மனோன்மணியம் சுந்தரனார் பல்கலைக்கழகம்
Manonmaniam Sundaranar University
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Tirunelveli - 627 012, Tamilnadu, India.

DIRECTORATE OF DISTANCE

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CONTINUING EDUCATION

E - Commerce

Prepared by

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E-COMMERCE

Objectives:

1. To build up basic knowledge on electronic business.
2. To educate students on online marketing.
3. To make e commerce and internet marketing familiar with students.
4. To make the students to devise marketing strategies for concerns engaged in ecommerce.
5. To understand the current status of e-business

Unit I: Introduction to E- Commerce;

Introduction to E-Commerce: Meaning, Significance and scope of E-commerce - Traditional Commerce and E-commerce - Advantages and disadvantages of E-commerce - Technical and Nontechnical limitations of E-commerce. Online shopping sites in India.   (10L)

Unit II: Application of E- Commerce:

Basic in E-commerce - Introduction to E - commerce Modules - B2B Modules, Advantages and disadvantages of B2B - B2C Modules - C2C - Electronic Retailing and malls. The process of electronic shopping, Electronic Catalogs, interactive advertising, and marketing - Benefits and limitations of internet advertising - Impact of Ecommerce on business opportunities in E-commerce.   (15L)

Unit III: Inter, Intra and Extranets:

Internet, Intranets and Extranets -Introduction to Internet - Components of Internet - Business use of the Internet - Categories of Internet - Intranet - Advantages and disadvantage of Intranet & Extranet -Relationship between Internet, Intranet and Extranet - Difference between Internet and Extranet- Mobile E-Commerce Technology (M-Commerce).   (15L)

Unit IV: Electronic Data Interchange:

Introduction to electronic data inter change [EDI] - definition, benefits of EDI, limitations of EDI, EDI transaction and EDI Application- SMTP, POP and FTP Protocols- Network Layers and TCP/IP Protocols   (20L)

Unit V: E-Commerce Supporting Functions:

E-commerce Supporting Functions: Purchase and sale procedure- Supply Chain Management [SCM], Value chains in e-commerce, Value chain management - Electronic Payment system authentication of payment, mode of payment. Electronic credit and debit cards, smart cards, and electronic cash -Risks in EPS - digital signature, Encryption, electronic certificate, Firewall, secure electronic transaction (SET) - Security issues in E-Commerce- protocols-SSL-SHTTP-Computer Crimes-Security in Ecommerce - Cryptography   (15L)

Learning Outcome:

1. Students shall understand the fundamental principles of e-business and e-commerce.
2. The learners shall understand the impact of information and communication technologies on business.
3. Students shall understand the tools and services used by virtual e-commerce sites

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UNIT – I

INTRODUCTION TO E-COMMERCE

E-Commerce

Everything you need to know about the E- Commerce. The term electronic commerce or e-commerce refers to any sort of business transaction that involves the transfer of information through the internet.

By definition it covers a variety of business activities which use internet as a platform for either information exchange or monetary transaction or both at times.

E-commerce means using the Internet and the web for business transactions and/or commercial transactions, which typically involve the exchange of value (e.g., money) across organizational or individual boundaries in return for products and services.

Here we focus on digitally enabled commercial transactions among organizations and individuals.

Electronic commerce, known as E-Commerce, occurs daily when sellers and buyers use the internet to conduct business transactions. Technology makes it possible for anyone to buy or sell practically anything online.

E-Commerce – Introduction

E-commerce means using the Internet and the web for business transactions and/or commercial transactions, which typically involve the exchange of value (e.g., money) across organizational or individual boundaries in return for products and services. Here we focus on digitally enabled commercial transactions among organizations and individuals.

E-business applications turn into e-commerce precisely, when an exchange of value occurs. Digitally enabled transactions include all transactions mediated by digital technology and platform; that is, transactions that occur over the Internet and the web.

Hence, e-tailing is a subset of e-commerce, which encapsulates all "commerce" conducted via the Internet. It refers to that part of e-commerce that entails the sale of product merchandise and does not include sale of services, namely railway tickets, airlines tickets and job portals.

There are three types of destinations that cater to retail sales:

i. Traditional retail- brick-and-mortar

ii. Corporatized retail- brick-and-mortar

iii. Corporatized retail- e-tailing

E-Commerce – History of E-Commerce

Early Development:

The history of E-commerce begins with the invention of the telephone at the end of last century. EDI (Electronic Data Interchange) is widely viewed as the beginning of ecommerce if we consider ecommerce as the networking of business communities and digitalization of business information. Large organizations have been investing in development of EDI since sixties. It has not gained reasonable acceptance until eighties. The meaning of electronic commerce has changed over the last 30 years.

Originally, electronic commerce meant the facilitation of commercial transactions electronically, using technology such as Electronic Data Interchange (EDI) and Electronic Funds Transfer (EFT). These were both introduced in the late 1970s, allowing businesses to send commercial documents like purchase orders or invoices electronically. The growth and acceptance of credit cards, automated teller machines (ATM) and telephone banking in the 1980s were also forms of electronic commerce. Another form of E-commerce was the airline and railway reservation system.

Online shopping, an important component of electronic commerce was invented by Michael Aldrich in the UK in 1979. The world's first recorded business to business was Thomson Holidays in 1981. The first recorded Business to consumer was Gateshead SIS/Tesco in 1984. During the 1980s, online shopping was also used extensively in the UK by auto manufacturers such as Ford, General Motors and Nissan. The systems used the switched public telephone network in dial-up and leased line modes.

From the 1990s onwards, electronic commerce would additionally include enterprise resource planning systems (ERP), data mining and data warehousing. An early online information marketplace, including online consulting, was the American Information Exchange, another pre Internet online system introduced-in 1991. In 1990 Tim

Berners-Lee invented the World Wide Web and transformed an academic telecommunication network into a worldwide everyman everyday communication system called internet/www (dot)Commercial enterprise on the Internet was strictly prohibited until 1991.

Although the Internet became popular worldwide around 1994 when the first internet online shopping started, it took about five years to introduce security protocols and DSL allowing continual connection to the Internet. By the end of 2000, many European and American business companies offered their services through the World Wide Web. Since then people began to associate a word "E-commerce" with the ability of purchasing various goods through the Internet using secure protocols and electronic payment services.

The Internet and the Web:

The Internet was conceived in 1969, when the Advanced Research Projects Agency (a Department of Defence organization) funded research of computer networking. The Internet could end up like EDI without the emergence of the World Wide Web in 1990s. The Web became a popular mainstream medium (perceived as the fourth mainstream medium in addition to print, radio and TV) in a speed which had never been seen before. The Web users and content were almost doubled every a couple of months in 1995 and 1996.

E-Commerce – Meaning

The term electronic commerce or e-commerce refers to any sort of business transaction that involves the transfer of information through the internet. By definition it covers a variety of business activities which use internet as a platform for either information exchange or monetary transaction or both at times.

For example, the numbers of consumer brand retail sites like Amazon (dot) com and Flipkart(dot)com which normally provides information about products and also allows monetary transactions to happen over the internet.

On the contrary there are the auctions sites like Quickr(dot)com and Ebay (dot)com where the information about certain listed products and services are provided but the monetary transactions normally happen physically.

Apart from these two categories of e-commerce sites, there are some sites which enable businesses to exchange trading goods and also service between two or more companies. All of these forms of internet based business platforms are known as e-commerce.

Over the last decade the advent of e-commerce has actually transformed the manner in which people used internet. People now are not only just using internet for gathering information, leisure or socializing online but also at the same time they are seeking measures to conduct business.

Even popular social networking sites like Facebook(dot)com are allowing people to promote and sell products and services online and the introduction of computer and mobile based e-commerce application software like Shopify provides evidence of how e-commerce have boomed over the past 5 years.

E-Commerce - Objectives:

The various objectives of the e-commerce can be laid down as follows:
1. Development of Business-Relationship:

The business development can be done through the e-commerce being the primary and the basic object. As their direct contact in between the company and the consumer, their business relationship will be enhanced. Hence the area of the market can be increased.

2. Better-Customer Service:

As it is done round the clock, the customer will always have online help regarding the products. As all the information is furnished to the customer, it becomes easy to him to choose the best product among all other alternatives. As even the service can also be done through the net immediately, the customer service will be ballooned. By highlighting the customer service, the companies are trying to subjugate a lion-share in the market.

3. Getting more Customers:

In these days it becomes the mandate of the companies to double its customers, and this can be done by rendering the value add service and maintaining the quality. Hence, it is also one of the primary objectives of the companies which supply impetus for the robust growth in sales and overall profit.

E-Commerce Important Features:

E-Commerce has pertain key features which are explained as follows:

1. E-Commerce is Technology-Enabled:

Traditional commerce is taking place since times immemorial but E-commerce is result of integration of digital technology with business processes and commercial transactions. The technological foundations of E-commerce are internet, WWW and various protocols.

2. Technology Mediated:

In E-commerce buyers and sellers meet in cyber space rather than physical place. Hence E-commerce does not involve face to face contact.

3. Universality:

Buying and selling take place through websites in E-Commerce. The websites can be accessed from anywhere around the globe at any time therefore it possess the feature of universality.

4. Intercommunication:

E-commerce technology ensures two way communications between buyer and seller. On one hand by using E- commerce firms can communicate with customers through E-commerce enabled websites. On the other end, customers can also fill order forms, feedback forms and can communicate with business operating firms.

5. Delivery of Information:

E-commerce serves as the best channel of communication. E-commerce technologies ensure speedy delivery of information at very low cost and considerably increase information density as well.

6. Electronic Completion of Business Processes:

By using E- commerce we can perform business transactions like accounting and inventory through computers at global level.

7. Virtual Communities:

Virtual Communities are online communities created by means such as chat rooms and specifically designed sites like, where people can interact with each other having common interest using the internet.

8. Inter-Disciplinary in Nature:

Implementation of E-Commerce needs a lot of knowledge of managerial, technological, social and legal issues. Besides this, understanding of consumer behaviour, marketing tools and financial aspects is as crucial as designing interactive E- Commerce websites.

9. Customization:

With the use of E-commerce technology, the world is moving from mass-production to mass-customization. Product customization ensures that goods are tailor made as per the requirements and preferences of customers.

Like Dell Computers Website www(dot)dell(dot)com enables the consumers to mention configuration of a Computer and then the product is made available and delivered as per the configuration ordered by the customer.

E-Commerce – 5 Major Types:

The major different types of E-Commerce are:

I. Business-to-Business (B2B);

II. Business-to-Consumer (B2C);

III. Business-to-Government (B2G);

IV. Consumer-to-Consumer (C2C);

V. Mobile Commerce (M-Commerce).

I. Business to Business (B2B):

1. Business to Business or B2B refers to E-Commerce activities between businesses.

2. In E-Commerce B2B, transactions are usually carried out through Electronic Data Interchange or EDI. EDI is an automated format of exchanging information between businesses over private networks.

3. EDI is composed of standards that enable businesses' computers to conduct transactions with each other, without human intervention.

4. For Example- Manufacturers and wholesalers are B2B companies.

II. Business to Customer (B2C):

1. Business to Customer or B2C refers to E-Commerce activities that are focused on consumers rather than on businesses.

2. For instance, a book retailer would be a B2C company such as Amazon.com.

III. Customer to Business (C2B):

1. Customer to Business or C2B refers to E-Commerce activities, which use reverse pricing models where the customer determines the price of the product or services.

2. For example – tele workers and online auctions are C2B processes.

IV. Customer to Customer (C2C):

1. Customer to Customer or C2C refers to E-Commerce activities, which uses an auction style model.

2. Customers are also the business and C2C enables customers to directly deal with each other. An example of this is peer auction giant, E Bay.

V. M-Commerce (Mobile Commerce):

1. M-commerce (mobile commerce) is the buying and selling of goods and services through wireless technology i.e., handheld devices such as cellular telephones and personal digital assistants. Japan is seen as a global leader in m-commerce.

2. As content delivery over wireless devices becomes faster, more secure and scalable, some believe that m-commerce will surpass wire line e-commerce as the method of choice for digital commerce transactions. This may well be true for the Asia-Pacific where there are more mobile phone users than there are Internet users.

E-Commerce – Need in Modern Business Era:

Electronic commerce, known as E-Commerce, occurs daily when sellers and buyers use the internet to conduct business transactions. Technology makes it possible for anyone to buy or sell practically anything online.

The study of following factors show the need for E-Commerce in modern business era:

1. Wider Audience- The internet provides businesses, access to millions and millions of people. A 2010 survey by Internet World Stats showed there are 266,244,500 internet users in North America. On the World Wide Web, companies move beyond geographic limits to

reach wider audience.

2. Cost Efficiency- At the beginning of the internet age in the 1990s, creating websites was a costly undertaking. As the years passed, building websites became less and less expensive. In fact, small businesses can now build their own sites.

3. Faster Information- The information superhighway permits speedy exchange of data across the world, which also means new information, is available faster.

4. Enhanced Service- Development of E-Commerce equipped domestic providers to offer more services to clients.

E-Commerce – Business Applications:

Following are the major business application areas where E-Commerce is used widely:

1. Sale, Purchase of Goods:

By using E-Commerce, consumers can buy the various products and services from the different manufacturers. Industries can purchase raw materials, components etc. using E- Commerce. Sellers can sell their products by using E-commerce.

2. Real Estate Market:

Online real estate services are provided by websites that show listing of houses, shops and flats put up for sale and rent. Online real estate sites play supporting role for property dealers.

Now builders can use virtual reality technology on their website to demonstrate three dimensional floor plans to buyers. This helps real estate companies to attract buyers. So transactions normally can be initiated online but materialize offline in a face to face contact of parties. Many websites are providing online real estate services.

3. Online Banking:

Online Banking is also known as electronic banking, Net banking, virtual banking and internet banking online banking is defined as automated delivery of new and traditional banking products and services through electronic and interactive communication channels. Customers can access online banking services by using electronic devices like personal computer, laptop, palmtop, ATM, kiosks etc.

4. Delivery of Goods:

E-Commerce allows the delivery of products. For example, the computer software is directly downloaded by the software manufacturer on computer of the customer.

5. Import and Export:

Electronic payments are playing a great role in import and export business. The internet has simplified the import and export business. By using E-commerce importers can make enquiries about the products, their manufacturers, price, quality, other terms and conditions etc.

Exporters can also make enquiries about suitable customers. Payments can be made by electronic modes including digital means like internet payment or internet money transfer.

6. Supply Chain Management:

A supply chain is a set of relationships between a number of companies who have a symbiotic relationship with each other in that one company supplies commodities or services to other companies which, in turn, supply commodities or services to other companies, and so on.

An important point about an application such as this one is that information should be kept confidential as it flows across the internet.

7. E-Tailing:

E-tailing refers to retailing over the internet. Thus an e-tailer is a B2C business that executes a transaction with the final consumer. E-tailers can be pure play businesses like amazon(dot)com or businesses that have evolved from a legacy business, Tesco(dot)com. E-tailing is a subset of e-commerce.

E-Commerce – Channels:

These are of following two types:

(i) Commercial Channels:

Various companies have set up on-line information and marketing services that can be accessed by those who have signed up for the service and pay a monthly fee. These channels provide information, news, libraries, education, travel, sports and reference,

entertainment, shopping services, dialogues opportunities and e-mail etc.

(ii) The Internet:

The Internet is a global web of computer networks that has made instantaneous and decentralised global communication possible. Internet usage has spread with recent development of the user-friendly World Wide Web (www) browser software such as Netscape Navigator and Microsoft Internet Explorer.

Users can surf the Internet and experience fully integrated text, graphics, images and sound. Users can send e-mail, exchange views, shop for products, and access news and business information. The users need to pay an Internet provider-to be hooked up to it through their computers.

Internet Strategies for Business and Key Success Factors in E-Commerce:

Internet users are better educated, better informed. As more and more people find their way onto the internet, the cyberspace population is becoming more mainstream and diverse.

Younger users of Internet in general place a greater value in information, entertainment, socialising etc.

Old users are more likely to use Internet for investment and more serious matters. In general, Internet users respond to messages aimed at selling, and receive information about products and services. In on-line marketing through internet, the consumers, and not the marketer, gives permission and controls the interaction.

Internet 'search engines' such as "Yahoo" and "Google" give consumers access to varied information sources, making them better informed and more discerning shoppers. Consumers gain the following capabilities in the E-commerce providing information-rich regime:

1. They can get objective information for multiple brands, including costs, prices, features and quality without relying on the manufacturer or retailers.

2 They can initiate requests for advertising and information from manufacturers.

3. They can use software agents to search for and invite offers from multiple sellers. These new buyer capabilities mean that the exchange process in the age of information has

become customer initiated and customer controlled.

Marketers and their representatives are held at bay till customers invite them to participate in the exchange process, customers define the rules of engagement, and insulate themselves with the help of agents and intermediaries.

Customers define what information they need, what products or services they are interested in and what prices they are willing to pay.

E-Commerce – Essentials and Procedures:

E-commerce operates digitally. It has some unique ways to put a business transaction in place.

Let's see how this happens:

1. Product/Service:

For E-commerce to happen there should be a prod-uct or service that has value and for which someone is willing to pay a price. If this criterion is met, then you can sell anything on ecommerce websites—gadgets, books, automobiles, grocery, toys, apparel, vegetables and digital goods such as music, e-books, software, air tickets, magazine subscriptions and the like.

2. Processing Mechanism:

The ecommerce website of a company should put an easy process in place so that the customer browsing through the site can place an order. The software that makes this happen is called a shopping cart.

3. Payment Gateway:

Once the customer fills the cart with items that he or she has shopped, the site should take the customer towards the payment gateway, which collects money electronically. If the product is downloadable such as music, e-book etc., the website must also provide for that after accepting payment from customer.

4. Delivery of Product:

Once customers make the payment, the e-com-merce site must ensure the delivery of product in good condition on time. Logistics is a specialized function, so most sellers outsource it to third party logistics providers. Like Amazon using the services of FedEx.

5. After Sale Service:

Customers need to be serviced pre-sales as well as post sales. Before the sale, customers might have queries about product features that are not mentioned on the website. They might have ques-tions about customization and accessories. After the sale, customers might have queries related to the usage, repair or enhancement of the products or services that they have already purchased.

6. Reverse Logistics:

There is no guarantee of supplying an error-free product. If products get damaged or stop functioning after a while, or a wrong product is delivered—the ecommerce seller must ensure the flow of products in the reverse direction—known as reverse logistics—where goods flow from customer to the seller.

E-Commerce – 4 Major Market Segments:

E-commerce is a means of conducting business, where the buying or selling of goods and services or the transmitting of funds or data, occur via electronic medium. There are no physical market places and the entire process of marketing and selling of goods, takes place on-line or electronically. This means, the buyer and the seller do not often meet face to face. It is a replica of a physical market place in the virtual world.

E-commerce, also called e-trading, operates in all four major market segments – Business to Business, Business to Consumer, Consumer to Consumer and Consumer to Business. Examples of E-commerce include on-line shopping, electronic payments, on-line auctions, internet banking, on-line ticketing etc.

1. E-Tailing:

E-Tailing is the abbreviation of electronic retailing. It is the sale of goods and services through the internet. E-tailing involves business-to-business or business-to-customers transactions. It can be regarded as the internet front of any traditional retailer.

E-tailing shops believe in building strong brands. The web sites they create are easily understood by the visitors. They also provide discounts and offers to engage the customers. The pricing, in E-tailing shops, is generally lower than that of a traditional shop.

In this way the e-tailing shops lure the customers to make purchases on-line. The customers also get benefited from the fact that he/she does not need to physically visit the

shop for making the purchase. The customers are free to make their own decisions regarding the purchase, at their own leisure time.

However, e-tailing shops need to have a strong distribution network in order to secure the delivery of the products. Otherwise, the purpose of the e-tailing site will be defeated. Big e-tailing sites like Ebay(dot)com and Amazon(dot)com are making great business in this country.

Advantages of E-Tailing:

1. No requirement of physical infrastructure.

2. Order completion is smoother than that of physical shops.

3. Customers might get addicted to on-line shopping, which in turn boost sales and increase revenue.

4. It is easy to review the product before, actually, purchasing it.

5. Most items available on-line are cheaper with quick and easy shipping and returns.

Disadvantages of E-Tailing:

1. Creating and maintaining an e-tailing web site is an expensive process.

2. Customers do not often get to check the actual dimensions of the products and the quality displayed there.

3. Customers may have trust issues before providing their personal details and credit card details.

2. E-Advertising:

E-Advertising is the mechanism of promoting products or services on-line. It is the process of gaining attention of the customers, through the digital media.

The main purpose of e-advertising is to reach out to a wider range of customers. It is more cost effective when compared to the traditional forms of advertising. E-advertising also enables you to target the specific customers.

On safeguard to be taken regarding E-advertising is that advertisement had to be consistently monitored and controlled because if it is done poorly, it can severely damage the image of the company.

Features:

1. E-advertising will only be published on the internet.

2. Sometimes e-advertising will provide hyperlinks to the company's web site.

3. Can include image, texts, and even animations within the advertisements.

Types of E-Advertising:

There are various types of e-advertising:

(a) Wallpaper Advertising – It changes the background of the web site to the chosen promotion.

(b) Pop Up Advertising – It pops up a new screen upon clicking on a certain link on the web site, that it advertises the product.

(c) Floating Advertising – The floating e-advertising is a kind of a floating banner on the web site, which tempts the visitor to click on it.

(d) Ad Sense Advertising – This refers to companies' paying major search engines (such as Google) to promote their business within the first three links that appear when a search is entered.

3. E-Marketing:

Electronic marketing (e-marketing) is also known as internet marketing, web marketing and digital marketing on on-line marketing. It is the process of marketing a product or service using the internet, e-mail and wireless media. Unlike e-advertising, e-marketing is very subtle. It is not always a direct message of persuasion but rather it is something which will educate the customers and convince them to buy the product or service.

Digital marketing techniques include Search Engine Optimization (SEO), Search Engine Marketing (SEM), content marketing, e-commerce marketing, social media marketing, display advertisement, marketing through SMS and on-hold mobile ring tones, etc.

When compared to the means of traditional marketing, e-marketing offers several advantages.

Advantages of E-Marketing:

1. E-marketing provides much better return on the investment made by the marketer.

2. It reduces the cost of marketing campaign.

3. The marketer can easily monitor and track the results of the campaign.

4. The results are often easily measurable and quickly obtained.

5. E-marketing allows marketers to create viral content, allowing viral marketing.

Disadvantages of E-Marketing:

1. Devising a strong online marketing campaign involves spending money, the cost of which is ultimately borne by the customer. The cost of website design, software, hardware, maintenance of website, online distribution cost and invested time, are also factored in, while deciding the cost of providing a service or a product online.

2. Website of the company has to be constantly updated, which required research and skills and thus timing of updates are also critical.

3. Digital marketing is not suitable for marketing of industrial goods and pharmaceutical products making it useful for only specific categories of products, namely consumer goods.

Types of E-Marketing:

There are several options through which the e-marketers can promote their product and services:

1. Article Marketing – Writing articles about products and services often helps in the process of educating the customers.

2. Affiliate Marketing – It is a kind of referral marketing where reference of any product will be provided on the other websites and when the customer buy's the product based on the recommendation this website owner with gets commission.

3. Video Marketing – In this kind of e-marketing, a video will be shared describing the usage and benefits of the product or a service. It is often similar to television commercials.

4. Email Marketing – Direct emails are being sent to potential customers describing benefits of the product or service.

5. Blogging – Publishing blogs about similar products is also a very subtle way of marketing some business.

6. Social Media Marketing – This form of marketing means promoting company's products

and service on social media handles like Facebook, Twitter and Instagram – It is cost-effective because these platforms allow business to create profiles for free.

E-Commerce – Managerial Issues:

Nowadays companies are transforming themselves into e-commerce enabled organizations. To assure successful implementation of e- commerce, management of the organization has to deal with certain type of issues.

Some of the important issues before the organizational management are explained as follows:

i. Formulate E-Commerce Strategy:

Management has to develop e-commerce strategy based on the analysis of industry and competition. Many companies like IBM created independent division for formation .and implementation of e-commerce in the organization. The e-commerce division, formulates strategy in the light of corporate strengthens and weaknesses.

Then e-commerce division communicates the vision of top management throughout the organization and annual objectives are identified. Essential education and training is given to those who are to implement the e-commerce plans. Efforts are made to change the behaviour and attitude of executives, managers, and trading partners.

