) White Hats
2) Black Hats

3) Grey Hats

c) **<u>Credit Card Fraud</u>**

One of the most feared occurrences of conducting e-commerce transaction over internet is stealing of credit card information. Many users are afraid to conduct their transactions on internet because there are number of cases registered about credit card frauds. It is debatable whether the real threat of credit card fraud is more in case traditional commerce than e-commerce. But mostly it is more vulnerable in case of e-commerce as they offer wonderful opportunity to obtain user's personal information such name, address, phone number, etc. The hacker uses this information to establish new identity and conduct the transaction for their own benefit.

- The whole concept of credit card fraud is more vulnerable to merchant/retailers rather than users. All are concerned with devising out policies and strategies to safeguard the consumer who uses credit card for online purchasing.

Precautions to be taken by consumer/users

- Be caution about revealing your account number over the phone or in public domain unless you know that you are dealing with the reputable company.
- Never share the unique PIN given to you with anyone.
- Dispose the old card by cutting through the account number.
- Carry those cards and/or upload or use those cards information, which you will need and not every card is to be used.
- You may also paste/put a photograph on the credit card so as to make it more secure.
- Secure your every transaction with OTP (One Time Password) which is new feature added by the merchants.

d) **<u>Spoofing</u>**

Spoofing means hiding the original identity and masquerading as someone else. Hackers often attempt to misrepresent themselves by using fake identity for stealing personal and vital information on the e-commerce website. Many a times, while surfing through internet, user suddenly gets redirected to some other website by clicking on certain links.

- Hackers at times, by spoofing, can redirect the user to almost exactly the same website that is just a replica of the original website thereby making it almost impossible to distinguish between an original and a fake website.

- The hacker, by the way of spoofing, can collect the personal details or information of the transaction and may place fake orders and/or disrupt/alter the already placed order thereby disturbing the processing and operations of e-commerce.

e) Sniffing

A sniffer means a type of eavesdropping program that monitors information travelling over a network. If used legally, they help the organization to identify possible network problems.

- The most popular sniffing threat/program is e-mail wiretap, which is hidden in an e-mail and allows the hacker to monitor all the succeeding message forwarded with original message.

f) Insider Job

The name itself suggests that the hacking is done by an insider and not by an outside party. There are all chances that an inside person or employee leaks the information of the firm or tries to damage the reputation of the organization.

For Example: Banks have access to all the details of the account holders. They can easily do some tampering with the transactions thereby creating disruption.

3) Internet Security Options/Protecting Internet Communication

Protecting the internet communication is a matter of priority for the organizations who conducts business over internet. It is essential because transactions of e-commerce travels through public networks and thus involves numerous users and hackers with ulterior motive.

A) Encryption

Encryption typically involves transforming the plain text or data into secret message or cipher text, which cannot be read by anyone except the sender and the receiver.

- Encryption addresses major four issues or key dimensions of e -commerce security that are mentioned below:

- ✓ Data integrity - No change of the text or data
- ✓ Repudiation - Prevents the refusal of the receiver of the data.
- ✓ Authenticity - Provides verification of the identity of the sender.
- ✓ Confidentiality – Privacy of the data or text. No one can read it.

B) Firewalls

A firewall acts like a filter. It is a software application, which sorts out the information exchanged between internet and a computer system or a company's private network.

- Firewalls are built to monitor and validate all the incoming and outgoing data or communication.

C) Virtual private networks

Corporate houses and government organizations often uses Virtual Private Networks to protect their sensitive data which travels through internet. VPN allow extension of intranet of an organization to connect to the remote employees and distant offices.

- VPN does not mean that the communication is done in isolation, but rather it is controlled among the communities of interest across a shared infrastructure.
- They transfer information by encrypting data in packets and send these packets over the internet.

A Virtual Private Network is 'Virtual' in the sense that it appears to clients/business firms as a devoted/committed secure line when in fact it is a temporary secure line.

D) Proxy Servers

Proxy means substitution. Primarily proxies are software servers that to restricts the access of internal client or employee to the external internet servers.

- Proxy serves validates the pages request if they meet the guidelines established and them it passes to the client or user. By limiting or monitoring the access of the users from communicating directly with the internet, the organization can restrict the access of certain types of websites.