The management needs to view electronic commerce potential in the light of the competition and not just as technological advancement. E-commerce needs to be used as a strategic tool to gain and sustain competitive advantage in the industry.

ii. Re-Engineering for E-Commerce:

Organizations are to be restructured and re-engineered in to a network based organization. Therefore, building and integrating infrastructure is a big challenge faced by company managements. Integrating information technology with existing business processes is a big task. In fact network of computers, complex transmission lines and dozens of pieces of software must all work together to make E-commerce happen.

The business process re-engineering team has to ensure that they do not miss anything significant while building and implementing E- commerce system Manufacturers have to decide whether the whole manufacturing and distribution system is to be restructured to become committed to direct Internet based supply chain and marketing or

to use e-commerce website as a simple channel of distribution.

Company management has to make decision regarding in sourcing or outsourcing. Big companies go for in-house development of website. It means company's own staff build e-commerce enabled website. Company management can also outsource this task to some third party, normally an experienced web development firm.

iii. Managing Ethical, Cultural and Legal Issues:

There exist big ethical and cultural differences between countries. Something may be ethical in our country but unethical in another country. So MNCs have to study culture of each country and develop corporate ethical code.

For example, France has certain language and cultural laws that must be obeyed. Therefore, it is necessary that advocates, accountants and executives of the companies must understand legal, trade, cultural and monetary issues of the countries with which their company has to deal.

iv. Making Cost Benefit Analysis:

Company management has to make cost benefit analysis of implementing e-commerce venture. Costs associated with e-commerce includes costs of hardware like PC clients, web servers, transaction servers routers and other networking devices, leased line and software like operating system, firewall, application software, web server software and transaction processing software, cost of recruiting and training staff for e-commerce etc.

Benefits can be measured through economic indicators like return on investment or through indicators like numbers of online customers, customer satisfaction and business partner satisfaction.

Organization of developed countries that have implemented e-commerce solutions have gained by way of realizing lower cost per transaction and taking advantage of economies of scale. In developing countries cost may exceed benefits in initial years of e-commerce initiatives.

v. Promoting E-Commerce Venture:

Company management has to take steps to promote the website.

Broadly, promotional activities can be classified into two categories:

a. Online Promotional Activities:

Online promotion is concerned with submitting your site to search engine. The objective is to get your site registered with the search engine so that the site appears as a link in search results of certain keywords-typed by internet user at the search engine like Google. This requires use of appropriate keywords in META tag.

Moreover, web team needs to search related sites and contact them so that their pages provide link to their web pages. So seeking reciprocal link is an effective way of promoting your e-commerce web site. Moreover, e-mails can be made of customers. Company that have advertising budget can promote the site by placing banner ads at popular websites and portals.

b. Offline Promotional Activities:

As far as offline promotion is concerned, company can advertise the web address through visiting cards, letter pads, bill books etc. Moreover, URL can also be advertised at various trade fairs, exhibitions and business related events like seminars, conferences etc. Therefore, company management has to set up advertising budget and decide the tools that it shall use to promote the e-commerce website.

vi. To Deal with Security & Privacy Issues:

Websites collect information about visitors through filled in order forms, questionnaires and by recording browser information thought programs like cookies. But the personal information so collected must be used for stated business purposes. But many surveys have shown that online consumers have little privacy protection.

Therefore, it is necessary that company management must form privacy practice and must assure consumers and partners that information so collected shall be kept confidential.

In addition management needs to form security policy. Data security and network security are major issues. There have been cases when vital information like credit card numbers are stolen by hackers. Similarly e-mails can be and are often intercepted as they travel through the network.

This type of data and message security needs security measures like encryption, password protection etc. Similarly network security measures like firewall needs to be

installed so that intruders are not able to make authorized access to corporate network. The firewall prohibits hackers from entering corporate network via internet. Therefore management needs to set up some kind of intrusion detection system an establish security policy.

vii. Handling Human Resource Management Related Issues:

Electronic commerce is changing the manner in which staff is recruited, motivated, trained and educated. Two way interactions are now possible in video conferencing used for employee training and education. So, management needs to incorporate the impact of e-commerce on its human resource management practices.

viii. Adopting Electronic Fund Transfer System:

Company management has to make agreement with acquiring bank, Credit Card Company and payment gateway to ensure that it is able to receive and make payments electronically through modes like credit cards, smart cards, e-cash etc. The management has to devise ways and means of integrating Internet based payment system with offline system.

Impact of E-Commerce:

E-commerce has made a profound impact on society. People can now shop online in the privacy of their own homes without ever having to leave. This can force larger brick and mortar retailers to open an online division. In some cases, it can also force smaller businesses to shut their doors, or change to being completely online.

It also changes the way people look at making purchases and spending money. E-commerce has changed the face of retail, services, and other things that make our economy work. Undoubtedly, it will continue to influence how companies sell and market their products, as well as how people choose to make purchases for many years to come.

The following are the impacts of e-commerce on the global economy:

1. Impacts on Direct Marketing:

i. Product Promotion – E-commerce enhances promotion of products and services through direct, information-rich, and interactive contact with customers.

ii. New Sales Channel – E-commerce creates a new distribution channel for existing products. It facilitates direct reach of customers and the bi-directional nature of

communication.

iii. Direct Savings – The cost of delivering information to customers over the internet results in substantial savings to senders when compared with non-electronic delivery. Major savings are also realized in delivering digitized products versus physical delivery.

iv. Reduced Cycle Time – The delivery of digitized products and services can be reduced to seconds. Also, the administrative work related to physical delivery, especially across international borders, can be reduced significantly, cutting the cycle time by more than 100 percent.

v. Customer Service – Customer service can be greatly enhanced by enabling customers to find detailed information online. Also, intelligent agents can answer standard e-mail questions in seconds and human experts' services can be expedited using help-desk software.

vi. Corporate Image – On the web, newcomers can establish corporate images very quickly. Corporate image means trust, which is necessary for direct sales. Traditional companies such as Intel, Disney, Dell, and Cisco use their web activities to affirm their corporate identity and brand image.

vii. Customization – E-commerce provides for customization of products and services, in contrast to buying in a store or ordering from a television, which is usually limited to standard products. Dell Computers Inc. is a success story of customization.

Today, we can configure not only computers but also cars, jewellery, gifts, and hundreds of other products and services. If properly done, one can achieve mass customization. It provides a competitive advantage as well as increases the overall demand for certain products and services.

viii. Advertisements- With direct marketing and customization comes as one-to-one or direct advertisement, which is much more effective than mass advertisement. This creates a fundamental change in the manner in which advertisement is conducted not only for online trades but also for products and services that are ordered in traditional ways.

ix. Ordering Systems- Taking orders from customers can drastically be improved if it is done online. When taken electronically, orders can be quickly routed to the appropriate order-processing site. This saves time and reduces expenses, so sales people have more

time to sell. Also, customers can compute the cost of their orders, saving time for all parties involved.

x. Markets- The physical market disappears as does the need to deliver the goods to the marketplace. In a market space, which is an electronic market, goods are delivered directly to buyers when purchasing is completed making markets much more efficient.

Already, small but powerful software packages are delivered over the internet. This fundamentally affects packaging and greatly reduces the need for historical distribution.

New selling models such as shareware, freeware are emerging to maximize the potential of the internet. New forms of marketing will also emerge, such as web-based advertising, linked advertising, direct e-mail, and an increased emphasis on relationship marketing. Customer's convenience is greatly enhanced, availability of products and services is much greater, and cheaper products are offered.

2. Impacts on Organisation:

i. Technology and Organizational Learning:

Rapid progress in e-commerce will force companies to adapt quickly to the new technology and offer them an opportunity to experiment with new products, services, and processes. New technologies require new organizational approaches.

For instance, the structure of the organizational unit dealing with E- commerce might have to be different from the conventional sales and marketing departments. To be more flexible and responsive to the market, new processes must be put in place. This type of corporate change must be planned and managed.

ii. Changing Nature of Work:

The nature of work and employment will be transformed in the digital age; it is already happening before our eyes. Driven by increased competition in the global marketplace, firms are reducing the number of employees down to a core of essential staff and outsourcing whatever work they can to countries where wages are significantly less expensive.

The upheaval brought on by these changes is creating new opportunities and new risks and forcing us into new ways of thinking about jobs, careers, and salaries.

The digital age workers will have to become very flexible. Few of them will have

truly secure jobs in the traditional sense, and all of them will have to be willing and able to constantly learn, adapt, make decisions, and stand by them.

iii. New Product Capabilities:

E-commerce allows for new products to be created and existing products to be customized in innovative ways. Such changes may redefine organizations' missions and the manner in which they operate.

E-Commerce also allows suppliers to gather personalized data on customers. Building customer profiles as well as collecting data on certain groups of customers, can be used as a source of information for improving products or designing new ones.

Mass customization enables manufacturers to create specific products for each customer, based on his or her exact needs. For example, Motorola gathers customer needs for a pager or a cellular phone, transmits them electronically to the manufacturing plant where they are manufactured, along with the customer's specifications and then sends the product to the customer within a day.

3. Impacts on Manufacturing:

The production systems are integrated with finance, marketing, and other functional systems, as well as with business partners and customers. Using web-based ERP systems, orders that are taken from customers can be directed to designers and to the production floor, within seconds.

Production cycle time is cut by 50 percent or more in many cases, especially when production is done in a different country from where the designers and engineers are located.

4. Impacts on Finance:

E-commerce requires special finance and accounting systems. Traditional payment systems are ineffective or inefficient for electronic trade. The use of the new payment systems such as electronic cash is complicated because it involves legal issues and agreements on international standards.

Nevertheless, electronic cash is certain to come soon and it will change the manner in which payments are being made. In many ways, electronic cash, which can be backed by currency or other assets, represents the biggest revolution in currency since gold

replaced cowry shells.

Its diversity and pluralism is perfectly suited to the internet. It could change consumers' financial lives and shake the foundations of financial systems and even governments.

5. Impact on Supply Chain Management:

Electronic commerce and the internet are fundamentally changing the nature of supply chains, and redefining how consumers learn about, select, purchase, and use products and services.

The result has been the emergence of new business-to business supply chains that are consumer- focused rather than product-focused. They also provide customized products and services. E-commerce impacts supply chain management in a variety of keyways. These include:

i. Cost Efficiency:

E-commerce allows transportation companies of all sizes to exchange cargo documents electronically over the internet. E-commerce enables shippers, freight forwarders and trucking firms to streamline document handling without the monetary and time investment required by the traditional document delivery systems.

By using e-commerce, companies can reduce costs, improve data accuracy, streamline business processes, accelerate business cycles, and enhance customer service. Ocean carriers and their trading partners can exchange bill of lading instructions, freight invoices, container status messages, motor carrier shipment instructions, and other documents with increased accuracy and efficiency by eliminating the need to re-key or reformat documents.

The only tools needed to take advantage of this solution are a personal computer and an internet browser.

ii. Changes in Distribution System:

E-commerce will give businesses more flexibility in managing the increasingly complex movement of products and information between businesses, their suppliers and customers. E-commerce will close the link between customers and distribution centres. Customers can manage the increasingly Complex movement of products and information

through the supply chain.

iii. Customer Orientation:

E-commerce is a vital link in the support of logistics and transportation services for both internal and external customers. E-commerce will help companies deliver better services to their customers, accelerate the growth of the e-commerce initiatives that are critical to their business, and lower their operating costs. Using the Internet for e-commerce will allow customers to access rate information, place delivery orders, track shipments and pay freight bills.

E-commerce makes it easier for customers to do business with companies: Anything that simplifies the process of arranging transportation services will help build companies' business and enhance shareholder value.

By making more information available about the commercial side of companies, businesses will make their web site a place where customers will not only get detailed information about the services the company offers, but also where they can actually conduct business with the company.

Ultimately, web sites can provide a universal, self-service system for customers. Shippers can order any service and access the information they need to conduct business with transportation companies exclusively online. E-commerce functions are taking companies a substantial step forward by providing customers with a faster and easier way to do business with them.

iv. Shipment Tracking:

E-commerce will allow users to establish an account and obtain real-time information about cargo shipments. They may also create and submit bills of lading, place a cargo order, analyse charges, submit a freight claim, and carry out many other functions.

In addition, e-commerce allows customers to track shipments down to the individual product and perform other supply chain management and decision support functions. The application uses encryption technology to secure business transactions.

v. Shipping Notice:

E-commerce can help automate the receiving process by electronically transmitting a packing list ahead of the shipment. It also allows companies to record the relevant details

of each pallet, parcel, and item being shipped.

vi. Freight Auditing:

This will ensure that each freight bill is efficiently reviewed for accuracy. The result is a greatly reduced risk of overpayment, and the elimination of countless hours of paperwork, or the need for a third-party auditing firm. By intercepting duplicate billings and incorrect charges, a significant percent of shipping costs will be recovered.

In addition, carrier comparison and assignment allows for instant access to a database containing the latest rates, discounts, and allowances for most of major carriers, thus eliminating the need for unwieldy charts and tables.

vii. Shipping Documentation and Labelling:

There will be less need for manual intervention because standard bills of lading, shipping labels, and carrier manifests will be automatically produced; this includes even the specialized export documentation required for overseas shipments. Paperwork is significantly reduced and the shipping department will therefore be more efficient.

viii. Online Shipping Enquiry:

This gives instant shipping information access to anyone in the company, from any location. Parcel shipments can be tracked and proof of delivery quickly confirmed. A customer's transportation costs and performance can be analysed, thus helping the customer negotiate rates and improve service.

E-Commerce – Advantages:

E-commerce provides the following main advantages:

(i) Convenience – Customers can order products or services 24 hours a day wherever they are.

(ii) Information – Customers can find reams of comparative information about companies, products, competitors and prices without leaving their office or home.

(iii) Fewer Hassels – Customers don't have to face sales people or open themselves upto persuasion and emotional factors, they also don't have to wait in line.

(iv) Quick Adjustment to Market Conditions by Marketers – Companies can quickly add products to their offering and change prices and descriptions.

(v) Lower Cost – On-line Marketers avoid the expense of maintaining a store and the costs

of rent, insurance and utilities.

They can produce digital catalogues for much less cost than the cost of printing and mailing paper catalogues.

(vi) Relatively Building – On-line marketers can dialogue with consumers and learn from them. Marketers can download useful reports or a free demo of their softwares.

(vii) Audience Sizing – On-line Marketers can learn how many people visited their web site and how many of them shopped at particular places on the site. This information can help them improve offers and advertisements.

(viii) On-line Marketing – It is easy affordable by small firms, who otherwise would not have been able to advertise in the print or broad cost media.

(ix) E-Commerce – E-commerce through Internet and web site can access and retrieve information very fast, compared to overnight mail and even fax.

(x) Large and Medium – These companies have designed their own websites to automate corporate purchasing. The high cost on invoices and purchase order copies including time are saved a great deal due to E-commerce and Internet phase.

(xi) Internet newsgroups set up for commercial purposes help companies place on-line advertisements and thus save cost and time.

(xii) New groups, Bulletins board systems (BBSs) and Web committees help also buyers, sellers and people in general to have access to valuable information on diverse topics including information of cultivation for farmers.

E-Commerce – Disadvantages:

1. Security:

Security continues to be a problem for online businesses. Customers have to feel confident about the integrity of the payment process before they commit to the purchase. Banks such as ICICI Bank, HDFC Bank, State Bank of India have added secure payment gateways to process online bank-ing transactions quickly and safely.

2. System and Data Integrity:

Data protection and the integrity of the system that handles the data are serious concerns. Computer viruses are rampant, with new viruses discovered every day. Vi-ruses cause unnecessary delays, file backups, storage problems, and other similar difficulties.

The danger of hackers accessing files and corrupting accounts adds more stress to an already complex operation.

3. System Scalability:

A business develops an interactive interface with customers via a website. After a while, statistical analysis determines whether visitors to the site are one-time or recurring customers. If the company expects 2 million customers and 6 million show up, website performance is bound to experience degradation, slowdown, and eventually loss of customers. To stop this problem from happening, a website must be scalable, or upgradable on a regular basis.

4. E-Commerce is Not Free:

So far, success stories in e-commerce have forced large business with deep pockets and good funding to invest in creating on-line web-sites. According to a report, small retailers that go head-to-head with e-commerce giants are fighting losing battle. As in the brick-and-mortar environment, they simply cannot compete on price or product offering. Brand loyalty is related to this issue, which is supposed to be less impor-tant for online firms. Brands are expected to lower search costs, build trust, and communicate quality. A search engine can come up with the best music deals, for example, yet consumers continue to flock to trusted entities such as HMV.

5. Consumer Search is not Efficient or Cost-Effective:

On the surface, the electronic marketplace seems to be a perfect market, where worldwide sellers and buyers share and trade without intermediaries. However, a closer look indicates that new types of intermediaries are essential to e-commerce. They include electronic malls that guar-antee legitimacy of transactions. All these intermediaries add to transaction costs.

6. Customer Relations Problems:

Not many businesses realise that even e-business cannot survive over the long term without loyal customers. Building customer loy-alty to a specific site is not an easy task. Customers are notoriously fickle-minded, and do not minding visiting a competing website just to avail even one-time benefits or discounts.

7. Products-People Won't Buy Online:

Imagine a website called furniture, com or living.com, where venture capitalists are investing millions in selling home furnishings online. In the case of a sofa, you would want to sit on it, feel the texture of the fabric etc. Beside the sofa test, online furniture stores face costly returns which makes the product harder to sell online.

8. Corporate Vulnerability:

The availability of product details, catalogues, and other information about a business through its web-site makes it vulnerable to access by the competition. The idea of extracting business intelligence from the website is called web framing. And such threats are in-creasing day by day in this digital, networked world.

9. High Risk of Internet Start-Up:

Many stories unfolded in 1999 about successful executives in established firms leaving for In-ternet start-ups, only to find out that their get-rich dream with a dot.com was just that – a dream.

E-Commerce – Threats to Present Day E-Commerce and Its Solution

Major threats to present day e-commerce may be listed thus:

i. Money Thefts E-commerce services are about transactions, and transac-tions are very largely driven by money. This attracts hackers, crackers and everyone with the knowledge of exploiting loopholes in a system. Once a kink in the armor is discovered, they feed the system (and users) with numerous bits of dubious information to extract confidential data (phishing).

This is particularly dangerous as the data extracted may be that of credit card numbers, security passwords, transaction details etc. Also, Payment gateways are vulnerable to interception by unethical users. Cleverly crafted strategies can sift a part or the entire amount being transferred from the user to the online vendor.

ii. Identity thefts Hackers often gain access to sensitive information like user accounts, user details, addresses, confidential personal information etc. It is a significant threat in view of the privileges one can avail with a false identity. For instance, one can effortlessly login to an online shopping mart under a stolen identity and make purchases worth thousands of dollars.

He/she can then have the order delivered to an address other than the one listed on the records. One can easily see how those orders could be received by the impostor without arousing suspicion. While the fraudsters gains, the original account holder continues to pay the price until the offender is nabbed.

iii. Threats to the system Viruses, worms, Trojans are very deceptive methods of stealing information. Unless a sound virus-protection strategy is used by the ecommerce Solutions firm, these malicious agents can compromise the credibility of all ecommerce web solution services. Often planted by individuals for reasons known best to them alone, viruses breed within the systems and multiply at astonishing speeds. Unchecked, they can potentially cripple the entire system.

Solutions:

The following precautionary steps might prove to be helpful:

i. Authentication:

Most notable are the advances in identification and elimination of non-genuine users. E-commerce service designers now use multi-level identification protocols like security questions, encrypted passwords (Encryption), biometrics and others to confirm the identity of their customers. These steps have found wide favour all around due to their effectiveness in weeding out unwelcome access.

ii. Intrusion Check:

The issue of tackling viruses and their like has also seen rapid development with anti-virus vendors releasing strong anti-viruses. These are developed by expert programmers who are a notch above the hackers and crackers themselves. Firewalls are another common way of implementing security measures. These programmes restrict access to and from the system to pre-checked users/access points.

iii. Educating Users:

E-commerce is run primarily by users. Thus, E-com-merce service providers have also turned to educating users about safe practices that make the entire operation trouble free. Recent issues like phishing have been tackled to a good extent by informing genuine users of the perils of publishing their confidential information to unauthorized information seekers.

22 Best Online Shopping Sites in India for 2023:

In 2022, e-commerce has taken India by storm. Every person knows about it. Most of them have a favorite e-commerce website from which they purchase all kinds of products. Online shopping started with clothing at its core and has now expanded into electronics, beauty products, sports items, groceries, furniture, footwear, and every other category you can imagine.
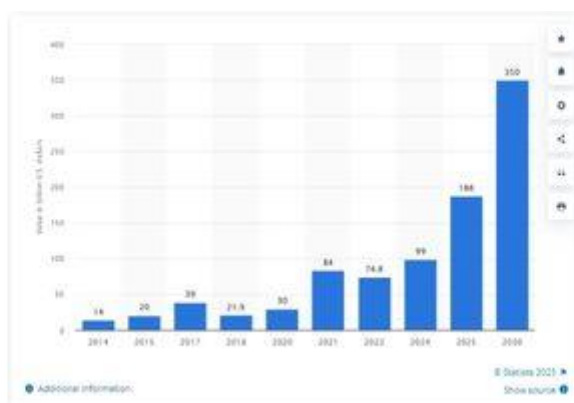
Indian Ecommerce Industry size Graph (Stastica)

The e-commerce market size in India stood at **$84 billion** in **FY21** and is expected to reach a **$350 billion valuation by 2030.** That steep rise will involve major players fighting it out to grab the highest market share. Whatever the future holds, hundreds of online shopping giants are already providing their services in India. Let us talk about some of the top online shopping sites in India that provide a wide range of products at affordable prices.

List of Top 22 Online Shopping Sites in India

Websites	Monthy Site Visitors	Ratings
https://www.amazon.in/	210M	**4.3/5** (glassdoor)
https://www.flipkart.com/	215M	**4.2/5** (glassdoor)
https://www.myntra.com/	51.1M	**4.2/5** (glassdoor)

Websites	Monthy Site Visitors	Ratings
https://www.meesho.com/	23.3M	**3.8/5** (glassdoor)
https://www.ajio.com/	13.7M	**3.5/5** (glassdoor)
https://www.snapdeal.com/	10.8M	**4.2/5** (glassdoor)
https://www.nykaa.com/	8.2M	**3.3/5** (glassdoor)
https://www.jiomart.com/	6.2M	**4.0/5** (AmbitionBox)
https://www.tatacliq.com/	5.7M	**4.2 /5** (Ambition box)
https://www.pepperfry.com/	4.8M	*3.5 /5* (AmbitionBox)
https://www.decathlon.in/	4.2M	*4.0/5* (AmbitionBox)
https://www.bewakoof.com/	2.7M	**3.9 /5** (Ambition box)
https://paytmmall.com/	2.5M	**3.6/5** (ambitionbox)
https://www.lenskart.com/	2.5M	*3.3/5* (AmbitionBox)
http://www.shopsy.in/	2.2M	**2.5/5** (AmbitionBox)
https://www.limeroad.com/	1.9M	**3.7 /5** (glassdoor)
https://www.myglamm.com/	1.3M	*3.5/5* (AmbitionBox)
https://bazaar.shopclues.com/	1.2M	**3.8/5** (glassdoor)

Websites	Monthy Site Visitors	Ratings
https://www.thesouledstore.com/	940K	*3.7 /5* (Ambitionbox)
https://in.urbanic.com/	646K	N/A

1. Amazon India

Amazon is the biggest online shopping platform in the world, and India is no different. With over 295.8M individual visits per month, Amazon serves a large audience to fulfill their daily needs. The website is a one-stop platform for affordable clothing, gadgets, footwear, watches, luggage, décor, groceries, accessories, and much more. Amazon has expanded its reach in India due to its solid logistical network and unique marketing campaigns. The website is not bound to online shopping and has ventured into the entertainment industry through Amazon Prime Video, Amazon Prime Music, Amazon Audible, and Kindle. The platform provides Prime subscription in India at an affordable rate of Rs. 179/month, providing exclusive benefits to subscribers.

Site Insights:

Site Name	Amazon.in
Working Since	22 December 1994
Founder	Jeff Bezos
Ratings	**4.3/5** (glassdoor)
Head Office	**Hyderabad, India**

Average Site Visitors	210M/Monthly (ahrefs.com)
Shipping Areas	All across the India
Site Deals in	e-commerce
App Links	Android & IOS

2. Flipkart

      Founded by Binny and Sachin Bansal in 2007, Flipkart is an Indian-grown online retail platform that truly speaks to the customer's mindset. The website can be associated with the earliest days of online retail and has over 167.4M monthly visitors. The website provides high-quality products at affordable prices in different categories, including clothing, electronics, footwear, groceries, etc. The company has its yearly flagship sale called 'The Big Billion Days' in which it provides branded products to the public at some of the lowest prices on the Internet.

Site Insights:

Site Name	flipkart.com
Working Since	22 December 1994
Founder	Sachin Bansal and Binny Bansal
Ratings	**4.2/5** (glassdoor)

Head Office	Bengaluru, India
Average Site Visitors	215M/Monthly (ahrefs.com)
Shipping Areas	All across the India
Site Deals in	e-commerce
App Links	Android & IOS

3. Myntra

A subsidiary of Flipkart since 2014, Myntra started as a website for personalized gifts in 2007 but quickly developed into a major player in the e-commerce industry. By 2012, Myntra added 350 Indian and foreign brands to its marketplace, which has continued to rise yearly. With its impressive social media following, customer-focused reward program, and irresistible bargains, Myntra currently dominates the online fashion market. The Myntra shopping app was created in 2015 to promote customers' buying binges even more. Myntra offers a wide selection of apparel, accessories, jewelry, and personal care items and is the ultimate shopping destination for fashion and lifestyle. Go through these best deal websites as you shop to earn some extra cashback.

Site Insights:

Site Name	myntra.com
Working Since	2007
Founder	Mukesh Bansal , Vineet Saxena & Ashutosh Lawania
Ratings	**4.2/5** (glassdoor)
Head Office	**Bengaluru, India**
Average Site Visitors	**51.1M**/Monthly (**ahrefs.com**)
Shipping Areas	All across the India
Site Deals in	Fashion e-commerce
App Links	Android & IOS

4. Meesho

Meesho provides shopping choices for anything you want at the lowest prices in the market. The platform has a vast inventory of products ranging from apparel to cosmetics to home utility and kitchen products. With over 50 lakh products and 650+ product categories, Meesho will surely have everything you need.

Site Insights:

Site Name	Meesho.com
Working Since	2015
Founder	Sanjeev Barnwal & Vidit Aatrey
Ratings	**3.8/5** (glassdoor)
Head Office	**Gurgaon, India**
Average Site Visitors	**23.3M**/Monthly **(ahrefs.com)**
Shipping Areas	All across the India
Site Deals in	e-commerce
App Links	Android & IOS

5. Ajio

Ajio is an online fashion and lifestyle retail platform that offers trendy handpicked wardrobe choices at a price never seen before. Founded in 2016, Ajio quickly made a name for itself due to its immersive user experience, unique and fresh shopping choices, and competitive pricing. The company sources its products from many national, international,

and indie brands for men, women, and kids under categories like clothing, footwear, beauty products, and accessories. The website also has an in-house label called 'Ajio Own' that allows indigenous artists to showcase their talent. 'Ajio Luxe' caters to the high-end clients of the website.

Site Insights:

Site Name	ajio.com
Working Since	2016
Founder	**Reliance Retail**
Ratings	**3.5/5** (glassdoor)
Head Office	**Bengaluru, India**
Average Site Visitors	**13.7M**/Monthly (**ahrefs.com**)
Shipping Areas	All across the India
Site Deals in	Fashion e-commerce
App Links	Android & IOS

6. Snapdeal

One of India's top four online lifestyle buying sites, Snapdeal was founded in 2010 by Kunal Bahl and Rohit Bansal. Snapdeal offers a huge selection of high-quality and reasonably priced goods on its site. It aims to make it possible for customers to enjoy the satisfaction of achieving their goals through dependable, cost-effective buying. Powered by third-party logistics, Snapdeal's logistics networks cover more than 96% of India's pin codes and more than 2500 towns and cities.

Site Insights:

Site Name	snapdeal.com
Working Since	**February 2010**
Founder	Kunal Bahl & Rohit Bansal
Ratings	**4.2/5** (glassdoor)
Head Office	Delhi, India
Average Site Visitors	**10.8M**/Monthly **(ahrefs.com)**
Shipping Areas	All across the India

Site Deals in	e-commerce
App Links	Android & IOS

7. Nykaa

Nykaa is an online retail platform that deals exclusively in beauty and self-care products. The company brings all kinds of brands – domestic, luxury, international, premium, niche, etc. Also, it provides expert advice to consumers alongside more than 72 Luxe and On-Trend Kiosk Stores. Nykaa offers a well-curated comprehensive selection of makeup, skincare, haircare, bath and body, fragrance, grooming appliances, personal care, and health and wellness through more than 2400+ 100% authentic brands.

Site Insights:

Site Name	nykaa.com
Working Since	2012
Founder	Falguni Nayar
Ratings	**3.3/5** (glassdoor)
Head Office	**Mumbai , India**

Average Site Visitors	8.2M/Monthly (ahrefs.com)
Shipping Areas	All across the India
Site Deals in	Fashion & Beauty e-commerce
App Links	Android & IOS

8. JioMart

JioMart is Reliance Fresh and Reliance Smart's online grocery channel in India, which makes grocery buying even easier. The platform allows you the convenience of shopping for all of your household needs in one place, including fresh fruits and vegetables, rice, dals, oil, packaged food, dairy products, frozen food, pet food, household cleaning supplies, and personal care items.

Site Insights:

Site Name	https://www.jiomart.com/
Working Since	April 2021
Founder	Mukesh Ambani

Ratings	4.0/5 (AmbitionBox)
Head Office	Mumbai, India
Average Site Visitors	**6.2M**/Monthly **(ahrefs.com)**
Shipping Areas	All across the India
Site Deals in	e-commerce
App Links	Android & IOS

9. TataCliq

TataCliq is an Indian online retail platform with a sleek, immersive design that allows customers to easily navigate between categories and brand stores and helps them buffer through a wide selection of womenswear, menswear, kidswear, footwear, watches, and accessories. Users can also check our great offers and get the best prices on various products across lifestyle, fashion, and more.

Site Insights:

Site Name	tatacliq.com
Working Since	July 2011

Founder	Tata Unistore Limited, of Tata Group
Ratings	**4.2 /5** (Ambition box)
Head Office	Mumbai, Maharashtra
Average Site Visitors	**5.7M**/Monthly **(ahrefs.com)**
Shipping Areas	All across the India
Site Deals in	e-commerce
App Links	Android & IOS

10. Pepperfry

Pepperfry is an online furniture and home décor platform which provides handpicked products, differentiated designs, curated collections, and so much more. Customers can also get free design consultation and solve all their doubts by visiting one of its 60+ stores across India. Pepperfry provides products like Furniture, Mattresses, Furnishings, Wall Accents, Showpieces, Décor, Wall Art, Indoor Plants, Lamps & Lighting, Serveware, Glassware, Tableware, Bath Essentials, and Homeware from brands like Woodsworth, Mintwud, Mudramark, Hometown, Bombay Dyeing, Swayam, Nilkamal, Godrej Interio, Kurlon, etc.

Site Insights:

Site Name	pepperfry.com
Working Since	July 2011
Founder	Ambareesh Murty and Ashish
Ratings	**3.5 /5** (AmbitionBox)
Head Office	Mumbai, India
Average Site Visitors	**4.8M**/Monthly **(ahrefs.com)**
Shipping Areas	All Across the India
Site Deals in	Online Furniture Store
App Links	Android & IOS

11. Decathlon

Through its website and mobile application, Decathlon provides more than 5,000 products suited for a range of 70+ sports. People have a wide selection of play-ready clothing and equipment to pick from. Decathlon covers you no matter what sport you prefer, whether football, running, cycling, fishing, archery, or horseback riding.

Site Insights:

Site Name	decathlon.in
Working Since	1976
Founder	Michel Leclercq
Ratings	**4.0/5** (AmbitionBox)
Head Office	Pune, Maharashtra, *India*
Average Site Visitors	**4.2M**/Monthly **(ahrefs.com)**
Shipping Areas	All Across the India
Site Deals in	Online Sports Store
App Links	Android & IOS

12. Bewakoof

Bewak○○f

Bewakoof is an Indian online shopping platform with a range of 1,00,000+ products. Since 2012, Bewakoof has sold over 2 Crore products under categories like fashion apparel, accessories, mobile covers, beauty, skincare, etc. The brand is known for providing millennial and Gen-Z-appropriate styles and is also the top choice for

merchandising from Disney, Marvel, Star Wars, DC Comics, Money Heist, Anime, and much more.

Site Insights:

Site Name	bewakoof.com
Working Since	1 April 2012
Founder	Siddharth Munot & Prabhkiran Singh
Ratings	**3.9 /5** (Ambition box)
Head Office	Mumbai, Maharashtra
Average Site Visitors	**2.7M**/Monthly **(ahrefs.com)**
Shipping Areas	All across the India
Site Deals in	Fashion e-commerce
App Links	Android & IOS

13. Paytm Mall

A speedy and practical online shopping platform, Paytm Mall provides over 65 million products, including dairy products, baby products, makeup kits, smartphones, tablets, and laptops. You can also find sarees, kurtas & kurtis, t-shirts, sneakers, sports shoes, and sandals. Paytm Mall works hard to make your online shopping experience more pleasurable and affordable by offering the best-quality goods at the lowest prices in India. Additionally, the website provides its users seasonal sales, cashback promotions, and limited-time offers.

Site Insights:

Site Name	Paytmmall.com
Working Since	2016
Founder	Vijay Shekhar Sharma
Ratings	**3.6/5** (ambitionbox)
Head Office	**Gurugram, India**
Average Site Visitors	**2.5M** /Monthly (**ahrefs.com**)
Shipping Areas	All across the India
Site Deals in	e-commerce

14. Lenskart

Founded in 2010, the fastest-growing eyewear company in India is Lenskart. Since then they are transforming the eyewear market in India with a quickly expanding business that reaches out to over 100,000 clients each month through a unique combination of a strong online business, distinctively designed physical storefronts, and a first-of-its-kind "home eye checkup" service. The platform provides all kinds of eyewear – sunglasses, reading glasses, contact lenses, and powered glasses, in hundreds of styles and brands.

Site Insights:

Site Name	lenskart.com
Working Since	2010
Founder	Peyush Bansal
Ratings	*3.3*/**5** (AmbitionBox)
Head Office	Gurugram, India
Average Site Visitors	**2.5M**/Monthly **(ahrefs.com)**
Shipping Areas	All across the India

Site Deals in	Online Eyewear Store
App Links	[Android](#) & [IOS](#)

15. Shopsy

Shopsy is an online retail platform under the umbrella of Flipkart where you can shop for Fashion, Beauty, Mobiles, footwear, and accessories at the best prices. The platform also allows customers to earn money while shopping. The website offers the trendiest items in fashion, the best in mobiles, and top-branded electronics at up to 80% off. Customers can browse over 15 crore product listings on Shopsy and share them with their friends and family members to start earning.

Site Insights:

Site Name	shopsy.in
Working Since	2013
Founder	Lisa Morales-Hellebo
Ratings	**2.5/5** (AmbitionBox)
Head Office	Pune, Maharashtra, *India*

Average Site Visitors	2.2M/Monthly (ahrefs.com)
Shipping Areas	All Across the India
Site Deals in	E-commerce
App Links	Android

16. Limeroad

Limeroad is a curated fashion website providing customers with a mélange of fashion and lifestyle with handpicked curations with exclusive offers and discounts. With over 50 million followers, the platform provides the latest styles and trends in women's, men's, and kids' wear. With over 6,00,000+ products and 10,000+ top brands, Limeroad offers something for everyone at its one-stop fashion app. There is no lack of brands on the platform, which includes names like Aurelia, Globus, Allen Solly, Van Heusen, Peter England, Jockey, Flying Machine, and many more.

Site Insights:

Site Name	limeroad.com
Working Since	2012

Founder	Suchi Mukherjee, Ankush Mehra & Prashant Malik
Ratings	**3.7 /5** (glassdoor)
Head Office	Gurugram, Haryana
Average Site Visitors	**1.9M**/Monthly (**ahrefs.com**)
Shipping Areas	All across the India
Site Deals in	Fashion e-commerce
App Links	Android & IOS

17. MyGlamm

MyGlamm is a beauty & makeup products online store with premium makeup products that cater to Indian skin tones & needs. Products to stylize and take care of your lips, face, nails, eyes, skin, and hair are available on the website at the most affordable prices. MyGlamm features collections from top brands and artists like Manish Malhotra, Superfoods, POSE HD Makeup, LIT, GLOW, YOUTHfull, POPxo etc.

Site Insights:

Site Name	myglamm.com
Working Since	2015
Founder	Priyanka Gill
Ratings	*3.5*/**5** (AmbitionBox)
Head Office	Noida, Uttar Pradesh, India
Average Site Visitors	**1.3M**/Monthly **(ahrefs.com)**
Shipping Areas	All across the India
Site Deals in	Online Beauty Store
App Links	Android & IOS

18. ShopClues

An Indian e-commerce platform, ShopClues, was created in 2011 as a low-cost online market in India. As India's first & largest fully managed marketplace, the weekly properties of ShopClues Bazaar—Sunday Flea Market, Refreshing Monday Sale, Triple

Value Friday Sale, and Wednesday Brand Bazaar—bring the experience of India's flea markets online. NRH (National Regional Heritage), another original ShopClues concept, offers an inexpensive glimpse into India's Cultural Gullies.

Site Insights:

Site Name	bazaar.shopclues.com
Working Since	July 2011
Founder	Radhika Aggarwal, Sanjay Sethi & Sandeep Aggarwal
Ratings	**3.8/5** (glassdoor)
Head Office	**Bengaluru , India**
Average Site Visitors	**1.2M**/Monthly **(ahrefs.com)**
Shipping Areas	All across the India
Site Deals in	e-commerce
App Links	Android & IOS

19. The Souled Store

Another Indian-based online retailer**,** TheSouledStore, crafts and curates amazing designs that are printed on a variety of equally stunning products, including t-shirts, phone cases, backpacks, boxers, mugs, socks, badges, pins, hoodies, and more. The quirky items on the website are created and produced to spread joy to your "soul." The marketplace promotes fandom by offering licensed apparel for Hollywood films, TV shows, sports teams, comedians, and singers, with a large selection of graphic designs on various product types.

Site Insights:

Site Name	thesouledstore.com
Working Since	2013
Founder	Harsh Lal
Ratings	*3.7* **/5** (Ambitionbox)
Head Office	Mumbai, Maharashtra, India
Average Site Visitors	**940K**/Monthly **(ahrefs.com)**

Shipping Areas	All across the India
Site Deals in	Fashion e-commerce
App Links	Android & IOS

20. Urbanic

URBANIC

A fashion retailer based out of London, Urbanic provides women's apparel and accessories at excellent prices. Customers can browse their extensive selection of items, which includes tops, dresses, bottoms, beachwear, activewear, and accessories for people of all sizes and shapes. By offering runway-inspired fashions at reasonable rates with uncompromised quality, the brand hopes to alter the game. Urbanic takes a more ethical approach to quick fashion by using cutting-edge technology and a digitalized supply chain.

Site Insights:

Site Name	in.urbanic.com
Working Since	2010
Average Site Visitors	**646K**/Monthly **(ahrefs.com)**
Shipping Areas	All across the India
Site Deals in	Online Fashion Store
App Links	Android & IOS

UNIT – II

APPLICATION OF E-COMMERCE

The Basics of E-Commerce

By definition, e-commerce or electronic commerce, is the activity electronically buying or selling of products on online services or over the Internet. Electronic commerce draws on technologies such as mobile commerce, electronic funds transfer, supply chain management, Internet marketing, online transaction processing, electronic data interchange (EDI), inventory management systems, and automated data collection systems. E-commerce is in turn driven by the technological advances of the semiconductor industry, and is the largest sector of the electronics industry. Let's see the evolution of e-commerce.

Definition of E-Commerce:

Sharing business information, maintaining business relationships and conducting business transactions using computers connected to telecommunication network is called E-Commerce.

E-commerce is a process of buying and selling of products and services by businesses and consumers through an electronic medium, without using paper documents. E-commerce is widely considered the buying and selling of products over the internet.

APPLICATIONS OF E-COMMERCE:

The applications of E-commerce are used in various business areas such as retail and wholesale and manufacturing. The most common E-commerce applications are as follows:

1. **Online marketing and purchasing**
2. **Retail and wholesale**
3. **Finance**
4. **Manufacturing**
5. **Online Auction**

6. **E-Banking**

7. **Online publishing**

8. **Online booking (ticket, seat.etc)**

Online marketing and purchasing

Data collection about customer behavior, preferences, needs and buying patterns is possible through Web and E-commerce. This helps marketing activities such as price fixation, negotiation, product feature enhancement and relationship with the customer.

Retail and wholesale:

E-commerce has a number of applications in retail and wholesale. E-retailing or on-line retailing is the selling of goods from Business-to-Consumer through electronic

storesthat are designed using the electronic catalog and shopping cart model. Cybermall is a single Website that offers different products and services at one Internet location. It attracts the customer and the seller into one virtual space through a Web browser.

Finance:

Financial companies are using E-commerce to a large extent. Customers can check the balances of their savings and loan accounts, transfer money to their other account and pay their bill through on-line banking or E-banking. Another application of E-commerce is on-line stock trading. Many Websites provide access to news, charts, information about company profile and analyst rating on the stocks.

Manufacturing:

E-commerce is also used in the supply chain operations of a company. Some companies form an electronic exchange by providing together buy and sell goods, trade market information and run back office information such as inventory control. This speeds up the flow of raw material and finished goods among the members of the business community. Various issues related to the strategic and competitive issues limit the implementation of the business models. Companies may not trust their competitors and may fear that they will lose trade secrets if they participate in mass electronic exchanges.

Auctions:

Customer-to-Customer E-commerce is direct selling of goods and services among customers. It also includes electronic auctions that involve bidding. Bidding is a special type of auction that allows prospective buyers to bid for an item. For example, airline companies give the customer an opportunity to quote the price for a seat on a specific route on the specified date and time.

E-Banking:

E-BANKING

Online banking or E- banking is an electronic payment system that enables customers of a financial institution to conduct financial transactions on a website operated by the institution, Online banking is also referred as internet banking, e-banking, virtual banking and by other terms.

Online publishing:

Electronic publishing (also referred to as e-publishing or digital publishing) includes the digital publication of e-books, digital magazines, and the development of digital libraries and catalogs.

Online booking (ticket, seat.etc)

An **Internet booking engine** (IBE) is an application which helps the travel and tourism industry support reservation through the Internet. It helps consumers to book flights, hotels, holiday packages, insurance and other services online. This is a much needed application for the aviation industry as it has become one of the fastest growing sales channels.

Types of eCommerce

Ecommerce is used in various business fields; the major categories of ecommerce are:

⇒ **Business-to-Business (B2B)**

B2B is e-commerce representing electronic exchange of products, services and information between businesses. It is expected that the B2B e-commerce market would reach $1.1 trillion in the U.S.in the upcoming years. Some of the B2B e-commerce applications are product and supply exchange websites, online directories, that feature an option to search for particular products and services and thus initiate payment transactions within.

⇒ **Business-to-Consumer (B2C)**

B2C is the retail part of e-commerce where businesses sell products, services and information directly to its customers online. B2C was introduced in the late 90s which revolutionized the retail system from then. Now the B2C market comprises all sorts of consumer goods including many virtual stores and online shopping platforms where Amazon or flipkart leading the markets with domination and valuable customers.

⇒ **Consumer-to-Consumer (C2C)**

It is a type of e-commerce where consumers could trade their products or services with each other online. The transactions are carried out through third party online platforms. C2C e commerce consists of classified advertisements and online auctions like the popular eBay and Craigslist. These types of businesses are also known as C2B2C or consumer-to-business-to-consumer.

⇒ **Consumer-to-Business (C2B)**

C2B is that type of e-commerce in which the consumer builds their products and services, making it available online for businesses to bid on and

purchase. The most popular example of C2B platform is an online market which sells everything for free like the iStock and Job Board. C2B e-commerce is moreover said to be an opposite kind of traditional commerce B2C model.

$\Rightarrow$ **Business-to-Administration (B2A)**

This kind of e-commerce platform enables online payment transactions between companies and administration or government bodies. Many government authorities depend on e services or products directly or indirectly. Businesses offer supply of e documents, registers, security, etc. electronically which has a tremendous growth in the recent years.

$\Rightarrow$ **Consumer-to-Administration (C2A)**

C2A e-commerce refers to transactions conducted between individual customers and public administration or government authorities. Unlike government authorities, consumers make use of e-commerce and methods to make transactions for various industries including educational, health, retail industries.

B2B Module

B2B business model sells its products to an intermediate buyer who then sells the products to the final customer. As an example, a wholesaler places an order from a company's website and after receiving the consignment, it sells the endproduct to the final customer who comes to buy the product at the wholesaler's retail outlet.

Business Organization

Supplies

Order Processing

Wholesaler

Orders

Website

Sells

Customer
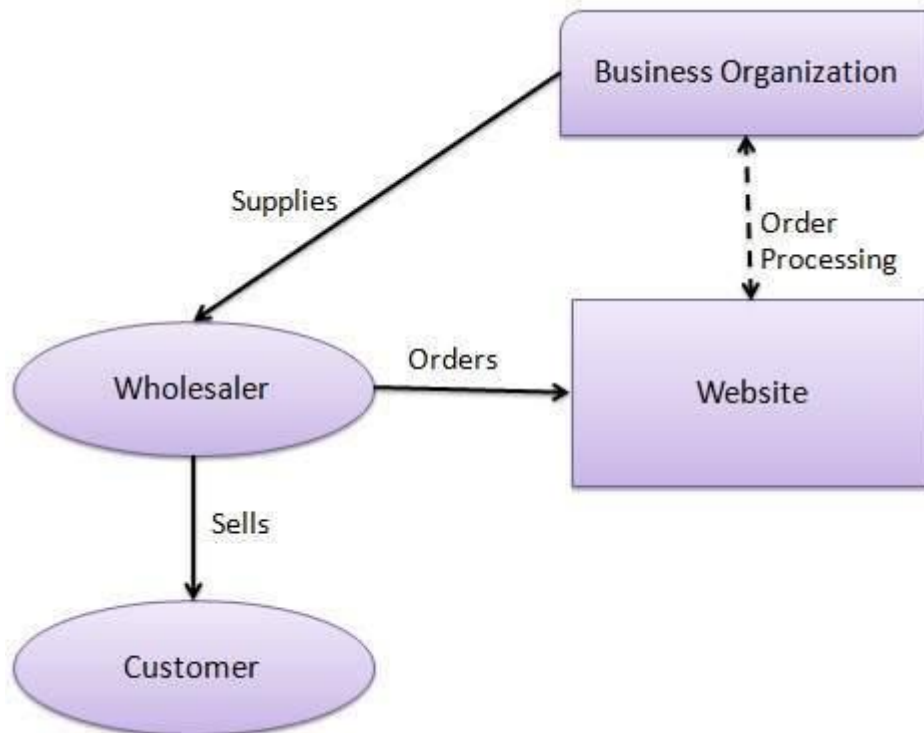
B2B identifies both the seller as well as the buyer as business entities. B2B covers a large number of applications, which enables business to form relationships with their distributors, re-sellers, suppliers, etc. Following are the leading items in B2B eCommerce.

- Electronics
- Shipping and Warehousing
- Motor Vehicles
- Petrochemicals
- Paper
- Office products
- Food
- Agriculture

Key Technologies

Following are the key technologies used in B2B e-commerce -

- **Electronic Data Interchange (EDI)** - EDI is an inter-organizational exchange of business documents in a structured and machine processable format.

- **Internet** - Internet represents the World Wide Web or the network of networks connecting computers across the world.
- **Intranet** - Intranet represents a dedicated network of computers within a single organization.
- **Extranet** - Extranet represents a network where the outside business partners, suppliers, or customers can have a limited access to a portion of enterprise intranet/network.
- **Back-End Information System Integration** - Back-end information systems are database management systems used to manage the business data.

Architectural Models

Following are the architectural models in B2B e-commerce -

- **Supplier Oriented marketplace** - In this type of model, a common marketplace provided by supplier is used by both individual customers as well as business users. A supplier offers an e-stores for sales promotion.
- **Buyer Oriented marketplace** - In this type of model, buyer has his/her own market place or e-market. He invites suppliers to bid on product's catalog. A Buyer company opens a bidding site.
- **Intermediary Oriented marketplace** - In this type of model, an intermediary company runs a market place where business buyers and sellers can transact with each other.