E) Anti-Virus Software

One of the simplest and inexpensive methods to prevent threats or damages to the system is to install anti-virus software. There are few companies that develop software, which fights against the viruses by indentifying and removing them from the computer system.

- Popular anti-virus software available are QuickHeal Total Security, McAfee, eset Nod32, Kaspersky and many more.

C) NETWORK

1) Concept and Meaning

It is a group or system of interconnected people or things.

- Networking in e-commerce would mean set of interconnected computers. A network in connection with the computer means an establishment of **'link'** between various computers within the organization and outside as well.
- Computer network means a number of interconnected computers, machines or operations.
- Networking, often used as computer networking, is a mechanism of a collection of a set of computers and network components that are interconnected by communication lines. When these computers are connected, the mechanism allows the computers to communication, exchange information and work together.
- The interlinking of computers becomes more useful when the information is to be used for decision-making purpose. The managers of the business firm can take up accurate decisions provided they have access to variety of information which is possible if they are connected to the world.
- When the computers are located in a private and limited area, it is a Local Area Network (LAN) while if the computers are located over a wide geographical area, it is a Wide Area Network (WAN).

2) Features of Networking

1) Facilitates communication

Networking provides effective, accurate and fast communication within the organization as well as with the outsides parties.

2) Time saving

In case of networking, the information transfers electronically and thus reduce delays and permits quick decision.

3) Redefines the role of manager

Feature of networking is that it transforms the role of manager in an organization. The manager's role, which is of a decision marker, gets redefined, as the decision making highly depends on the data available through network access.

4) Wide scope

Networking provides much wider scope as various types of lines in form of text documents, audio, video, graphics, animation, etc can be shared across the globe.

5) **<u>Increases productivity and cost control</u>**

Networking increases the productivity of any organization in variety of ways.

a) It frees the executives from various laborious tasks like data entry, organization and tabulation, data processing and report generation.
b) It reduce time and gives immediate access to information for decision-making.
c) It helps in reducing paper, printing and distribution costs.

3) **<u>Classification of Networks</u>**

In the field of electronic communication and data interchange, the role of LAN, WAN, Internet, Intranet and Extranet extremely important.

1) **<u>LAN</u>**

LAN stands Local Area Network. LAN, typically, is a private network owned by a company, office, building or a campus. LAN is an independent network and facilitates organized communication system within the range of a particular premise.

- LAN is specifically designed to allow sharing of various resources like printers, storage devices, documents, sheets, presentations, etc between the systems.

❖ **<u>Benefits</u>**

- LAN permits sharing of data and resources in form of software, tapes, documents, etc across the organization or within the confined area of a particular premise.
- LAN allows the users to take backup at certain regular intervals which help the users to retrieve their work which have been accidently deleted or lost due to system failure.

2) **<u>WAN</u>**

MAN stands for Metropolitan Area Network. It is a larger version of LAN as it connects several LANs in a metropolitan area or a city at the most. It usually is a medium sized network covering a radius which is more than LAN and can go up to 25 kms.

- Government Agencies and the public libraries typically prefer to use MANs.

3) **<u>WAN</u>**

Wide Area Network (WAN) covers a large geographical area, a country or countries. Naturally, WAN is bigger than LAN and MAN. Various LANs gets connected in Wide Area Network which facilitate communication across the globe. Business firms can receive and send reports, instructions, documents, invoices and other business-related communication to their branches, vendors distributors, etc, located across the country or globe.

- Internet is a best example that gives better understanding of WAN.

❖ **Benefits**

- One of the prominent advantages of WAN is its large-scale coverage across the globe.
- WAN is highly reliable and offers flexibility to the users across the world.
- Initial cost of setting up may be high but at later stage, the operating cost goes down to a considerable level and hence is cost-effective in long run.

4) INTERNET

Internet, in simple words, is a conglomeration or collection of various networks distributed across the globe. It is a window through which a user can get an access the globe information. Internet, thus, is one of the largest democracies of the world when it comes to information sharing and exchange.

- World Wide Web (WWW). WWW is the most popular service on the internet. Both internet and WWW are used interchangeably but are fundamentally quite different.