B2B Module Advantages

There are many benefits in B2B ecommerce businesses. Some of the advantages of business to business e commerce are the following:

Efficiency

Enterprise Resource Planning (ERP) is a trend for B2B commerce that has led to efficiency in the operations of a business. Customers can order goods online and reach customer care at their convenience. Customer care service improves the shipping process and also the company gets to know customer complaints so that it can rectify.

Better Scale

In a B2B model, a business has a higher chance of gaining more market. The market demands more for a B2B model in which a business can achieve by coming up with new sales channels. Also, through an online advert, a B2B model can reach more potential customers.

Lower Costs

Growing sales while reducing costs seem impossible, but it is the case with B2B commerce. There are lower costs since all the processes are automated. Automation gets rid of errors and unforeseen expenditures. B2B commerce heavily relies on the use of technology, thereby reducing the cost of labor. This finally leads to the provision of excellent services through customer care service.

Increase in Sales

With e-commerce, you not only get new customers, but you also get mew recommendations. For this cause, customers are likely to purchase related products with the same features as those of B2B models.

Acquire New Markets

B2B commerce can reach a wider market exclusive of the market that is already in existence. This is because B2B models can sell to both consumers and resellers. It is also possible to sell to both online and direct customers, thereby increasing its market.

Market Predictability

Unlike other markets, the B2B model has a more stable market. It can also adapt to various conditions within the market. This is important in acquiring more potential customers and resellers. For this reason, it is easy to predict how the market will be in the future based on sales records.

Data-Centric Process

B2B model heavily relies on facts and figures streamlining the whole process. With data, it is possible to forecast and even calculate the sales statistics. The use of factual data eliminates errors and frauds in business processes.

Sell Direct to Consumers

In the B2B model, a business can opt to sell its products to direct consumers. Improved operations make the process efficient and easier. You can structure your catalog so that it can accommodate consumers. To do so, digital marketing and online merchandising are important.

Disadvantages of B2B Ecommerce

Just like any other model, even the B2B model has its flaws. These are some of B2B disadvantages.

Limited Market

A B2B model usually has a smaller market compared to the B2C model since it deals with trade between businesses. Normally, there are many consumers than retailers and this makes the B2B model's market smaller. This makes it a risky business, especially for small and medium B2B businesses.

Lengthy Decision-Making Process

Unlike the B2C model, where the consumer doesn't have to consult anyone to make a purchase, B2B models strictly follow a chain of command. All the stakeholders must be consulted before the final decision is made.

Inverted Structure

In B2B models, the buyers have more power in determining the price and features of a product. This is because sellers want to retain their customers; hence they must maintain flexibility in product development. This is unlike B2C commerce, where the price and features of a product heavily depend on the seller.

B2C Model

In B2C model, a business website is a place where all the transactions take place directly between a business organization and a consumer.
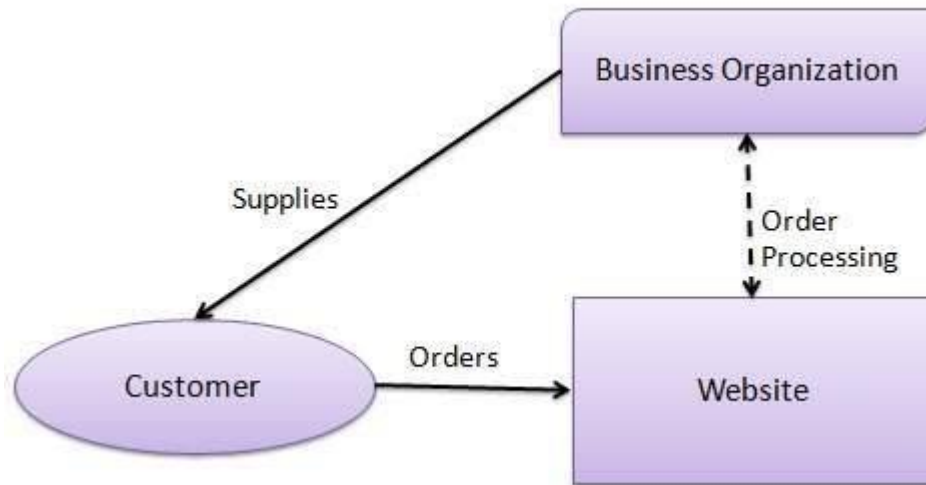
In the B2C model, a consumer goes to the website, selects a catalog, orders the catalog, and an email is sent to the business organization. After receiving the order, goods are dispatched to the customer. Following are the key features of the B2C model −

- Heavy advertising required to attract customers.
- High investments in terms of hardware/software.
- Support or good customer care service.

Consumer Shopping Procedure

Following are the steps used in B2C e-commerce −

A consumer −

- determines the requirement.
- searches available items on the website meeting the requirment.
- compares similar items for price, delivery date or any other terms.
- places the order.
- pays the bill.
- receives the delivered item and review/inspect them.
- consults the vendor to get after service support or returns the product if not satisfied with the delivered product.

Disintermediation and Re-intermediation

In traditional commerce, there are intermediating agents like wholesalers, distributors, and retailers between the manufacturer and the consumer. In B2C websites, a manufacturer can sell its products directly to potential consumers. This process of removal of business layers responsible for intermediary functions is called **disintermediation**.

Traditional Distribution System   Direct Marketing System
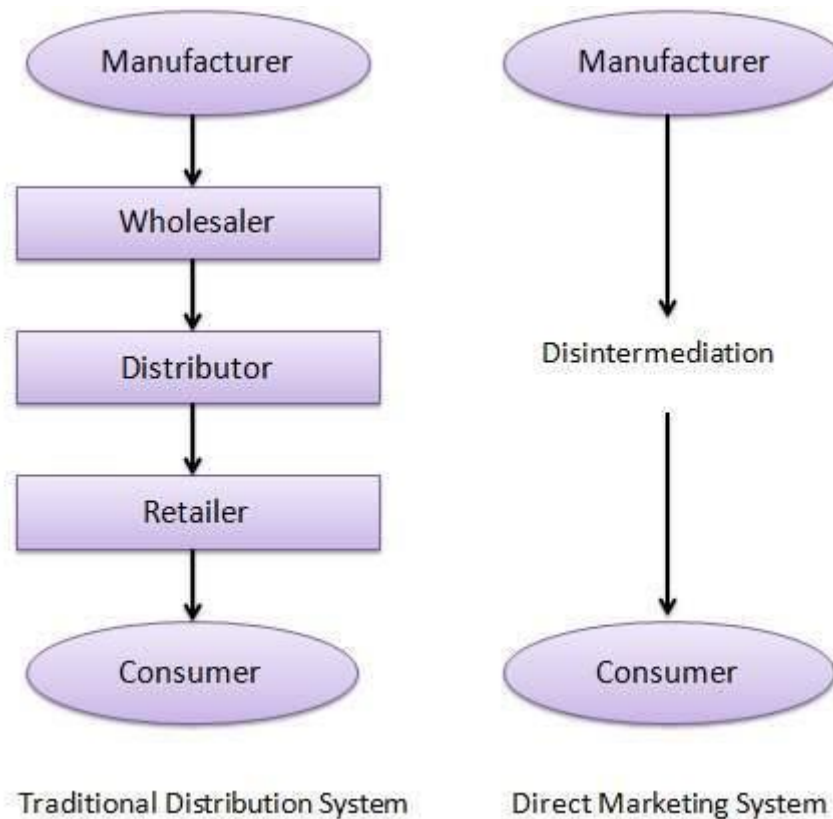
Nowadays, new electronic intermediary breeds such as e-mall and product selection agents are emerging. This process of shifting of business layers responsible for intermediary functions from traditional to electronic mediums is called **re-intermediation**.
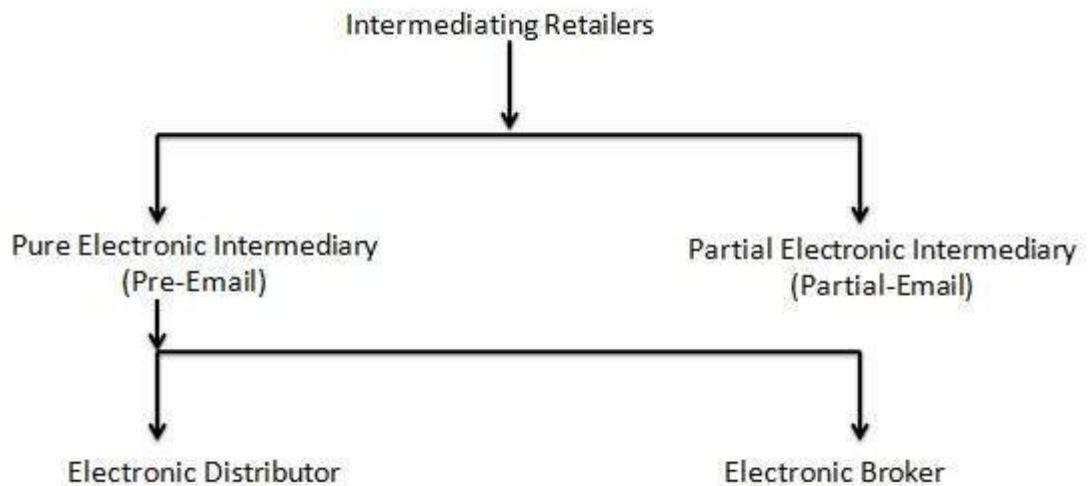
Advantages of the B2C eCommerce

The following are some of the top advantages of the B2C eCommerce:

1. The inflexibility of the catalog

The direct "link" has the potential to display content data and other visual elements that are already prevalent on websites owned by a variety of clients. You no need to beg the marketing consultancy agency.

2. Shrinks Competition Gap

The low cost of marketing and advertising creates opportunities for us to compete with well-known enterprises in terms of the cost, quality, and accessibility of the items.

3. Unlimited Market Place

By allowing customers to browse and shop at their convenience, it displays an unlimited market. Online stores no more need a marketing consultancy agency.

4. 24-Hour Store with a Shorter Sale Cycle

There is no need to send lengthy emails or place an excessive number of phone calls.

5. Lower Cost of Business

The B2C model has decreased the cost of doing business across a range of areas, including hiring staff, purchasing expenses, mailing confirmations, telephone conversations, clerical work, and the need to open physical locations.

6. Eliminating Third Party Clients

We are free to sell our items straight to clients without engaging any third parties in the transaction.

7. Business Administration Made Simpler

Compared to the conventional methods of business administration, it has become simpler to record store inventories, shipments, logs, and all other business operations.

Disadvantages of the B2C eCommerce

The following are some of the top disadvantages of the B2C eCommerce:

1. Lack of Catalog Flexibility

However, it's crucial to rearrange the catalog after adding new data and merchandise, correspondingly.

2. Infrastructure

Even though it has a huge customer reach and overcomes cultural boundaries by addressing everyone on the same channel, the truth still stands.

3. Competition

Since there are thousands of online stores and services, the rivalry is indeed fierce and could jeopardize our company's consumer base. Some online stores have been able to keep a sizable portion of the market, allowing them an opportunity to endure over time.

4. Product Exposure Limits

It is important to note that e-commerce has limited the amount of product exposure available to purchasers online, although it provides them with easy accessibility and a special degree of product customization.

5. Entering a Cut-Throat Competition

Without conducting market research and B2C Campaigns, many people are influenced to launch a B2c e-commerce business. As a result, they begin to cater to the market or special segment where numerous e-commerce companies are already created to serve the public.

6. Shipping Charges

Whether you sell in large or little quantities, transportation fees are a reality. Additionally, clients demand free shipping in the modern e-commerce industry.

7. Security Concerns

The transactional data from your site can be hacked by a lot of cybercriminals. After that, they are free to use someone else's name to purchase anything they want.

Conclusion

The above advantages and disadvantages of B2C eCommerce help you in understanding the establishment of the B2C eCommerce business in detail. So, write up your business plan while considering all of the above opportunities and challenges.

B2B vs. B2C - Comparative Table

Particular	B2B	B2C
Definition	B2B is business-to-business, where the transaction occurs between businesses or companies.	B2C is business-to-consumer, where the transaction occurs between a business and a consumer.
End-user	Several businesses or companies purchase products or services for their work-related activities.	Consumers often purchase products or services to satisfy their needs and wants.
Offerings	Manufactured materials, raw materials, components parts, assemblies, etc.	Final goods or consumer goods.
Aim	To provide other businesses with products and services related to their work.	To provide products and services that satisfy human needs and wants.
Focus	Focus on building strong and good business relationships with clients and other businesses	Focus on building a strong customer base
Function	B2B companies sell their products or services to another company.	B2C companies sell their products or services to individual consumers.
Size	Large quantity of orders	Small quantity of orders
Example	Law Firms	Gas stations

FINANCE STRATEGISTS

C2C Modules

Customer to customer (C2C) is a business model whereby customers can trade with each other, typically in an online environment. Two implementations of C2C markets are auctions and classified advertisements. C2C marketing has soared in popularity with the arrival of the internet and companies such as eBay, Etsy, and Craigslist.

C2C represents a market environment where one customer purchases goods from another customer using a third-party business or platform to facilitate the transaction. C2C companies are a type of business model that emerged with e-commerce technology and the sharing economy.

Customers benefit from the competition for products and often find items that are difficult to locate elsewhere. Also, margins can be higher than traditional pricing methods for sellers because there are minimal costs due to the absence of retailers or wholesalers. C2C sites are convenient because there is no need to visit a brick-and-mortar store. Sellers list their products online, and the buyers come to them.

Advantages of C2C eCommerce for Sellers

The C2C eCommerce business model is especially preferred among smaller, individual sellers without an established brand or business entity. Below are the several advantages offered by C2C eCommerce:

- **Increased Profitability** – In the C2C eCommerce business model, there are no intermediaries involved. This lowers the cost of the product or service being offered, which increases profitability. C2C sellers do not need to worry about extra costs associated with the rent of a physical store, staff salaries, website hosting, marketing, or use of third parties for product distribution. The C2C eCommerce marketplace facilitates direct communication and transactions between the seller and the buyer, without hidden costs.

- **Increased Customer Base** – With a brick and mortar store, the number of visitors and potential customers walking in (physically or electronically) depends on chance, shop proximity or convenience, adequate promotion, marketing, and customer loyalty. However, with a C2C eCommerce marketplace "stall," the probability of getting visits and transactions is much higher, as visitors go to that platform to look for the specific products and services offered there. In addition, the online aspect of the C2C eCommerce marketplace means that your products and services are accessible to a worldwide audience, thus increasing the number of chances for conversion.

- **Credibility** – Oftentimes, sellers who choose to sell their products or services on a C2C platform do not yet have the credibility of a well-known seller or the ability to sustain their own eCommerce platform. Therefore, utilizing space on an existing C2C eCommerce platform will lift the burden of creating and sustaining their own platform, and provide credibility for the seller under the "umbrella" of the C2C platform (depending on the platform's policies and ability for background checks).

Disadvantages of C2C eCommerce for Sellers

When considering the C2C eCommerce business model, it is important to know the disadvantages as well as the advantages. Let's now go over the cons of this online shopping business model together, so you can make the best choice for you.

- **Competition** – Being in a marketplace where many sellers are providing a similar product or service can be daunting for some sellers or business owners, especially when they must compete with products and services of lower price, better reviews, or higher quality.
- **Payment Issues** – Depending on the marketplace platform provider, there may or may not be a guarantee of payment for the transactions made. There have been complaints from C2C eCommerce sellers that customers have scammed them, and depending on the platform's policy, it might be difficult to dispute and resolve the issue.
- **Platform Fees** – Some platform providers might charge sellers (and occasionally buyers) for the use of the platform, on a standard, reoccurring fee, or a profit percentage basis.

Advantages of C2C eCommerce for Buyers

The distinct pros of C2C eCommerce for buyers help ensure a high level of satisfaction with their purchases.

- **Lower Prices** – Given that sellers can avoid the costs of intermediaries, the offered products and services can be more affordable for buyers.
- **Abundance of Choice** – Having many sellers offering specific products or services gathered in the same virtual space means more options for potential buyers to choose from. Criteria such as quality, price, customization, delivery method, time, regular supply, and so on, can be prioritized to find what's best for the buyer. Buyers have the ability to find

exactly what they are looking for, which boosts satisfaction and the feeling that they are getting their money's worth.

- **Faster Service** – The abundance of choice gathered on one platform and the absence of intermediaries can lead to faster transactions, streamlining the service and saving time.
- **Security** – Depending on the policy of the platform, security measures and background checks may be implemented to protect buyers from potential scammers acting as sellers.

Disadvantages of C2C eCommerce for Buyers

Though the advantages of this eCommerce business model often equate to great experiences, there is a notable drawback that buyers should be aware of when engaging in C2C eCommerce.

- **Issues with Sellers** – Many platforms do their best to protect their customers (on both sides), but issues may arise with the quality of products, payment handling, delivery, or communication between the parties involved, which can be a burden to buyers.

Electronic Retailing (E-tailing)

Electronic retailing (E-tailing) is the sale of goods and services through the internet. E-tailing can include business-to-business (B2B) and business-to-consumer (B2C) sales of products and services.

E-tailing requires companies to tailor their business models to capture internet sales, which can include building out distribution channels such as warehouses, internet webpages, and product shipping centers.

Notably, strong distribution channels are critical to electronic retailing as these are the avenues that move the product to the customer.

How Electronic Retailing (E-tailing) Works

Electronic retailing includes a broad range of companies and industries. However, there are similarities between most e-tailing companies that include an engaging website,

online marketing strategy, efficient distribution of products or services, and customer data analytics.

Successful e-tailing requires strong <u>branding</u>. Websites must be engaging, easily navigable, and regularly updated to meet consumers' changing demands. Products and services need to stand out from competitors' offerings and add value to consumers' lives. Also, a company's offerings must be competitively priced so that consumers do not favor one business over another just for price reasons.

E-tailers need distribution networks that are prompt and efficient. Consumers cannot wait for long periods for the delivery of products or services. Transparency in business practices is also important, so consumers trust and stay loyal to a company.

There are many ways companies can earn revenue online. Of course, the first income source is through the sales of their product to consumers or businesses. Both B2C and B2B companies can earn <u>revenue</u> by selling their services through a <u>subscription-based model</u> such as Netflix (<u>NFLX</u>), which charges a monthly fee for access to media content.

Types of Electronic Retailing (E-tailing)

Business-to-Consumer (B2C) E-Tailing

Business-to-consumer retailing is the most common of all <u>e-commerce</u> companies and the most familiar to most Internet users. This group of retailers includes companies selling finished goods or products to consumers online directly through their websites. The products could be shipped and delivered from the company's warehouse or directly from the manufacturer. One of the primary requirements of a successful B2C retailer is maintaining good customer relations.

Business-to-Business (B2B) E-tailing

Business-to-business retailing involves companies that sell to other companies. Such retailers include consultants, software developers, freelancers, and <u>wholesalers</u>. Wholesalers sell their products in bulk from their manufacturing plants to businesses.

These businesses, in turn, sell those products to consumers. In other words, a B2B company such as a wholesaler might sell products to a B2C company.

Advantages of E-Retailing

E-Retailing, either as an extension of the existing retail/distribution business or an altogether new start-up, has many advantages. Traditional brick-store retailers are placing more emphasis on their electronic channels and evolving into multi-channel retailers to increase their reach and support their retail channels. The new start-ups in e-retailing can be launched from a small room with one PC attached with the outside world through the Internet.

1. The electronic channel gives the existing brick-store retailers an opportunity to reach new markets.
2. For the existing retailers, it is an extension to leverage their skills and grow revenues and profits without creating an altogether new business.
3. E-Retailing overcomes some limitations of the traditional formats, for instance the customers can shop from the comfort of their homes.
4. The e-commerce software that also traces the customers activities on the Net enables e-retailers to gain valuable insights into their customers shopping behaviour.
5. The e-retail channels transcend all barriers of time and space. The retailers server must be on 24*7. An order can come from any customer living any place at any time of the day.
6. E-Commerce channels are definitely efficient and retailers do not have to pay a heavy price for brick-n-mortar shops in costly shopping malls.

Challenges of E-Retailing

1. Unproven Business Models

In the formative years of dot-com era, most of the businesses on the Net were experiments in new areas and did not provide enduring sources of profit. This was the primary reason behind closing down of 90 per cent of the purely e-commerce companies in the beginning of this century. Today, dot-com businesses have matured a little. Still some of the businesses are at experimental level and do not guarantee regular revenue.

2. Requirement to Change Business Process

The process of procurement, storage and logistics in e-businesses is different from that in traditional brick-store businesses. The e-retail organization has to carefully redesign and integrate various processes to suit the new e-business. Traditional sections of departments and management hierarchy may pose hindrances and bottlenecks in the process of order processing and shipments, for example, the traditional business may require the goods to be present at the warehouse and inspected before being shipped to the customer, but in electronic retailing, shipping of goods from one place to another to a customer would not be possible. The retailer may appoint a local supplier at the city where the customer resides and instruct the supplier to deliver the goods. This would require by passing certain business rules and a lot of faith on the local supplier. It would require business confidence that the supplier would follow the instructions and deliver the same product in good quantity and perfect quality. Merchandise planning and demand analysis is also difficult in e-retailing, as compared to traditional retail businesses.

3. Channel Conflicts

Companies selling through the Internet as well as through brick stores may find their interest conflicting at many places. In electronic storefront orders, the goods directly reach the end-consumer and so the distributors and sellers may feel the threat to their existence. Most of the time, it is seen that retailers tend to reduce price over the Net. The sale at the brick store may store may drop because the retailer may tend to sell more through the Internet as a result of reduction of prices.

4. Legal Issues

Proper laws have not yet evolved for Internet based transactions. Validity of e-mails, digital signatures and application of copyright laws is being checked by various government authorities. E-mail and digital signatures are now being recognized as valid for any legal purpose. Value Added Tax (VAT) is yet another area that creates problems. Taxes on goods and services are still an issue. Since the taxes are levied and

shared by multiple government agencies at local, state or federal level, there are no clear rules to guide retailers on that. In e-retailing, the place of billing, the place of dispatch of goods and the place of delivery all differ. If these three places fall in different jurisdictions of governments, levy and submission of taxes would be a problem.

5. Security and Privacy

Security is one of the major challenges in the digital world. Despite a lot of security arrangements, such as passwords and firewalls, we come across the news of website hacking and data pilferages. The Internet being on public domain is more susceptible to unauthorized peeping. People are wary of divulging information regarding their credit cards and personal details on the Net because they can be misused. Cyber criminals have exploited the Internet weaknesses and have broken into computer systems, retrieving passwords and banking information. Security of payment gateway is a major concern, which has to be taken care of by the retailer by putting up proper security layers.

Conclusion

Finally, to conclude that e-retailing isnt just about building a pretty website. An established management consulting firm will bring in the requisite skills to evaluate business plan, check out revenue models, help identify alliances and integrate supply chain processes with e-commerce initiatives.

The process of Electronic shopping

E-commerce is the process of selling goods and services over the internet. Customers come to the website or online marketplace and purchase products using electronic payments. Upon receiving the money, the merchant ships the goods or provides the service.

How does e-commerce work?

E-commerce works on the same principles as a physical store. Customers come into your e-commerce store, browse products and make a purchase. The big difference is they don't have to get off their couch to do so, and your customer base isn't limited to a specific geographic area or region.

Whether you're selling running shoes or home supplies, you go through the same process when operating an e-commerce website:

1. **Accept the order.** The customer places an order on your website or e-commerce platform. You'll be alerted that an order was placed.
2. **Process the order.** Next, the payment is processed, the sale is logged, and the order is marked complete. Payment transactions are usually processed through what is known as a payment gateway; think of it as the online equivalent of your cash register.
3. **Ship the order.** The last step in the e-commerce process is shipment. You have to ensure prompt delivery if you want repeat customers. Thanks to Amazon, consumers are used to getting items within two days.

To show how it works in action, here's a look at a product's journey when it is purchased online:

1. A customer visits your online shop and browses your products. She settles on a shirt. She chooses the size and color and adds it to the shopping cart.
2. An order manager or order management software confirms the product is in stock.
3. If the product is available and the customer is ready to check out, she enters her payment card details and shipping information on your payment form or page.
4. The payment processor, typically a bank, confirms the customer has enough cash in the bank or enough credit on her card to complete the transaction.
5. The customer gets a message on the website that the transaction went through. This all happens in seconds.
6. The order is dispatched from the warehouse and shipped. The customer will receive an email that the product is out for delivery.
7. The order is delivered, and the transaction is complete.

What are the pros and cons of operating an e-commerce business?

Pros of running an e-commerce business

There were lots of reasons to start an online retail business before the pandemic, and there are even more now. Here are seven of the big ones.

1. **It has fewer overhead costs than a physical store.** A big expense of running a retail business is the physical storefront. That means money spent on rent, utilities and other such needs. All of that goes away when you operate an e-commerce store. There is no rent to pay. You don't have to worry about keeping the lights on, nor do you have to pay to have the lawn mowed or the walkways shoveled.

2. **You can operate 24/7 with no staff.** The internet doesn't have store hours. It is up 24/7, and so is your e-commerce business. Unlike a physical store with set hours, your site can accept orders whenever your customers are ready to buy, which can drive more business. If you use software to automate most of the process, you won't need to hire an ordering manager to work the night shift.

3. **Your business can scale on the fly.** There are physical limits to how many products you can stock when you operate a brick-and-mortar store – you only have so much shelf space. There are no such limits with e-commerce; you can add and remove products as you see fit.

4. **You can reach more customers.** Your business may be in New York, but you can sell to customers in California if your store is online. "E-commerce changes the game for small business," said Ben Richmond, U.S. country manager at Xero. "It doesn't matter if you're in a city or in a small regional town – e-commerce gives you the opportunity to live where you want and sell into many markets."

5. **It's easy to track your sales and shipments.** Logistics are make-or-break for e-commerce companies. Thanks to the digital nature of e-commerce, it's easy to track sales and shipments. The benefit of having this information in real time is that it allows you to quickly identify and rectify any snafus.

6. **It compiles customer data.** When you sell products online, you capture a lot of customer data, from addresses to emails. You can also glean information about their purchasing preferences. You can use these insights to target loyal customers with promotions and discounts.

7. **It's pandemic-proof.** While brick-and-mortar businesses were forced to close their doors amid the pandemic, online businesses were able to stay open. As a result, consumers have shifted their shopping habits, making it a necessity for every retailer to run an online store. "I strongly believe that with COVID-19, the pros of running an e-commerce business outweigh the cons," Richmond said. "As more consumers are shifting their spending from visiting brick-and-mortar stores to online shopping, businesses need to shift too."

Cons of running an e-commerce business

Though e-commerce has many benefits, it's not without its challenges. Here are six to consider before you decide if an e-commerce business is right for you.

1. **You can't reach everyone.** Even amid the pandemic, there are still consumers who simply don't like shopping online; they want to see and touch products before they buy, and they are afraid of online fraud. According to Oberlo, 2.05 billion people are projected to shop online in 2020 – but that's out of the 7.8 billion people worldwide, making it approximately 26%.

2. **Data and credit card fraud are rampant.** One of the biggest problems with e-commerce is the risk of fraud. Credit card and identity theft are commonplace, affecting thousands of consumers annually. If hackers breach your network and steal sensitive customer information, it could cause irreparable damage. On average, a cyberattack costs a business $200,000, and 60% of businesses shutter within six months of the incident.

3. **Customers abandon their shopping carts.** E-commerce makes it easier for customers to window-shop with little intention of buying. Shopping cart abandonment impacts a high percentage of online sales.

4. **There are costs for doing business online.** You may not have the overhead physical retailers have, but there still costs to consider, such as website hosting and/or e-commerce platform fees, internet service costs, social media marketing, inventory management, and storage and shipping. Like any other business owner, you must also consider applicable taxes, business licenses and regulations.

5. **E-commerce is a cutthroat business.** You aren't the first person to sell a product or service online; depending on your industry, you may have many competitors with identical or very similar products. Since many consumers shop based on price and expect to find good deals on the internet, you may find yourself in a race to the bottom.

6. **Customers want fast, free shipping.** Physical retailers don't have to worry about packaging and shipping their products. An online retailer does. Amazon has taught customers to expect not only two-day shipping, but also free shipping – which you may not be able to afford to offer.

Electronic catalogs in ecommerce

Many industries rely on their product catalogs. Print catalogs have always been an essential marketing tool for commerce both in B2B or B2C spheres. However, global ecommerce is evolving, and more and more people are buying online. This creates a challenge for a lot of industries because they're used to operating with print catalogs, and thus it's difficult for them to keep up with trends.

Let's take a closer look at the role digital catalogs play in ecommerce.

Ecommerce Digital Catalog

A digital catalog is an online document that showcases your products or services, can be accessed as a direct link, and is easy to navigate around. It's the key to converting potential customers into buyers. Digital catalogs in ecommerce allow buyers to find specific product information in seconds: item descriptions, prices, or product images. Such

catalogs can help create an immersive, information-rich experience for online shoppers and make them more likely to move through the purchase journey.

What are the Main Challenges of Moving Your Print Catalogs to Digital?

When done well, digital catalogs can help you take on new opportunities. With online product catalogs, you can expand to new channels, work with new suppliers, increase sales, and more. However, you might face some issues when working with digital catalogs.

1. Choosing the right tool.

Want to be sure your buyers are comfortable shopping within your product catalog? Then, you have to choose an appropriate online catalog solution depending on your business needs. While there are various tools for creating ecommerce catalogs, not all of them will fit. To make the right choice, start with tools that have a trial, so you can explore the tool's functionality and see what it can do for your business. The trial version will help you define what format you need for your catalogs and how you can enhance them. For example, some catalog tools allow you to add videos, pop-up images, links, and other interactivity that can enrich your product catalog and make it more engaging for shoppers.

And you need to keep in mind that while print catalogs are easy to flip through to find something, virtual catalogs have to be well-structured. The information should be clear, accurate, and easy to navigate to. You can add a table of contents or search tools, so your customers will find what they need in seconds. Moreover, while choosing a solution look closer at its interface: it should be user-friendly and comfortable for you. Thus, you'll not waste your time figuring out how the tool works.

2. Managing ecommerce product catalogs.

It's a strategic process to provide comprehensive and correct information in your product catalog across all sales channels. Whether your product data is created by your company or by your suppliers, you need to manage its accuracy. Ecommerce catalogs usually involve multiple managers, so it can cause problems in creating and delivering

updated product catalogs through distribution channels. Besides, regular updates of huge catalogs require time and effort.

Luckily, by moving catalogs online you will be able to simplify the process. With digital catalogs, you don't need to reprint a new version and distribute it again. All you need to do is re-upload the file with your product catalog online, and it will be instantly available to your clients – in most cases under the same direct link you sent them before. And your sales managers will always have the right information at hand. An obvious win-win!

3. Making catalogs user-friendly.

All businesses try to provide the best possible user experience to their customers. This means not only making ecommerce catalogs accessible on desktops and mobile devices, but also keeping them well-organized. Even if you're certain your print catalogs are customer-oriented and provide detailed information, digital catalogs have their own requirements. Make sure that your customers can easily browse through your product catalog by offering them the option to search, filter, and sort your web store product information. You can do this by systematically tagging and categorizing all of your products.

Don't let the above challenges stop you from moving digital. Publishing catalogs in an online format has plenty of benefits. With virtual catalogs, you will no longer need to spend time and money on printing and distribution. The online format will open new possibilities for you, such as distributing through online platforms, posting catalogs on social media, and more. This will help cut printing costs, raise brand awareness and reach a wider audience of online shoppers. And if that's not enough, below are some reasons why digital catalogs are a vital tool in ecommerce.

Why are Digital Catalogs a Good fit for Ecommerce?

According to stats, there were 2.5 billion online shoppers in 2020 – the pandemic undoubtedly played a significant role in increasing their number. Besides, the tendency

shows that the number of digital shoppers is rapidly growing each year. With more and more people buying digitally, ecommerce brands need to keep up with trends and have online catalogs to provide an inspiring product experience to potential buyers.

1. Provide cross-platform compatibility.

Nowadays, online shoppers are accustomed to searching for information online whether they're looking for a music album or a new laptop model. If you want to create a competitive ecommerce product catalog to meet their customer behaviors, you have to check that products are easily found and accessible online. With everybody using multiple devices, it's important to provide access to online catalogs on any smartphone or tablet, as well as on a stationary computer. This type of cross-platform compatibility is what makes digital catalogs so competitive in the modern market – they're accessible as links in any browser, on any device. Plus, you can distribute online catalogs via any channel you want, be it website, email, or social media.

2. Showcase products at their best.

Creating digital product catalogs allows brands to promote their products in the most visual and attractive way. People like to be inspired by content, and you can enrich your ecommerce catalogs with high-quality photos, videos, pop-up images, and other interactive elements. Thus, shoppers will have a deep understanding of your product and will most likely move to purchase.

3. Increase sales.

With digital catalogs, you can make the shopping process comfortable and easy. For instance, link the items in your catalogs to the products displayed on your site. This way, buyers will just click on the item they like and go to your site to purchase it right away. By simplifying the order process you will encourage visitors to buy and convert them into your loyal customers. So introducing product catalogs into your ecommerce can increase orders and sales.

4. Structure your catalogs.

A clear and detailed ecommerce catalog will help you be a leader in your industry and build trust between you and your buyers. With a well-organized digital catalog, shoppers will find the information they are looking for in seconds. If you have a huge catalog with various sections and a lot of products, then you need to create a table of contents and enable text search, so your buyers will have no problem searching within the catalog. Be sure to do this with your customers in mind to provide a better user experience for them.

5. Improve buyers' shopping experience.

A digital format for catalogs is an excellent opportunity to engage your buyers and make them more likely to purchase. While there are different formats for presenting your products or services in a digital catalog, one of the most popular is a flipbook format. It looks like a print copy and provides a lifelike reading experience on the web. Using this format, you can enhance your ecommerce catalogs with pop-up images, videos, and other interactive content that will give your buyers comprehensive and detailed information about your product.

Interactive Advertising and Marketing
Interactive Marketing

Interactive marketing is a type of advertising that includes several types of Internet sales strategies. These include social networking, website architecture and online stores. In today's world of modern technology and e-commerce, many product and service providers are finding that interactive marketing online is cost-effective and provides several advantages.

The Advantages of Interactive Marketing

Increased Sales Conversions

A successful interactive marketing strategy converts consumers from reader to buyer. In sales and marketing terms, this is called a "sales conversion." Unlike traditional television and radio ads, interactive marketing techniques gives the

audience an opportunity to make a purchase on-the-spot. A common way to promote sales conversion in an interactive marketing scheme is to label purchasing opportunities with calls to action. Phrases such as "Buy Now," "Add to Cart" or "Get a Quote" inspire potential customers to proceed with a purchase, as opposed to regular advertising that simply states the benefits of your services.

Lower Overhead Expenses

Common interactive marketing techniques such as electronic merchants and online stores can significantly reduce your overhead expenses in rent, payroll, shipping and printing, according to the Terry Ladouceur Internet business website. By providing shoppers the convenience of instant, electronic purchasing, you eliminate much of the need for warehouses, showrooms, sales representatives and cashiers because transactions are made online. Interactive marketing also saves on printing and postage. Instead of printing and mailing a product catalog, an online catalog can reach millions more people with no delivery cost. It can also be easily and electronically updated to save on reprinting and distributing new print catalogs.

Audience Engagement

Many interactive marketing techniques allow sellers to engage their audience, provide interesting -- and even fun -- shopping experiences and learn more about their target consumers. For instance, a bakery that provides customized cakes can engage its target audience with a website that allows them to customize a cake. An interactive site in which visitors can choose the style of the cake, frosting, color, decorations, size and font and view it next to an "Add to Cart" button encourages the purchase. Periodically checking what combinations website visitors experimented with helps gauge consumer needs.

Social Network Sharing

Social networking is a big part of interactive marketing whether your business uses it or not. For example, assume you just built a cake on a bakery's interactive website and you want to share it with friends. If you place the link on her social networking page, your friends will see it, their friends will see it and in many cases some percentage of the

friends' social network may also click the link or share it themselves. What this means for the bakery owner is more visits to his website and potentially more customers. Creating social networking profiles specifically for business is an ideal way to interact with consumers and an affordable way to advertise.

Feedback

Social networking campaigns provide instant feedback on products and services and allow sellers to identify target markets, consumer demands and provide or adjust products appropriately. By posting your ads and promotions through your profile and reading through the comments, you can discover what consumers think about your products and services. Even without direct feedback, you can gauge the effectiveness of your ads by exploring the number of times it has been read and shared.

Interactive marketing challenges

"Nothing good comes easy." While there are various benefits of implementing interactive content into your marketing plan, interactive marketing accompanies some challenges.

- **Budgeting:** There are many costs associated with creating interactive content, including tools, staff training, technology, persona mapping, and more. Therefore, choosing the right **content experience platform** is crucial.

- **Identifying the right distribution channels:** Evaluating and deciding on the right **content distribution** channels is a challenge with interactive marketing. You need to understand your audience and how and when they use a particular channel to get the most out of your interactive content.

- **Creating high-quality content:** It's difficult to understand whether a certain level of content resonates with your audience. You need to evaluate your customers' preferences and expectations and create content accordingly. A huge roadblock can be not having any insights into how your audiences interact with your other static

content. Therefore, the first phase of your interactive content journey involves taking risks and learning from your mistakes.

Interactive marketing examples

Marketing trends are seeing an uptick. So, it's time to prepare for a more interactive future. Here are some well-known interactive marketing examples you can draw inspiration from.

1. Alexa

Amazon's Alexa has become so "real" and popular that it's almost hard to think of it as a chatbot. Amazon uses this smart tool (audio bot) to increase its sales and gain popularity.

Alexa replies and offers its advice through voice commands when a user asks a question. It's one of those interactive marketing tools that have made **artificial intelligence** indispensable in people's daily lives.

2. Bailey's

Bailey's pet product quiz brings in about **22% of the total sales** they earn each month. The quiz asks a series of questions fully consistent with the pet industry. After analyzing a user's answers, the quiz shows relevant product recommendations.

3. Airbnb

Airbnb publishes user-generated content, including images, travel guides, and how-tos. This UGC has skyrocketed its position in the travel accommodation space. With the help of interactive content, they inspire people to travel more.

Interactive Advertising
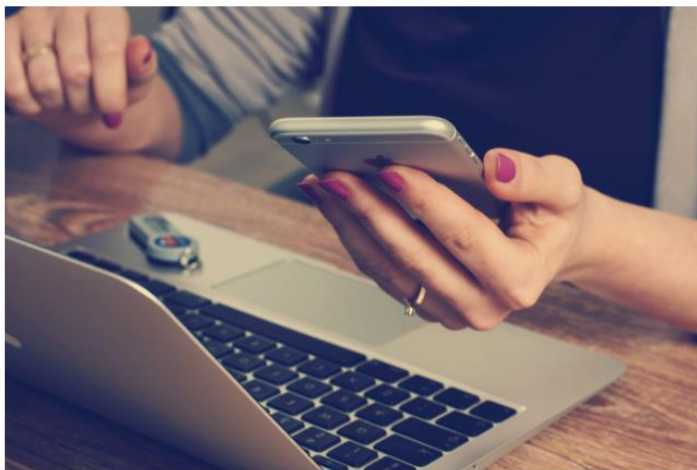
Interactive advertising is a media-based marketing technique which encourages consumer participation. This form of advertising uses interactive media online (social media, videos, web banners) or offline (display windows).

The main focus of interactive advertising is to have consumers engage and interact with the ad in some way and directly or indirectly provide feedback on a campaign.

The Journal of Interactive Advertising describes interactive advertising as the "paid and unpaid presentation and promotion of products, services and ideas by an identified sponsor through mediated means involving mutual action between consumers and producers."

The objectives of interactive advertising are typically the same as the objectives of traditional advertising.

The main difference between interactive advertising and traditional advertising is the ability to control what is shown to different consumers. The personalized experience that interactive advertising gives consumers sets it apart from traditional ad campaigns.

The internet has allowed advertisers to gather information on consumers (via cookies) to create a profile of each consumer and show the most relevant ads to them.

Examples of interactive advertising

Social media – advertising to consumers through social networking websites and online communities. This form of direct marketing. Advertisers reach out to their target audience based on their interests. For example, a sportswear company can target an online group of sport enthusiasts by marketing its products on websites and communities dedicated to sports.

Video – video ads typically load automatically when a user visits a new webpage. Video ads serve to send a message from a brand to consumers. The consumer watching the video ad has the option to view the video, pause it, mute it, or skip it entirely. Video ads are usually content-related.

Interactive Display Windows – interactive display windows make people stop and pay attention because their movements can alter what appears on the display. The video below is an example of this.

The advantages of interactive advertising:

- Encourages consumers to engage with ads.
- Allows consumers to interpret ads in unique ways.
- Boosts social interaction between potential consumers and suppliers.

The disadvantages of interactive advertising:

- It can take a long time to gather the data to build profiles of consumers and ensure that ads are targeting the right audience. This is especially true if the market is new and hasn't been properly analyzed yet.
- High costs associated with gathering data on consumers.

Benefits and limitation of internet advertising

The Advantages & Disadvantages of Advertising on the Internet

More than 4 billion people use the internet. If you want to build your business brand, reach prospective customers, and make more sales, you can no longer ignore digital advertising. But beware: there are ineffective strategies that can eat your ad dollars in record time, leaving you with little to show for your advertising efforts. For many businesses, however, the advantages outweigh the disadvantages.

Advantages of online advertising:

Extensive coverage:

Network connection with computers worldwide, it is a global network of large and small throughout the world in accordance with a variety of unified communications protocol consisting of an information transmission network. Thus, over the Internet release wide range of advertising information, regardless of time and geographical constraints. From the advertising point of view, as an advertising medium, the wider the scope of dissemination of information, human contact, the more advertising effect will be. From the advertisers market, the consumer markets throughout every corner of the world, even a small business is likely to become an international company overnight.

Large-capacity information:

Capacity to provide information on most Internet companies is unrestricted. Businesses or advertising agencies can provide the equivalent of thousands of pages of advertising information and instructions, without having to worry every minute of the second increase in the expensive traditional media advertising costs. The network behind small banner ads, companies can put their company and its products and services, including product performance, price, model, morphology, etc. It seems necessary to explain all audiences, including detailed information made into a web page on their website. We can say that under certain circumstances the cost (for storing banner ads on other sites and pay for), companies can increase without limit advertising information, which in the traditional

media cannot be imagined.

Strong interaction with sensory:

Online advertising carrier is basically a multimedia, hypertext format, as long as the audience interested in a certain kind of product, you can tap the mouse further to know more, much more detailed and vivid information so that consumers can personally "experience" Products, services and brand. As virtual reality and other new technologies to online advertising, immerse experience for customers such as goods or services, and to book online, trading and settlement will greatly enhance the effectiveness of online advertising.

Real-time and long-lasting unity:

Internet media has the right to change the function of information, companies can make changes at any time according to need advertising information, 24 hour warehouse industry can adjust product prices, product information, you can instantly get the latest product information dissemination to consumers and online media can also be long-term preservation advertising information. Enterprise established for the product website, you can remain, waiting for consumer inquiries, enabling real-time and persistence unity.

Accurate delivery goals:

The accuracy of online advertising include two aspects: one is corporate advertising target market for the accuracy of the network is actually one of a group composed of members of these organizations tend to have common hobbies and interests, potentially forming a thin market of the target customer base, companies can be specific to a corresponding product advertising consumer site up, clear target market, thereby leading to targeted audiences and the information will be Gang-related advertising messages with their professional and more attention to such information; hand reflected in the accuracy of your audience, the Internet is the need to pay, when consumers browse the site, select the advertising information will only really interested in, so to reach the high accuracy of the information online advertising audience side.

Non –compulsory transfer information:

As we all know, newspaper ads, magazine ads, TV ads, radio ads, outdoor advertising and is a compulsive medium, all you have to do everything possible to attract visual and auditory, forced indoctrination into your brain. The online advertising belongs on-demand advertising, newspaper classified ads with nature not need to completely view, which can be freely inquiries will focus on looking for information presented to you, thus saving time and avoiding ineffective passive attention.

Disadvantages of online advertising:

Internet advertising has obvious advantages over traditional advertising, and also unavoidably brings its disadvantages, mainly in the following aspects:

Visitors to their online advertising filtered:

Some visitors simply do not want to see, let alone have report responses. This situation is similar to other media, only a handful of consumers will buy your product, but that was it! Key is to be able to Canton. This part of the report information is passed to the consumer, the biggest difficulty lies in selecting the right online advertising target market, otherwise, it is difficult to bring about the final ad buying behavior.

Network technology to filter the ads:

On the one hand for the advertising network itself provides more space, opportunities, tools, and the origin of Internet culture itself is obnoxious commercialism, so there have been some network software and tools will plant a report as a network of cultural dregs filter out. In doing online advertising company, be sure to verify that the target market has a tendency to an extreme aversion to commercial advertising, whether the use of these filters online advertising tool.

Lack of skills and marketing skills:

Internet advertising is the guiding ideology of the "information marketing" rather than the "impression inducement," but the expression and transmission of information still need presentation skills to attract consumers. Therefore, only the aspects of the product and the information listed here definitely not form a successful online advertising. Traditional advertising to generate an irresistible impression and attractive presentation skills and marketing skills in online advertising is still needed, even more demanding. How to marketers to consumers in rich information resources at the same time, but also have a strong attraction for them is a huge challenge.

Online advertising marketing personnel requirements are higher than other media:

Compared to online advertising can almost be seen as a microcosm of the entire marketing, which involves how to attract customers to interact with customers, etc., which is the traditional advertising to customers impressed goals have to go very far. In short online advertising requires marketer's integrated use of traditional advertising performance practices, providing information on the use of soft methods of marketing and network marketing techniques.

The Impact of Electronic Commerce on Business

E-Commerce and E-Business are not solely the Internet, websites or dot com companies. It is about a new business concept that incorporates all previous business management and economic concepts. As such, E-Business and E-Commerce impact on many areas of business and disciplines of business management studies.

1. Management Information Systems - Analysis, design and implementation of e-business systems within an organization; issues of integration of front-end and back-end systems

2. Human Resource Management - Issues of on-line recruiting, home working and 'Entrepreneurs' works on a project by project basis replacing permanent employees.

3. Finance and Accounting - On-line banking; issues of transaction costs; accounting and auditing implications where 'intangible' assets and human capital must be tangibly valued in an increasingly knowledge based economy.

4. Economics - The impact of e-commerce on local and global economies; understanding the concepts of a digital and knowledge-based economy and how this fits into economic theory

5. Production and Operations Management - The impact of on-line processing has led to reduced cycle times. It takes seconds to deliver digitized products and services electronically; similarly the time for processing orders can be reduced by more than 90 per cent from days to minutes. Production systems are integrated with finance marketing and other functional systems as well as with business partners and customers.

6. Marketing - Issues of on-line advertising, marketing strategies and consumer behavior and cultures. One of the areas in which it impacts particularly is direct marketing. In the past this was mainly door-to door, home parties and mail order using catalogues or leaflets.

7. Computer Sciences - Development of different network and computing technologies and languages to support e-commerce and e-business, for example linking front and back office legacy systems with the 'web based' technology.

8. Business Law and Ethics - The different legal and ethical issues that have arisen as a result of a global 'virtual' market issues such as copy right laws, privacy of customer information, legality of electronic contracts etc.

UNIT – III

INTER, INTRA AND EXTRANETS

INTRODUCTION

The Internet, intranet, and extranet are the most popular platforms for e-commerce. In Internet is the most common platform for B2C e-commerce; the intranet is most the common for platform for corporate internal management; and the extranet is the most common platform for B2B e-commerce.

Network Type	Typical Users	Access	Type of information
The Internet	Any individual with dial-up access or LAN	Unlimited public; no restrictions	General public, and advertorial
Intranet	Authorized employees only	Private and restricted	Specific, corporate, and proprietary
Extranet	Authorized groups from collaborating companies	Private and authorized outside partners	Shared in authorized collaborating groups

The Internet

1. The Internet is a public and global communication network that provides direct connectivity to anyone over a local area network (LAN) or Internet Service Provider (ISP).

2. The Internet is a public network that is connected and routed over gateways. End users are connected to local access providers (LANs or ISPs), who are connected to the Internet access providers, to network access providers, and eventually to the Internet backbone.

3. Since access to the Internet is open to all, there is a lack of control that may result in an unruly proliferation of information.

The Intranet:

1. An intranet is a corporate LAN or wide area network (WAN) that uses Internet technology and is secured behind company's firewalls (see security and protection).

2. The intranet links various servers, clients, databases, and application programs like Enterprise Resource Planning (ERP). Although intranets are developed on the same TCP/IP protocol as the Internet, they operate as a private network with limited access.