❖ **Benefits**

Education

Toady so much of educational material is available on various websites. So much so that people can actually learn any concept by accessing internet as everything related to the required topic will be available on internet any time, viz, reading material, audio, video lectures, etc.

Entertainment

Entertainment is the most accessed section on internet.

- Music & Movies of all kinds and genre, Libraries, Histories, Cooking, Travel information (Including virtual reality/Google Street view), publications, photography and many more is available in abundance for the variety of users across the world.
- A user can stay up to date with what is happing around the world with just a click on his computer.
- Not only the general news but also the specific interest area wise news too. One of the popular applications, available on Google play store, which brings news from the world is "Inshorts."

Business

Traders, vendors, business firms, companies, etc can conduct their business on internet/virtual world, like they do in it the real world. One may find so many websites that displays the product on internet and the buyer intending to purchase may do the same by just placing an order on internet and have it delivered in few days.

Other benefits

A part from the above benefits, internet provides variety of other services such as legal services, foreign exchange, advertisement, consultancy, banking, medical inquiries, reading, participation in discussion, etc.

5) INTRANET

Intranet is typically a private network designed for internal use within the organization or a firm. 'Intra' means 'within' with reference to an organization and 'net' is a computer network set for exchange of data and information.

- Internet provides access to general public; intranet gives access to limited no. of users. Internet is comparatively secured network than internet, as it does not give access to public. If all internet is connected with external network, it is usually equipped with firewall that screens the data that comes-in and gives access to only selected members of an organization.

Benefits

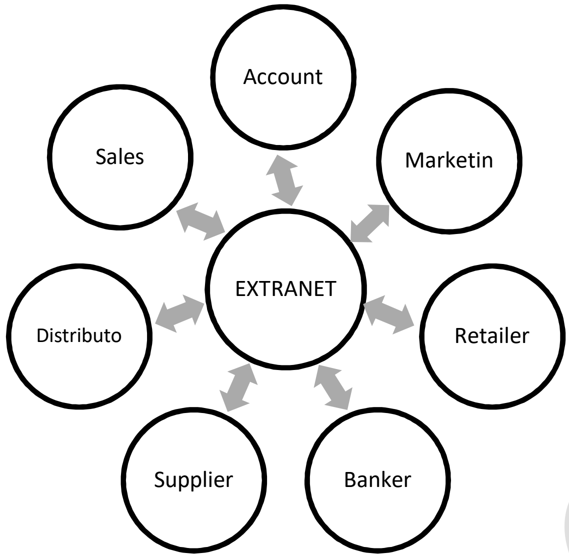
- A secure communication and information sharing network within the organization.
- It also acts as a healthy information system for managers to take important decisions as it provides organized data and reports, which are essential to take informed decisions.

6) EXTRANET

An extranet is also a private network set up by the organization to give access its suppliers, customers, distributors, partners, bankers, etc, to smoothen the transaction processing expediting the deal. The organization, here, extends its networks access to few recognized business partners or intermediaries in order to conduct the business smoothly.

❖ **Benefits**

- Extranet enables exchange of huge volume of data using EDI, which saves lot of time and cost for organization and other concerned entities.
- It helps the business firm build a strategic relationship with various intermediaries.
- Extranet helps in sharing the information and news that might be of common interest among various business entities.



4) Virtual Private Networks (VPNs) – An Overview

Internet is an open network. Anybody from any corner of the world can cannot to it. User can access data, which are available on internet. Now, when an organization shares information via internet, it gets shared on an open network and thus is prone to an unauthorized access.

- Corporate houses and government organizations often uses Virtual Private Networks to protect their sensitive data which travels through internet. VPN allows extension of intranet of an organization to connect to the remote employees and distant offices.
- It is like an underground tunnel and data travels through it in order to reach from one place to another. VPN does not mean that the communication is done in isolation, but rather it is controlled among the communities of interest across a shared infrastructure.
- A Virtual Private Network is 'Virtual' in the sense that it appears to clients/business firms as a devoted/committed secure line when in fact it is a temporary secure line. It uses point-to-point Tunneling protocol (PPTP) that creates a private connection by adding an undetectable/invisible wrapper around a data/information to hide its content.