3. Only authorized employees are able to use it. Intranets are limited to information pertinent to the company and contain exclusive and often proprietary and sensitive information.

4. The firewalls protect the intranets from unauthorized outside access; the intranet can be used to enhance the communications and collaboration among authorized employees, customers, suppliers, and other business partners.

5. Since the intranet allows access through the Internet, it does not require any additional implementation of leased networks. This open and flexible connectivity is a major capability and advantage of intranet. Intranets provide the infrastructure for many intrabusiness commerce applications.

The Extranet

1. An extranet, or "extended intranet", uses the TCP/IP protocol network of the Internet, to link intranets in different locations.

2. Extranet transmission is usually conducted over the Internet, which offers little privacy or transmission security.

3. Therefore, when using an extranet, it is necessary to improve the security of connecting portions of the Internet. This can be done by creating tunnels (see paragraph on security and protection) of secured data flows, using cryptography and authorization algorithm.

4. The Internet with tunneling technology is known as a virtually private network (VPN).

5. Extranets provide secured connectivity between corporation's intranets and the intranets of its business partners, material suppliers, financial services, government, and customers.

6. Access to intranets is usually limited by agreements of the collaborating parties, is strictly controlled, and is only available to authorized personnel.

7. The protected environment of the extranet allows groups to collaborate, sharing information exclusively, and exchanging it securely.

8. Since an extranet allows connectivity between businesses through the Internet, it is an open and flexible platform suitable for supply chain management.

9. To increase security, many companies replicate the database they are willing to share with their business partners and separate them physically from their regular intranets.

Components of Internet

The Internet is made up of many networks or many networks together from the Internet. Through the Internet, a user can send and receive messages to any user in the world. You can interact with anyone using the Internet. The Internet is a service that no one really owns. Today, millions of computers in the world are connected to the Internet.

Just as a computer system has components, the Internet also has components. These components play a very important role when you are using internet service.

There are various important components of internet, which are given below.

- DSL Modem

- DSL Filter

- NAT Router

- Firewalls

- ICS

- Network Hub

- Network Switch

- Wireless Access Point

1. DSL Modem

A DSL modem is a hardware device, the function of a DSL modem is to convert digital signals into analog signals that are suitable for sending over a telephone line. A DSL modem helps your computer communicate with an Internet service provider over a DSL connection. A phone line connects to the back of the RJ-11 DSL modem, and a Cat 5 (Ethernet) cable serves to connect the modem to a router or computer.

2. DSL Filter

A DSL filter is also a hardware device, also known as a DSL splitter or micro filter. A DSL filter is a low-pass filter installed between an analog device and a plain old telephone service (POTS) line, whose job is to filter DSL signals from telephone signals so that you can access the Internet, and at the same time, you can also use the telephone.

3. Router

The router is also a hardware device. It is designed to receive, analyze and forward data packets between computer networks. Or you can also say that a router is a hardware device that connects two or more packet-switched networks or subnetworks. A router does two types of work. First, managing the traffic between these networks by sending data packets to their intended IP addresses, and second, allowing multiple digital devices to be connected to the same Internet connection.

Today there are many companies that manufacture routers, the names of those companies are - **Cisco, 3Com, HP, Juniper, D-Link, and Nortel** etc.

There are also many types of routers, whose names are given below.

- Wireless Router

- Wired Router

- Core Router

- Edge Router

- Broadband Routers

4. Firewalls

A firewall is a network securing device or system that prevents unwanted users and dangerous elements from accessing the network. Although there are many types of firewalls, firewalls are both hardware and software forms.

Today many people use a firewall in their computer system. In simple language, a firewall is like a filter for any network which blocks harmful information. Due to this no harmful data difference can come into your computer so that your computer remains safe from the dangerous viruses.

To use a firewall, you have to install a firewall between a private network or the Internet, and all the data communication between these two data passes through the firewall. A firewall acts like a wall in your computer that protects both the network and the computer from unsafe or harmful data such as fire.

5. ICS (Internet Connection Sharing)

ICS Stands for Internet Connection Sharing. ICS is a Windows service that enables Internet-connected computer systems to share their Internet connection with other computer systems on a local network.

ICS Simply put, ICS Sharing an Internet Connection allows you to share an Internet connection with other computer systems on a local/home network. Or you can also say that ICS provides internet access between many computer systems in one place. That is, many computers can be connected to ICS and use the Internet. ICS is commonly used in the office, school, college, or home where more than one computer is configured to access the Internet via an Internet Service Provider (ISP) line.
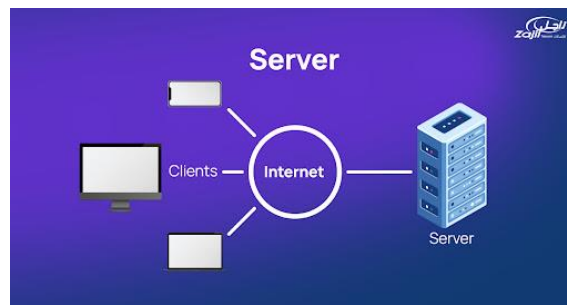
6. Client

The data interaction primarily occurs between the client and the server. The client requests data from the server. The client and server may be situated very far from each other but are linked via a network.

7. Server

The main job of a server is to respond to the request of the client. The device or programme is set up in the way that they provide the appropriate information to the client. This functionality of client and server works on a model called – call and response.

The server performs several tasks in order to deliver the right information for each request. From investigating the client's permission of data access to formatting numerous responses in order to fetch the most accurate information, the server performs so many functions within seconds.

For instance, *Apache* web server responds to Internet browser requests via an additional application, *Apache*, installed in an operating system.

8. Protocols
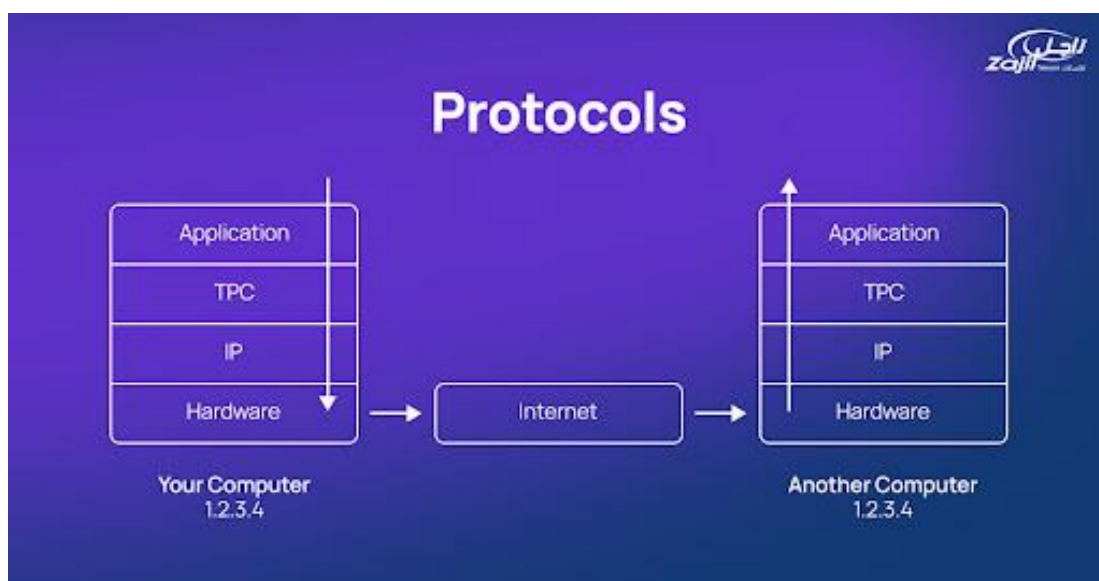
The protocols are crucial elements of the internet

In the language of networking, protocols can be defined as a set of rules that guide data transmission between computing devices. These rules make sure that the data request is sent and received by the client without any problem. The most important internet protocols are – Transmission Control Protocol (TCP) and Internet Protocol (IP).

Every single commuting device has its own unique IP address. These unique addresses make it easier for computers to recognize each other. The TCP/IP protocols make the data request and receiving possible between two computers via server.

In today's world, use of the internet has become easier and faster than ever before. The Internet represents the preferred means of communication, business and appointments among several other things these days.

9. Network Hub
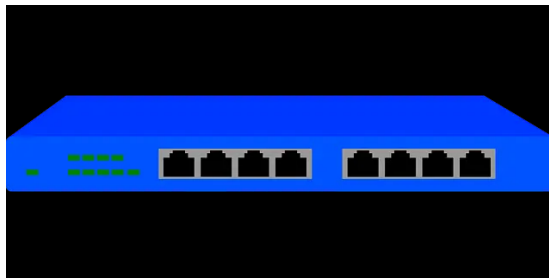
A network hub is a hardware network device. Which is also known as Ethernet hub, active hub, network hub, repeater hub, or multiport repeater. A network hub is a network hardware device used to connect multiple Ethernet devices together that have multiple input/output (I/O) ports.

A network hub can also be called a network hardware device in simple language, whose job is to connect many computers or other network devices. So that the computers connected to the network hub transmit data to the device.

Network hubs are mostly used for small, simple local area network (LAN) environments. A network hub operates at the physical layer 1 of the OSI model.

10. Network Switch
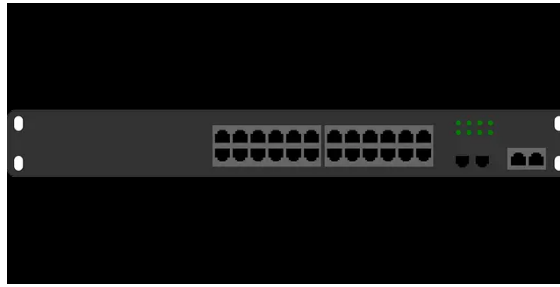
A network switch is also a hardware device, also known as a switching hub, or bridging hub. A network switch connects other devices such as computers, printers, and wireless access points to the network, and allows them to exchange data packets. A network switch connects two or more computer systems together and is today used in preference to a hub or bridge. A network switch is a multiport network bridge that uses MAC addresses to send data over the data link layer 2 of the OSI model.

To put it simply, the network is like a bridge, a switch learns about the MAC addresses associated with each port and only sends data to the ports that are addressed to those MAC addresses. A network switch is a multiport network bridge that serves to transmit data over the network layer 2 of the OSI model.

11. Wireless Access Point

In computer networking, a wireless access point is a networking hardware device whose function is to connect other Wi-Fi devices to a wired network.

Simply put, a wireless access point (WAP) is a node configured on a local area network (LAN) that allows wireless-enabled devices and wired networks to connect via wireless means, including Wi-Fi or Bluetooth.

Hardware Components of Internet

There are various different hardware components of internet, which are given below.

- DSL Modem

- DSL/Broadband Filter.

- NAT Router.

- Computer Firewalls

- ICS (Internet Connection Sharing)-

- Network Hub.

- Network Bridge.

- Network Switch.

Elements of Internet

There are two elements of internet, which are given below.

- Clients PCs.

- Server Computers.

Uses of Internet for Business

Here are the following uses of the internet for business mention below

1. Ecommerce

The Internet provides a perfect market place wherein customers access the website of ecommerce vendors and order the product they want to buy online, and make the payment through the gateway. The goods ordered are delivered to the customers within the agreed number of days from the warehouse of the vendor. The market share of ecommerce retail in India is 5.7%, with sales of 38.5 billion US$ in the total retail sales of 672 billion US$, and it is growing year on year.

Ecommerce Website provides a rich experience to their customers by enabling them to

- Browse through the products catalog and select the brand
- View the photos, texture, design and other aspects of the products closely before selection
- Compare the prices of various brands and read the reviews of the current users of the products they choose
- Order the products online and track the status of the delivery until it is delivered.
- Pay on delivery
- Return the products if the customers are not satisfied, or size is not fitting etc.
- Have a feeling of shopping in a physical store.

There are renowned Ecommerce vendors like Amazon, Flipkart, Myntra and Snapdeal, etc., in India. There are also service vendors like Ola, Oyo, Uber, and Swiggy who offer taxi, room, and food delivery services.

While Flipkart, Snapdeal are selling products of third-party vendors, Individual organizations can also develop and host their websites to sell their own products and services online.

2. Media site of a company

The Internet offers a perfect medium for businesses to reach out to their customers and the common public on their website's products and services. Financial results, Performance details and other achievements of the company are also posted on this site. This media site provides good visibility, publicity, and branding to the company.

3. Social Media

The organization keeps tabs on social media sites like Facebook, Linked in to track the posting of the common public on their products, services and any other matter related to the company. The company will use the postings gathered from these social media to improve its product/services, correct the processes and manage situations.

4. Customer Relationship Management (CRM)

The Internet enables the organization to connect with all its customers and build a strong network with its customers. New customer leads can be generated through this CRM portal and converted into prospect and order with a systematic follow-up.

This portal enables to create of visibility on the marketing campaign and service programs conducted by the organization. Customer feedback and their inputs on the company are used to improve the efficiency of the operations and take the company to the next level.

5. Supplier Management

Information on supplier's purchase orders, amendments to purchase orders, supply schedules, receipts, rejections and performance details are shared with suppliers on this site, hosted on the internet. Suppliers create shipment notice on their supplies in this site, and it is visible to the company to plan their production accordingly. The Internet enables the organization to do collaborative design and suppliers by sharing design details through this site and cutting short design life cycle time.

6. Employee Productivity enhancement

- Employees are connected to their office through the internet, enabling them to work from home and avoid commuting hassles.
- Employees are trained online at their own pace.
- Youtube, blogs, and content on the internet provide inputs to employees to enhance their skills.
- Tools like Skype, Slack, and Trello available over the internet help employees collaborate with each other effectively and clear the hurdles in the project on time.
- Project management tools hosted on the internet connect remote employees in the project review and efficiently manage the project.
- Productivity enhancement in employees leads to business growth and prosperity.

7. Video conferencing

Video conferencing facilities offered through the internet helps the organization to hold meetings, conferences with participants from multiple remote locations. It saves travel costs and speeds up the decision making process.

8. Market Research

Information on any products/services, market requirements, demand from various geographies for a product, competitor's business data and other market-related data are available on the internet. These data will be useful in market research and arrive at the marketing strategy.

9. Cloud hosting

Business can host their applications in the cloud to save costs and achieve agile operations, and users can access the application over the internet. Access to the cloud is made hassle-free by internet connectivity, and the user feels no difference between on-premises access and cloud access.

10. Advertisement

Advertising through Youtube and other popular sites will help the business to improve its sales.

Business Should Use the Internet

The business should embrace the internet to

- Build new applications using internet technology to improve efficiency, enhance revenue to the business
- Enhance the visibility and increasing sales
- Build brand value for the organization.
- Start a new line of business built on new technology offered by the internet.
- Adopt new innovations offered by net in improving the existing product
- Analyze competitor's strategy and fine-tune its business model
- Improve Employee's productivity and stimulate business growth
- Cut down product development time by engaging with suppliers on collaborative design
- Track customers view by listening to the social media site and correct the situations
- Remain connected with customers, suppliers and other stakeholders to share information and get their feedback to improve the operations.

Categories of internet - intranet

Internet

It is a worldwide/global system of interconnected computer networks. It uses the standard Internet Protocol (TCP/IP). Every computer in Internet is identified by a unique IP address. IP Address is a unique set of numbers (such as 110.22.33.114) which identifies a computer's location.

A special computer DNS (Domain Name Server) is used to provide a name to the IP Address so that the user can locate a computer by a name. For example, a DNS server

will resolve a name https://www.tutorialspoint.com to a particular IP address to uniquely identify the computer on which this website is hosted.

Internet is accessible to every user all over the world.

Intranet

Intranet is the system in which multiple PCs are connected to each other. PCs in intranet are not available to the world outside the intranet. Usually each organization has its own Intranet network and members/employees of that organization can access the computers in their intranet.

Similarities between Internet and Intranet

- Intranet uses the internet protocols such as TCP/IP and FTP.
- Intranet sites are accessible via the web browser in a similar way as websites in the internet. However, only members of Intranet network can access intranet hosted sites.
- In Intranet, own instant messengers can be used as similar to yahoo messenger/gtalk over the internet.

Differences between Internet and Intranet

- Internet is general to PCs all over the world whereas Intranet is specific to few PCs.
- Internet provides a wider and better access to websites to a large population, whereas Intranet is restricted.
- Internet is not as safe as Intranet. Intranet can be safely privatized as per the need.

Advantages and Disadvantages of Intranet

An **Intranet** is a product arrangement used to share organization data and assets among representatives. Likewise, intranets are utilized to encourage working in gatherings and to improve the by and large interior interchanges endeavours. An intranet is a sort of PC network that offers organization data among various people utilizing web innovation. It is essentially utilized by business associations for encouraging correspondence endeavors of its workers. Truth be told during the most recent couple of many years, it had been the mainstream method of imparting all the more safely.

Other than correspondence intranet gives various capacities, for example, long-range interpersonal communication devices, record vault, and custom structures. An intranet comprises corporate workers who can be gotten to with a LAN or a private dial-up medium.

Al however intranet incorporates numerous advantages, still, there are a few realities that make them not exactly current arrangements. These advanced arrangements are more viable and consistent contrasted with an intranet. Consequently, these unmistakable upsides and downsides should be distinguished so clients can choose whether this arrangement will be appropriate for their business.

Consequently, as it were, the intranet can be utilized for giving the pamphlets, articles, and the different reports of the organization. The intranet in an organization implies that the individuals in that specific organization can just access the data which isn't accessible somewhere else like the web.

Advantages of Intranet:

1. **Cost**

    The cost of conveying data utilizing the intranet is very low. The entire association can utilize the administrations of the intranet for a low membership charge. Also, there is no cost engaged with upkeep, printing, and others. This makes the intranet exceptionally savvy.

2. **Accessibility**

    Utilizing intranet workers can get to their data whenever and anyplace. Workers don't need to sit infront of the PC. With the administrations of the cloud gateway, information can be gotten to in a split second any place you are on the planet. This makes turn out simpler for the representatives who are continually on the movement for their business.

3. **Data Exchange**

    Intranet can be utilized as a correspondence center point where workers store data at whatever point they needed. Inside a few seconds, records can be gotten to just as

downloaded. Thus, organizations can guarantee that the data can connect with each condition of the organization.

4. **Correspondence**

Intranet permits quick and conservative methods of correspondence inside an association. That too bothly (level just as vertical). In spite of the actual area, an intranet can alter, remark, and store information. The two organizations contain the choices of talks, gatherings, and messages so workers are allowed to communicate their suppositions. It additionally diminishes travel time as workers as representatives in the business undertakings can speak with one another with simply a solitary snap.

5. **Profitability**

By and large, the profitability can be seen expanded utilizing intranet. It makes all the information promptly accessible so laborers won't discover hard to look through them. In this manner, representatives can convey their work all the more productively and precisely. In the event that additional time is spent on finding the necessary records, it can contrarily affect the organization's efficiency. Aside from the laborers, directors also can be profited by the intranet efficiency. The chief can invest more energy in investigating data.

6. **Web Publishing**

One of the most unmistakable favorable circumstances of the intranet is that it licenses web distributing. Web advances can be utilized as a medium to get to archives, worker manuals, and friends' strategies. All the information can be basically seen by means of an internet browser.

7. **Long-range interpersonal communication**

Intranet can be utilized to establish a social workplace which makes the bond more grounded between the representatives. The most famous method of interpersonal interaction is by using web-based media stages. By utilizing online media, workers can choose their own characters and associate with one another. Generally speaking, the worker fulfillment just as occupation execution can be ensured.

8. **Time Savings**

   Representatives in a specific association just demand data relying upon their necessities. Since chose information is in little extent it for the most part takes less measure of time. Besides, there is no upkeep of the actual reports required here. This can lead to additional time reserve funds also.

9. **Coordinated effort**

   Another advantage of an intranet is the degree of joint effort it gives. Each staff in various divisions can undoubtedly team up and share important data. This can break the boundary of correspondence issues among offices and administrations. Consequently, prompting cooperation for accomplishing a similar objective.

10. **Dynamic**

    Since staffs of various offices can share thoughts and information, administrations will have the option to settle on better choices. For a powerful dynamic there should be satisfactory information accessible.

Disadvantages of Intranet:

1. **Usage**

   The expense of actualizing intranets is normally high (Depending on the sort of intranet arrangements and the number of clients). Furthermore, it needs separate preparation and redesign for utilizing the intranet arrangement adequately. All these require time and exertion which makes troublesome the execution cycle.

2. **Unpredictability**

   Intranets are viewed as unpredictable in nature. Because of their multifaceted nature, numerous workers feel overpowered and reluctant to utilize it. And furthermore, intranet clients need to do isolate organizations which can be tedious.

3. **Security**

   Al however intranet frameworks do contain numerous safety efforts, it is as yet helpless against security hazards. Except if there are firewalls or entryways, your private information can be gotten to by an outsider. Along these lines, when utilizing the intranet there is a deficiency of security for the corporate.

4. **Onboarding**

On intranet consistently the workers should be fulfilled for the purpose of dispatch. In the event that there is no esteemed substance, staff won't utilize it any longer. In this manner, content assumes a significant part here.

5. **Updates**

An intranet arrangement that gets oftentimes refreshed is less inclined to convenience issues. In any case, the issue stays in discovering one. It tends to be incredibly testing to discover an intranet arrangement that remains refreshed. These sorts of intranet frameworks most on occasion need client service. Henceforth, representatives of the organization will have an issue embracing it.

6. **The executives**

Intranets have an issue in overseeing themselves. It should be routinely checked and the substance should be overseen all through. Workers should be liable for dealing with the product and ensure its working routinely. For this, they need some extraordinary preparation too.

7. **Work Culture**

Intranet needs to have changes in the work culture for its own viability. This can allot more assignments and questions. In the event that they are not designated on the legitimate extent, they can get heap up which results in the business in turmoil.

8. **Continuous Interactions**

Since crafted by intranet is done fundamentally on PCs, there is less number of up-close and personal connections. The absence of constant collaborations can prompt limitations in close to the home connection among workers and upset companies.

9. **Client Experience**

Intranet needs in favor of client experience in a way that even individuals are reluctant to utilize it. It is assumed to encourage the client's works. Workers are as yet searching for a way that they can utilize the intranet and access their information.

10. **Data Overload**

Another test looked at by an intranet arrangement is the overhead of data it is putting away. The unreasonable measure of information on the intranet can be confounding to many. In the event that there is a lot of information separated from the significant one the client needs, he/she will destine to dodge them.

Mobile E-Commerce Technology (M-Commerce)

M-commerce (mobile commerce) is the buying and selling of goods and services through wireless handheld devices such as smartphones and tablets. M-commerce is a form of e-commerce that enables users to access online shopping platforms without the use of a desktop computer.

Over time, content delivery through wireless devices has become faster, more secure and scalable. As a result, mobile commerce has grown rapidly.

Examples of m-commerce include in-app purchasing; mobile banking virtual marketplace apps, such as the Amazon mobile app; and digital wallets, such as Apple Pay, Google Pay and Samsung Wallet.

Examples of m-commerce use in specific industries include the following:

- **Financial services.** Mobile banking and brokerage transactions are done from mobile devices.

- **Telecommunications.** Handheld devices are used to make service changes and bill payments, and to do account reviews.

- **Service and retail.** Consumers place and pay for orders on-the-fly through online stores.

- **Information services.** Financial, sports, traffic, weather and many other news updates are accessed through mobile devices.

Types of m-commerce

M-commerce is categorized based on the following three basic functions:

- **Mobile shopping** enables customers to buy a product using a mobile device with an application such as Amazon or a web app. A subcategory of mobile shopping is app commerce, which is a transaction that takes place over a native app.

- **Mobile banking** is online banking designed for handheld technology. It enables customers to access accounts and brokerage services, conduct financial transactions, pay bills and make stock trades. This is typically done through a secure, dedicated app provided by the banking institution. Mobile banking services may use SMS or chatbots and other conversational app platforms to send out alerts and track account activities. For example, the WhatsApp chatbot lets customers view their account balance, transfer funds, review loans and conduct other transactions in real time through WhatsApp.

- **Mobile payments** are an alternative to traditional payment methods, such as cash, check, credit and debit cards. They enable users to buy products in person using a mobile device. Digital wallets, such as Apple Pay, let customers buy products without swiping a card or paying with cash. Mobile payment apps, such as PayPal, Venmo and Xoom serve the same purpose and are popular options. Mobile consumers also use QR codes to pay for things on their mobile phones. With mobile payments, users send money directly to the recipient's cell phone number or bank account.

How mobile commerce works

With most m-commerce enabled platforms, the mobile device is connected to a wireless network that is used to conduct online product purchases and other transactions.

For those in charge of developing an m-commerce application, important key performance indicators to monitor include the following:

- total mobile traffic;

- total application traffic;

- average order value; and

- the value of orders over time.

Similarly, tracking the mobile add-to-cart rate will help developers see if users are becoming customers. M-commerce developers may also be interested in logging average page loading times, mobile cart conversion rates and SMS subscriptions.

Mobile payment products operate through a form of peer-to-peer sharing. Once a mobile device is paired with a user's bank card information, the phone can be waved over a payment terminal to pay for a product. Contactless payment using a mobile device uses near-field communication technology.

Advantages and disadvantages of mobile commerce

The advantages of m-commerce include the following:

- **Large customer base.** M-commerce provides for a larger customer base and better retention than e-commerce in general, because m-commerce capabilities are more widely and easily accessible. Also, mobile analytics offers insights into customer shopping behavior, pattern and history. To boost retention rates, businesses can use this data to target shoppers with personalized offers and tailor-made discounts.

- **Convenience.** M-commerce makes it easier for customers to compare prices, read reviews and make purchases when and where they want to do these things.

- **Product variety.** Customers can browse through a huge inventory of products while also taking advantage of the competitive pricing.

- **Automation.** M-commerce automates a business's point of customer contact and sales with a variety of mobile contactless payment options, such as Apple Pay, PayPal One Touch and Visa Checkout. Many e-commerce sites also offer one-click checkout process functionality, which enables users to add payment information only once and then use the one-click option for every purchase made thereafter.

- **Omnichannel experience.** M-commerce creates an omnichannel experience where products can be sold via multiple channels -- e-commerce websites, Amazon, eBay, Instagram. This approach makes it easier for customers to buy whenever and wherever they want.

Disadvantages of m-commerce include the following:

- **Poor execution.** The smaller screens of mobile phones and tablets require specific navigation functionality. Consequently, intuitive mobile user interfaces are complicated and expensive to design. A poorly executed mobile customer experience can frustrate customers and deter them from making purchases.

- **Payment issues.** Mobile payment options are not available in every geographic location and may not support every type of digital wallet.

- **Tax compliance.** Businesses must know and comply with tax laws and regulations of all countries they ship to. Some businesses will avoid this by only authorizing purchases from and shipping to their country of origin.

- **Security vulnerabilities.** Many users are still hesitant to make purchases over a mobile device because of security risks. Even with two-factor authentication, mobile fraud is on the rise and many merchants have still not adopted fraud prevention practices for the smaller screen. Attacks, such as SIM swaps and mobile malware, are becoming more common and can discourage users from making payments through their mobile devices.

Future of mobile commerce

Mobile commerce is evolving and starting to reach a wider audience. According to Insider Intelligence, 6.9% of retail transactions will take place through a mobile device in 2022 and m-commerce will account for 10.4% of all retail sales by 2025. Many businesses are adopting mobile commerce to avoid falling behind the competitors.

The following are some of the current and future mobile commerce trends:

Mobile retargeting. This concept is an extension of location-based mobile marketing. Instead of putting ads at random places, this trend targets them contextually only at potential customers. For example, marketers can send an ad to users who have previously visited their mobile app or they might present an active mobile targeted ad to a user who comes into proximity of their store. Mobile retargeting offers a better return on investment compared with other advertisement strategies and is likely to become more popular in the future.

Augmented reality (AR). The number of mobile applications with embedded AR is growing rapidly. To improve its brand presence and provide digital content optimization, retail giant Ikea introduced an AR mobile application in 2017 that lets shoppers test products in real time through Apple iOS 11's ARKit technology. Customers use AR models of IKEA furniture from the mobile app to see how those pieces fit in their home and office spaces. Many brands, including Coca-Cola, Zara, Covergirl and Pez, also use embedded AR in their mobile apps.

Mobile SEO. With the growing number of smartphone users accessing the internet, mobile responsive websites have become a necessity. Websites that are not mobile-friendly or do not provide a good user experience risk user abandonment, which in turn increases the bounce rate of their websites. Websites with higher bounce rates rank lower in SEO and Google searches. Therefore, building mobile websites that are adaptive to handheld devices is an important goal for all businesses.

Mobile banking. The biggest advantage of mobile banking is the ability to send money anywhere, anytime. Users can send money to others and conduct transactions with their bank irrespective of their location. This trend is likely to keep growing. According to *Business Insider*, as of 2021, there are an estimated 169.3 million mobile banking users in the United States, of whom nearly 80% said that mobile banking was their preferred way to access their accounts.

AI, chatbots and shopping assistants. Powered by AI, chatbots are becoming essential e-commerce tools. They help shoppers around the clock with product recommendations, purchase completion, customer support and other tasks. According to a Grand View Research report, the global AI chatbot market is <u>expected to reach</u> $3.99 billion by 2030. Shoppers are becoming more comfortable with chatbots as they have become accustomed to chatting with their friends and family over chat apps, such as WhatsApp, <u>Facebook Messenger</u> and Telegram.

Mobile ticketing. Gone are the days when users had to wait in long lines to buy movie or concert tickets. With mobile ticketing, users can buy and receive tickets through their smartphones. Mobile ticketing also eliminates the need to print the tickets as users receive them on their phones in a text format with a barcode that gets scanned at events.

Difference between E-commerce and M-commerce :

S.No.	E-commerce	M-commerce
01.	Electronic Commerce in short it is called as e-commerce.	Mobile Commerce in short it is called as m-commerce.
02.	In general, e-commerce activities are performed with the help of desktop computers and laptops.	M-commerce activities are performed with the help of mobile devices like smartphones, tablets, PDA's (Personal Digital Assistant) etc.
03.	E-commerce is an older concept.	M-commerce is an newer concept.
04.	It is broad term which refers doing shopping and making payments online with help of electronic devices like Laptop and computers.	It is subcategory of ecommerce which does the same this via mobile devices.
05.	In e-commerce the use of internet is mandatory	But in case of m-commerce some activities can be performed without internet also.
06.	E-commerce devices are not easy to carry and portability point of view it is	M-commerce devices are easy to carry and portability point of view it is good.

07.	E-commerce developed in 1970's.	M-commerce developed in 1990's.
08.	Its reachability is comparatively low than the m-commerce as it is not so good in portability.	Its reachability is more than that of e-commerce only due to the use of mobile devices.
09.	In e-commerce location tracking capabilities are limited due to the non-portability of devices.	In m-commerce location tracking capabilities is so good as mobile apps track and identify user locations with the help of GPS technology, Wi-Fi, and so on.
10.	E-commerce fails in push notification.	In m-commerce push notification can be achieved.
11.	E-commerce is conducted using desktop or laptop computers.	M-commerce is conducted using mobile devices such as smartphones and tablets.
12.	E-commerce typically requires a stable internet connection and a computer.	M-commerce allows consumers to shop and make purchases from anywhere
13	E-commerce transactions typically rely on credit cards and other traditional payment methods.	M-commerce offers a wider range of payment options, including mobile wallets and contactless payments.
14.	Examples of E-commerce includes Amazon, Flipkart, Quikr, Olx websites.	Examples of M-commerce includes mobile banking like paytm, in-app purchasing Amazon mobile app.

Relationship between internet, intranet and extranet

What is internet, extranet, & intranet?

Let's take a step back and define the term "intranet" in relation to some other technologies that it's often confused with. At their most basic, internet, intranet, and extranet are defined as:

- The **internet** is a globally-connected network of computers that enables people to share information and communicate with each other.

- An <u>intranet</u>, on the other hand, is a private and internal network that enables people to store, organize, and share information within an organization.
- An **extranet** is a web portal that is accessible by an organization and its external vendors, partners, customers, or any other users that require access to restricted information.

Now that we understand the fundamentals of each, let's discuss the differences between these three crucial types of networks.

Intranet vs. internet

Besides the spelling and pronunciation (which might sound forced and awkward at times), there are key differences between the first two. one of the most important being that an intranet is a platform that can be bought and sold (<u>or built</u>, in some cases), while the internet is the underlying technology that enables its connectivity. In terms of access, there are also differences between the two. Internet is a public network for all to use, while an intranet is private and internal to a given organization, for only its employees to connect and communicate.
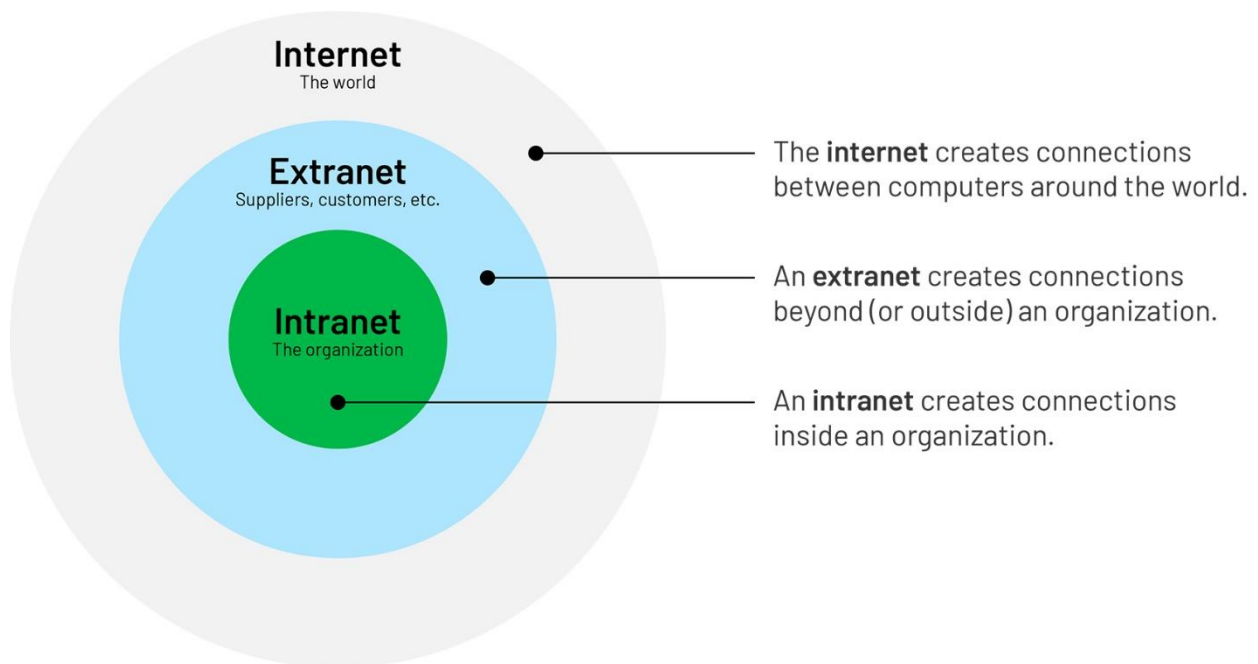
Intranet vs. extranet

The other type of "net" we're comparing, extranets, provides controlled access to both internal and external members. Some example use cases for an extranet include a *partner or vendor portal*, a *customer community*, or a *franchise network*. While both private networks, the people who have access, as well as the purpose of the each, is the difference again. Intranets are only used by internal personnel, while extranets are used as an interface between the organization and external parties who need access to certain information directly from your company.

Distinguishing the "net"

If you consider the prefix of each type of "net," the distinction becomes quite simple:

- ❖ "inter" means "between"
- ❖ "extra" means "outside"
- ❖ "intra" means "inside"

Internet
The world

Extranet
Suppliers, customers, etc.

Intranet
The organization

The **internet** creates connections between computers around the world.

An **extranet** creates connections beyond (or outside) an organization.

An **intranet** creates connections inside an organization.

As you can see, the broadest of these networks is the internet, followed by an extranet, with a company's intranet being their most core network. An effective and industry-leading intranet platform can be a huge influence on your organization's internal communication and collaboration abilities, which is why many companies use one.

Features for end-users

You need features that help users be more productive — saving them time, effort, and resources — by having everything available in one place. Not only do you want them to be more productive, but you also want them to be involved and engaged with what's happening around them.

Your intranet platform should help them do four key things: Consume content, find information, interact with each other, and manage their work. Features that enable this include:

- **Notifications:** Keep employees up to date with real-time notifications about new posts or content.

- **Subscriptions:** Receive instant, daily, weekly, or monthly notifications for followed content, as set by the user or administrator.

- **Social features:** Use blogs, polls, comments, and likes to build culture and create a dialogue between employees across your organization.

- **Search:** Quickly find anything in your intranet (or via integrations to third-party repositories), from files to articles to subject matter experts.

- **Profiles:** Find which colleague has the expertise you need by viewing their profile or starting a chat.

- **Microblogs:** Connect employees with their coworkers, near and far, by creating a virtual water cooler to share a quick note or direct them to important updates.

- **Tasks:** Make project management easy by keeping track of all your to-do's, reminders, and requests.

Features for content creators

These are your digital workplace managers, intranet managers, communicators, or anyone else who regularly posts content on the intranet. As the "super users" of the platform, they'll need access to a wide range of features that allow them to create, publish, distribute, and manage content - in a simple and seamless fashion. Features that enable this include:

- **Multiple content types:** Choose from different channels for publishing content, including blogs, wikis, calendars, and forums.

- **WYSIWYG editor:** Also known as a "What You See Is What You Get" editor, users can post content with the ability to format text, add images, embed videos, and switch to HTML code.

- **Translation:** Enable content creators to draft, review, and display content in multiple languages for end-users around the world.

- **Moderation:** Review and approve content and comments before they're published.

- **Broadcasts:** Call attention to important information by broadcasting messages to the entire organization or individual groups.

- **Drafts:** Save content as a draft so you can come back to it later and collaborate with other authors.

- **Future publish:** Schedule content to publish at a future date and time so you can load it when it works best for you.

- **Labels:** Make it easy to manage and find content by categorizing items by type, topic, department, or your own organizational labels.

- **Read tracking:** Enable users to acknowledge that they've read and understood a piece of content.

Features for administrators

This role can often be split amongst the digital workplace managers and your overloaded IT staff. You need features that ease the burden and allow them to breeze through admin tasks, with confidence in the platform's security and ability to hand off work to individual teams. Features that enable this include:

- **Easy configuration:** Use intuitive drag-and-drop controls to publish content, display information, and view and edit the structure of your intranet, including pages, spaces, and channels.

- **Admin controls:** Set permissions and manage members and user accounts with management settings.

- **Solutions:** Cut down on implementation time with pre-built solutions for common use cases like onboarding, team rooms, and knowledge bases.

- Authentication**:** Make it easy for users to log in to your intranet with single-sign-on (SSO) and LDAP integration.

- Integrations**:** Use a simple drag-and-drop widget to integrate out-of-the-box, third-party applications into your intranet.

- Reporting and analytics**:** Get performance and usage data at your fingertips - with preconfigured dashboards, overviews, and data from third-party analytics tools.

UNIT – IV

ELECTRONIC DATA INTERCHANGE

Introduction:

Electronic Data Interchange (EDI) is a computer-to-computer exchange of business documents in a standard electronic format between two or more trading partners. It enables companies to exchange information electronically in a structured format, eliminating the need for manual data entry and reducing the cost and time associated with paper-based transactions.

EDI was first introduced in the 1960s as a way for companies to exchange business documents electronically. Over time, the standardization of EDI formats and protocols has enabled businesses to integrate their internal systems with those of their trading partners, improving efficiency and reducing errors.

EDI transactions can include purchase orders, invoices, shipping notices, and other business documents. The EDI standard defines the format and content of these documents, ensuring that they are easily interpreted by both the sender and the receiver.

EDI has become an important part of many businesses, particularly those in the supply chain and logistics industries. It allows for faster and more accurate processing of transactions, leading to improved customer satisfaction and increased profits.

It is the world of the Internet, knowingly or unknowingly, everyone is attached to the internet and is dependent on the internet. Today, almost all the work is done through the Internet. Digital India is one example of how everything is going to be done through the internet in the upcoming years, not only in the upcoming years, even right now, most of the exchange of communication is done with the help of the internet, whether it is chatting on Whatsapp with friends or sending important information through the mail, all the work and communication is mostly done through the net.

Uses of EDI:

EDI is widely used in various industries for exchanging business documents electronically. Some of the common uses of EDI are:

- **Order Processing:** EDI allows companies to exchange purchase orders and sales orders electronically, eliminating the need for manual data entry and reducing errors.

- **Invoicing:** EDI can be used to exchange invoices electronically, reducing the time and cost associated with paper-based invoicing.

- **Shipping and Receiving:** EDI can be used to exchange shipping notices and receiving documents, enabling companies to track the movement of goods in real-time.

- **Inventory Management:** EDI can be used to exchange inventory information, enabling companies to manage their inventory levels more effectively.

- **Supply Chain Management:** EDI is used extensively in the supply chain management process, enabling companies to exchange information with their suppliers, distributors, and customers.

- **Healthcare:** EDI is used in the healthcare industry to exchange patient data, claims, and other healthcare-related information between healthcare providers, insurance companies, and government agencies.

- **Financial Transactions:** EDI can be used to exchange financial transactions such as payment advice and remittance advice, reducing the time and cost associated with manual payment processing.

Advantages of Electronic Data Interchange (EDI)

1. **Save Money:** Compared to properly implemented EDI software, the investment in paper and paper handling is insanely high. According to RJR Nabisco, completing a paper purchase order costs the company $70, which drops to 93 cents when an EDI buying order is processed.

2. **Repetition comes to an End:** If your trading partner wants an exact document copy, they may readily find their mailbox rather than call you. The time saved by not having to replicate precisely and fax or mail copies of business articles is significant.

3. **It saves time**: EDI is faster than paper processing since data is automatically transferred from one computer to another. With EDI, it is not necessary to re-key information. With no data application, the likelihood of inaccuracy decreases to almost nothing.

4. **Enhanced customer service:** You can do business more quickly and effectively thanks to the quick transfer of corporate papers and the anticipated drop in inaccuracies. An example of a retailer using a Vendor Stock Replenishment (VSR) program is KMart. With VSR, the KMart storage facility provides supplies while its EDI system accounts for them and invoices the customer automatically. It ensures that the product is routinely on the ledge and can decrease the alignment fulfilment cycle by several weeks.

5. **Helps Create a Detailed Customer Base:** You can finally expand your consumer base with better client service. Many significant merchants and manufacturers are providing their supplier's orders to start an EDI program. Therefore, the capability of EDI is an important addition when introducing a specific commodity to offer or a potential supplier to utilize.

6. **Boost the efficiency of business cycles:** When processing orders, efficiency is key. EDI accelerates business cycles by 61% because it enables process automation that greatly reduces, if not eliminates, the time delays involved with human processing involving entering, filing, and comparing data. Real-time data updates simplify and enhance the effectiveness of inventory management.

7. **Enhance business effectiveness:** Organizations can gain greater efficiency levels when reducing human error. Employees can spend their emphasis on more significant, value-adding work rather than trivial and monotonous chores. Because of the quicker procurement of products and services, EDI can also help a company manage its relationships with its clients and trading partners.

8. **Ecologically friendly and without paper:** The switch to electronic transactions from paper-based ones lowers CO_2 emissions and encourages corporate social responsibility.

9. **Security:** By tightly allocating data among a wider variety of connecting protocols and safety, EDI increases security for all transactions, lowering supply chain risks. The frictionless data transfer would benefit your trading partners, and access to technology opens the way for newer business potential.

Even though many firms are benefiting from EDI, others are still cautious about giving it a try due to a few drawbacks.

Disadvantages of Electronic Data Interchange (EDI)

1. **The expense of implementation:** While EDI offers substantial cost advantages, it can be expensive for small organizations to redesign and build software applications to link EDI with current systems. You must consider these EDI constraints if you intend to utilize the system.

2. **Protection of Electronic Systems:** EDI also requires significant investments in computer networks and protection mechanisms for maximum security. Any deployed EDI system would need to be secured against cyber threats, including viruses, malware, and hacking.

3. **Time spent on preliminary setup:** Not only is the installation of an EDI system expensive, but it also takes a long time to set up the necessary components. Therefore, such EDI limits can prevent services from being fast-tracked if urgently needed.

4. **Multiple Standards to Uphold:** Many companies considering EDI implementation believe the various standards are involved. Due to EDI's constraints, small firms cannot interchange data with larger organizations that employ the most recent version of a document standard. ANSI ASC X12, GS1 EDI, HL7, TRADACOMS, and UN/EDIFACT are well-known metrics examples.

5. **An adequate backup system:** Due to the dependence of business functionality on EDI installation, frequent maintenance is also required. A reliable data backup solution is needed in case of a system breakdown or for statistical purposes. Implementing these EDI constraints can be expensive.

6. **EDI constrains trading partners:** Large corporations frequently quit doing business with organizations that don't adhere to EDI standards. Walmart, for instance, only transacts business with companies that use EDI. Due to this, you can only conduct business with a small number of people.

EDI Documents:

The most common documents exchanged via EDI are:

- Invoices
- Purchase Orders
- Financial Information letters
- Transaction Bills
- Shipping requests and notifications
- Acknowledgment and feedback
- Transcripts
- Claims
- Business Correspondence letters

EDI Users:

- Central and state government agencies
- Industry
- Banking
- Retailing
- Manufacturing
- Insurance
- Healthcare
- Automotive
- Electronics

- Grocery
- Transportation

Components of Electronic Data Interchange EDI

→ **Standard Document Format** – A standard format agreed upon by both parties which do not require complicated hardware or software to access information. Both parties communicate directly through a business application.

→ **Translator and Mapper** – A translator is used to convert the raw data into meaningful information according to specifications provided by a mapper. A mapper is used to create conversion specification. It compiles the specification and then gives instructions to the translator on how to convert the data.

→ **Communication Software** – Communication software is used to transmit data and convert business documents into a standard format. It follows a standard communication protocol which is incorporated in the software.

→ **Communication Network** – A communication network provides a direct link between trading partners who are will to exchange business documents through Electronic Data Interchange EDI.

♣ Modem – It is a hardware device that transmits data from one computer to another.

♣ VAN – A network that connect the computer system of one organization to another.

♣ Point to Point link – A direct communication link between two computers.

## Applications of Electronic Data Interchange EDI

EDI in RETAIL INDUSTRY

→ **Retail Sector** – In the retail sector profit margins usually depend upon efficient inventory management. EDI provides a structured way to maintain and replenish goods

stocked at a retail outlet. Retailers use a common model stock for each shop location and the point of sale stock position is updated continuously and data in fed via EDI enabled SCM (supply chain management) network. The EDI software monitors all the logistics and makes updates in the original stock.
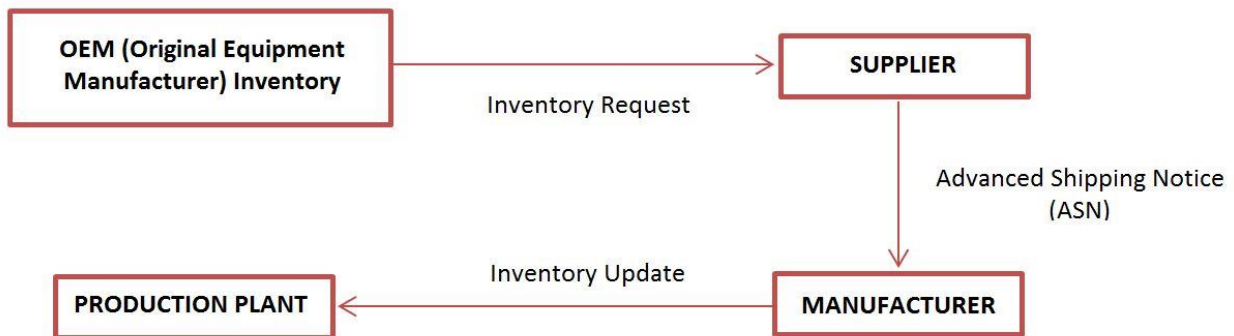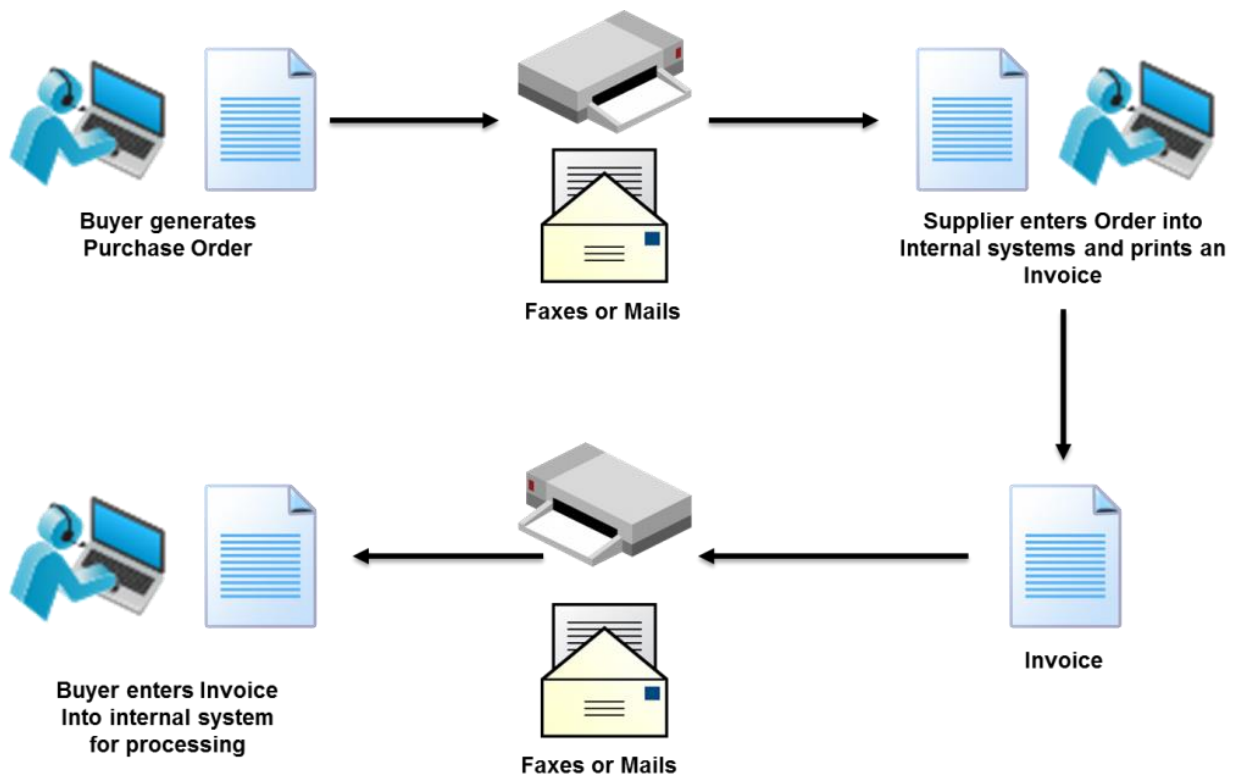

EDI in MANUFACTURING INDUSTRY

→ **Manufacturing Sector** – EDI ensures effective and efficient management of materials required for production of a commodity. In manufacturing sector EDI facilitates Material requirement planning and just in time manufacturing. The Inventory position of OEM is constantly updated through EDI and the supplier is notified about shortage of materials. This helps the supplier to plan and schedule supply according to requirements of the manufacturer. The suppliers respond via EDI with an ASN to identify the parts/materials to be delivered and the approximate delivery time and as soon as the shipment is delivered at the production plant the inventory is updated again.

→ **Automobile Sector** – In automobile sector EDI is used to keep customers updated with the current product and pricing information during the purchase cycle. An advance shipping notice is transmitted through EDI to the customers to prepare a loading schedule and to ensure proper receipt of the product. The customer may also make payment on receipt of goods via EDI to speed up the payment process.

→ **Financial Sector** – In the financial sector EDI replaces the labour intensive activities of collecting, processing and dispersing payments with an electronic system. It facilitates the flow of payment between the bank accounts of trading partners without requiring any human intervention. A payee`s bank account is electronically credited and the payer`s account is electronically credited on the scheduled day of payment; such an exchange is known as electronic fund transfer (EFT).

→ **Computer-to-computer**– EDI replaces postal mail, fax and email. While email is also an electronic approach, the documents exchanged via email must still be handled by people rather than computers. Having people involved slows down the processing of the documents and also introduces errors. Instead, EDI documents can straight through to the appropriate application on the receiver's computer (e.g., the Order Management System) and processing can begin immediately. A typical manual process looks like this, with lots of paper and people involvement:

Buyer generates Purchase Order

Faxes or Mails

Supplier enters Order into Internal systems and prints an Invoice

Invoice

Buyer enters Invoice Into internal system for processing

Faxes or Mails

The EDI Process Look Like This No Paper No People Involved

→ **Business documents** – These are any of the documents that are typically exchanged between businesses. The most common documents exchanged via EDI are purchase orders, invoices and advance ship notices. But there are many, many others such as bill of lading, customs documents, inventory documents, shipping status documents and payment documents.

→ **Standard format**– Because EDI documents must be processed by computers rather than humans, a standard format must be used so that the computer will be able to read and understand the documents. A standard format describes what each piece of information is

and in what format (e.g., integer, decimal, mmddyy). Without a standard format, each company would send documents using its company-specific format and, much as an English-speaking person probably doesn't understand Japanese, the receiver's computer system doesn't understand the company-specific format of the sender's format.

There are several EDI standards in use today, including ANSI, EDIFACT, TRADACOMS and ebXML. And, for each standard there are many deferent versions, e.g., ANSI 5010 or EDIFACT version D12, Release A. When two businesses decide to exchange EDI documents, they must agree on the specific EDI standard and version. Businesses typically use an EDI translator – either as in-house software or via an EDI service provider – to translate the EDI format so the data can be used by their internal applications and thus enable straight through processing of documents.

→ **Business partners** – The exchange of EDI documents is typically between two different companies, referred to as business partners or trading partners. For example, Company A may buy goods from Company B. Company A sends orders to Company B. Company A and Company B are business partners.

Features of EDI

To maximize the strategic value and ROI of your EDI software investment, you need a solution that maximizes automation, minimizes manual intervention and can smoothly and cost-effectively meet your changing business needs. That makes the following features paramount:

→ **Robust, proven integration with your business system**

EDI is among the highest-value integrations in your accounting systems environment because this eliminates time-consuming, error-prone manual effort that would otherwise be necessary to get orders, invoices and other EDI data in and out of the accounting system. Integrating EDI with a business system streamlines your order processing workflow for improved productivity and responsiveness to customers, while saving time and money. The more trading partners you have, the more operational costs you'll save through EDI and ERP integration. Conversely, an EDI system that does not integrate becomes a cost of doing business that offers little value-add.

→ **A simple, seamless user experience**

Business users in departments like customer service and shipping need to process EDI transactions efficiently and accurately, without having to become EDI experts. You should be able to manage EDI —by exception‖ so that transactions are automated unless exceptions occur. You should also be able to automatically schedule everyday tasks like importing and exporting EDI documents to and from your accounting system. More automation means faster processing and less errors—which, for suppliers and distributors, means happier customers and fewer chargeback's.

→ **Scalability and configurability for your specific needs**

Look for an EDI software provider that allows you to implement only the features you need now, with the option to add more capabilities (e.g., support for remote warehouse/3PL documents) on-demand in the future. Configurability to your specific accounting/ERP environment and business processes without customizations that could complicate your upgrades is also crucial. You want a proven, turnkey implementation and upgrade path that minimizes risk as your accounting and ERP environment changes.

→ **Lowest total cost of ownership**

A low initial cost doesn't mean that TCO will be low also. Monthly network charges can vary widely, for example. Likewise, many providers charge for updating trading partner mapping specifications, which change all the time. What about monthly maintenance fees? These costs can add up fast as a business grows. Are these included in the support contract or are they extra?

→ **Easy on boarding of new trading partners**

Growing companies need to on board new EDI trading partners quickly and smoothly. Make sure an EDI provider offers prebuilt templates and rules to make on boarding and compliance with major retailers and other partners quick and painless. Make sure also that it's easy to create partner-specific business rules.

→ **Single-vendor product support**

You want an EDI software solution that is developed, maintained and supported end-to-end by the same vendor. In particular, many EDI companies own only the EDI translator software and rely on systems integrators for their ERP integrations. A third party

might also support the VAN you're using. This can result in support problems and an increased risk of product obsolescence.

→ **Web-based and managed services options**

EDI for small businesses, and even large companies, is more and more commonly web-based. Choosing EDI ―in the cloud‖ compounds the advantages of a web-based accounting/ERP system, like faster time-to-value, reduced IT complexity, and ubiquitous access to data and fewer firewall, security and connectivity worries.

FTP

The term "File Transfer Protocol" refers to the method that personal computers employ in order to transmit files over the Internet. A user who is the recipient of the files will be granted a unique set of rights, which may include the ability to open the file, make changes to it, send it back, or forward it. All of these permissions are set by the sender, who also has the ability to adjust them according to the needs of their organization.

FTP is an extremely important tool for web developers because it is used to keep the content of websites up to date. Transferring a significant quantity of files quickly is a requirement for website hosting. FTP is the method that is both the safest and the quickest when it comes to sending large files over the Internet.

For FTP to function properly, there must first be a setup in both the connection and the communicator. Users need to have authorization, which can be obtained by supplying credentials to the FTP server. Only then can they create these two parties.

FTP is both transmitted and received through port 21, and the TCP protocol is used to facilitate the transfer of files between computers. Additionally, the transfer of files is asynchronous, which indicates that the transfer of files can take place in only one direction at any given time. This is because the transfer of files occurs from one system to the other. As a direct consequence of this, it is significantly quicker than the rest of the protocols.

Benefits of Using FTP

There are several methods available for sending files. However, some of the convincing arguments in favor of transferring data using FTP are as follows −

- **Security** − The provision of many layers of security is the primary advantage brought about by the utilization of an FTP server for the transmission of files. In addition, users have the ability to select the particular security mechanism that best suits their needs and use that for file transfers.

- **Control** − Another significant advantage is that you have complete command over the data transfer taking place. Even the smallest details of control have been handed over to you. In order to give you the ability to control who can upload files, download files, change files, and share files. FTP gives you the opportunity to operate your server in a more efficient manner, which means that not everyone in your company needs to have the same level of administrative power over the server.

- **Bigger File Transfers** − By using FTP servers, you won't have to worry about the difficulty of delivering larger files to the intended recipient. You may transfer gigabytes of data in a matter of seconds with a dedicated FTP server if you configure it with a network connection capable of 10 gigabits per second.

- **Disaster Recovery** − In the event that any of the systems in your firm become inoperable, the data stored on the FTP server can be retrieved. It will guarantee that none of your files are damaged in any way as a result of the malfunction in the system.

Drawbacks of Using FTP

Packet Capture Issue − FTP servers do not come equipped with their own encryption software. As a consequence, it becomes simple for a hacker to intercept the data flow and read out all of the information without first having to locate any public or private keys.

SMTP

An SMTP server's major function is to send, receive, and forward emails between the sender and the receiver. It does this by sending, receiving, and forwarding messages. The user's mail client or application can set the SMTP server's address, which is seen in

the header of outgoing messages. The server address for Gmail is an example of a frequently seen type of SMTP server.

The simple mail transfer protocol (SMTP) server is not quite the same as a regular server, but an SMTP server does not necessarily need to be hosted on a machine. In order to send and receive e-mail, it functions more like an application that stays active all the time.

Various SMTP Transfer Types

SMTP employs two techniques for sending and receiving email. End-toend and store-and-forward are two examples.

- **End-to-end** − The client's SMTP server will initiate the communication session throughout this transfer phase. The SMTP at the receiver's end, on the other hand, will respond to the client's request. Emails are sent to servers at multiple businesses using this form of transport. This model evolved as the favoured form of communication among various companies and domains.
- **Store-and-forward** − This mail transfer is only used when the sender and receiver are both from the same organisation and the communication has been established using the receiver's SMTP. The SMTP server will make a copy of the mail and store it until the receiver's SMTP successfully receives the copy of the mail.

Advantages of Using SMTP

Following are some of the notable advantages of using SMTP −

- **Easy to Use** − It is one of the quickest methods for sending and receiving text messages over the internet. It is applicable to a wide range of systems, networks, and even tools. Using the internet, even the most basic computer can send an email over the world.
- **Long Reach** − You can send mail from anywhere in the world and it will be sent to the recipient in an instant. The SMTP protocol was created primarily to convey text messages across the internet. As a result, when you send an email, it receives a priority transfer.

- **Connect with Any System** − Emails have become an integral part of our daily lives. If you work in a firm, you understand how critical it is to monitor your emails. Emails may now be sent from any smartphone, eliminating the requirement for a computer or laptop nearby. Even a first-generation smartphone could send email. This demonstrates how adaptable the SMTP connection is. When it comes to compatibility, it truly has no bounds.
- **No Need of Development** − SMTP is already a well-established and widely used protocol. This transfer protocol requires no additional work on your part.

Difference between FTP and SMTP

The following table highlights the major differences between FTP and SMTP −

Basis of comparison	FTP	SMTP
Full-Form	File Transfer Protocol	Simple Mail Transfer Protocol
Protocol	FTP's TCP connection is persistent for the control connection, but if TCP is used for data, the FTP protocol becomes non-persistent.	Transfer protocols mostly operate on the push protocol system.
Number of TCP Connections	2	1
Port number	FTP employs port numbers 20 and 21.	Port 25 is used by SMTP.
Type of Band	FTP makes use of out-ofband transport techniques.	In-band transfer techniques are used for the SMTP connection.
Type of TCP Connection	Both Persistent and Non- Persistent	Persistent

FTP and SMTP are both connection-oriented protocols. The most frequently used communication protocol is FTP, while SMTP is a well-known protocol in electronic mail. FTP is used for downloading files, while SMTP is used for send emails.

SMTP allows mails to be transferred between sender and receiver on the same or different computers. FTP, on the other hand, divides the client and server into data and control.

POP Protocol

POP is a short form of Post Office Protocol. It is another protocol present at the Application Layer of the OSI reference model.

- POP is mainly a message access protocol.
- POP is basically an internet standard protocol and as we already told you it works on the application layer and is used by the local email software in order to retrieve emails from the remote email server over the TCP/IP connection.
- The Post office Protocol (POP) does not allow any search facility.
- This protocol mainly allows one protocol to be created on the server.
- As this protocol supports offline access to the messages and so less internet usage time is required by this.
- Non-email data is not accessed by this protocol.
- Some of the common clients that make use of POP3 are Gmail, Netscape, Internet Explorer, Eudora.

Working of POP

All the incoming messages are stored on the POP server until the user login by using an email client and downloads the message to their computer. After the message is downloaded by the user it gets deleted from the server.

As we know that the SMTP is used to transfer the email message from the server to the server, basically POP is used to collect the email with an email client from the server and it does not include means to send messages.
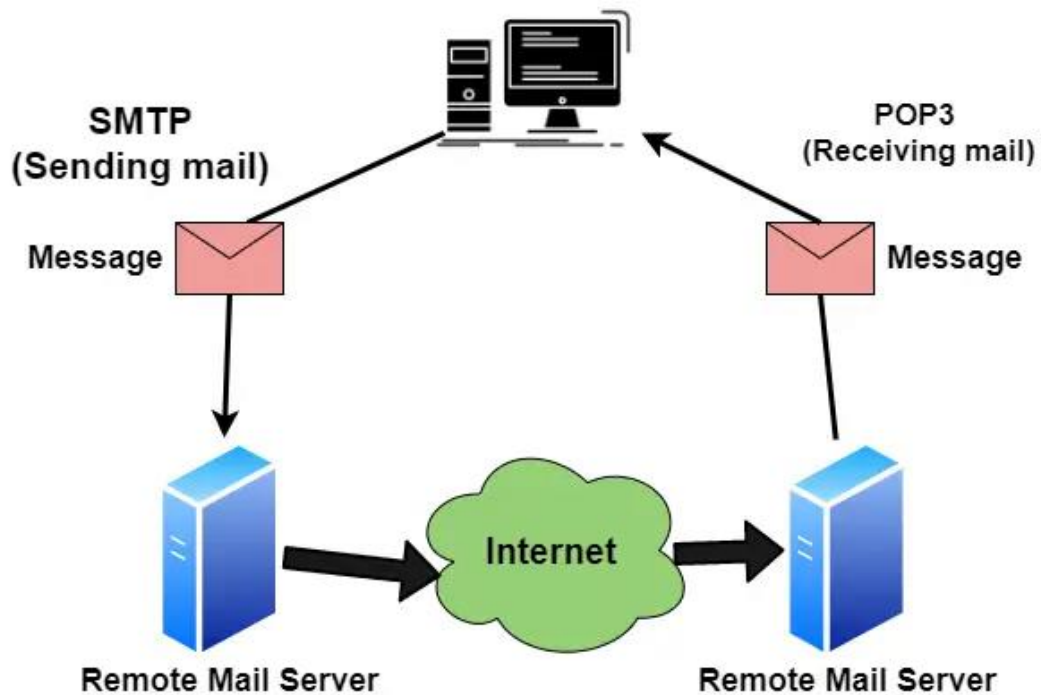
If any user tries to check all the recent emails then they will establish a connection with the **POP3** at the server-side. The user sends the username and password to the server machine for getting the proper authentication. After getting the connection, users can receive all text-based emails and store them on their local terminal (machine), then finally discard all server copies and then breaks the connection from the server machine.

In order to retrieve a message from the server following steps are taken;

- Firstly a TCP connection is established by the client using port 110.
- The client identifies itself to the server.
- After that client issues a series of POP3 commands.
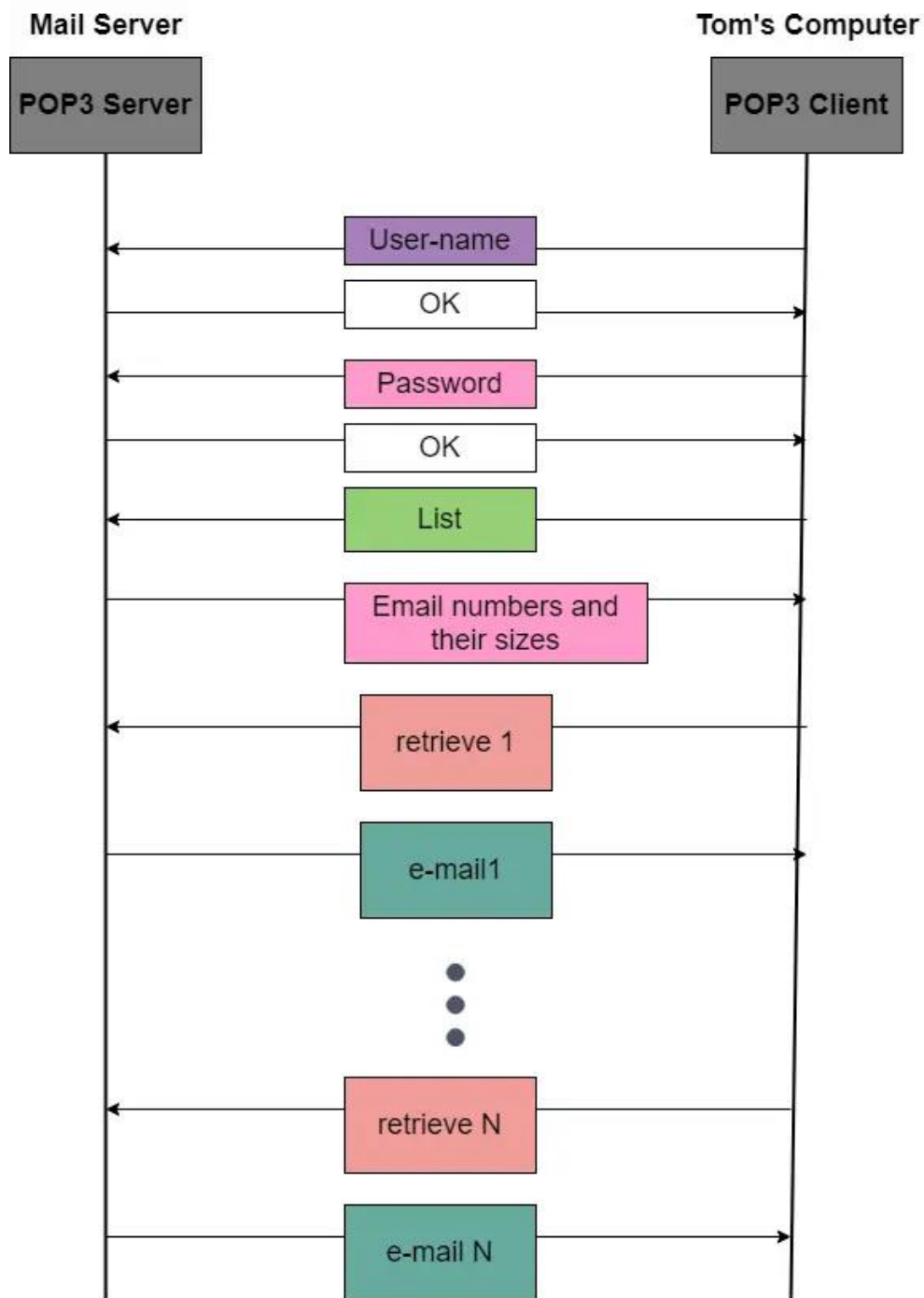
The above figure indicates the exchange of Commands and responses in the POP3

Features of POP protocol

Given below are some of the features provided by the POP protocol:

- The POP protocol uses PORT 110.
- It makes the use of a Persistent TCP connection.

- It is a Pull protocol.
- It is a connection-oriented protocol.
- The POP protocol is a stateful protocol until the mail is downloaded and across the sessions, it is a stateless protocol.

Let us now take a look at the commands of POP:

Commands	Description
LOGIN	This command is used to open a connection
STAT	This command is used to display the messages that are currently in the mailbox.
DELE	This command is used to delete a message.
RSET	This command is mainly used to reset the session to its initial state.
QUIT	This command is used to log off the session.
LIST	This command is mainly used to get the summary of each message where each message summary is shown.
RETR	This command is mainly used to select a mailbox in order to access the messages.

Advantages of POP

Given below are the advantages offered by the POP :

- This protocol does not require any internet connection in order to access the downloaded emails.
- In order to receive emails on a single device, POP3 is very useful.
- The Configuration of this protocol is simple and it is easy to use.
- Less storage space is needed in order to store emails on the hard disk.
- This protocol is much better for the ones who hardly check their email on any other computer.

Disadvantages of POP

Now it's time to take a look at the drawbacks of Post office Protocol(POP):

- The same email account cannot be accessed from multiple computers or devices.
- The spread of the virus is easily using this protocol because it is possible that the file attached with the email contains the virus.
- The transfer of the local email folder to another email client terminal point is a difficult task.

TCP/IP Model

TCP/IP was designed and developed by the Department of Defence (DoD) in the 1960s and is based on standard protocols. It stands for Transmission Control Protocol/Internet Protocol. The TCP/IP model is a concise version of the OSI model. It contains four layers, unlike the seven layers in the OSI model.

The number of layers is sometimes referred to as five or four. Here In this article, we'll study five layers. The Physical Layer and Data Link Layer are referred to as one single layer as the 'Physical Layer' or 'Network Interface Layer' in the 4-layer reference.

The main work of TCP/IP is to transfer the data of a computer from one device to another. The main condition of this process is to make data reliable and accurate so that the sender will receive the same information which is sent by the receiver. To ensure that, each message reaches its final destination accurately, the TCP/IP model divides its data into packets and combines them at the other end, which helps in maintaining the accuracy

of the data while transferring from one end to another end.

Difference between TCP and IP

TCP and IP are different protocols of Computer Networks. The basic difference between TCP (Transmission Control Protocol) and IP (Internet Protocol) is in the transmission of data. In simple words, IP finds the destination of the mail and TCP has the work to send and receive the mail. UDP is another protocol, which does not require IP to communicate with another computer. IP is required by only TCP. This is the basic difference between TCP and IP.

TCP/IP Model Work

Whenever we want to send something over the internet using the TCP/IP Model, the TCP/IP Model divides the data into packets at the sender's end and the same packets have to be recombined at the receiver's end to form the same data, and this thing happens to maintain the accuracy of the data. TCP/IP model divides the data into a 4-layer procedure, where the data first go into this layer in one order and again in reverse order to get organized in the same way at the receiver's end.

Layers of TCP/IP Model

1. Application Layer

2. Transport Layer(TCP/UDP)

3. Network/Internet Layer(IP)

4. Data Link Layer (MAC)

5. Physical Layer

The diagrammatic comparison of the **TCP/IP and OSI** model is as follows:
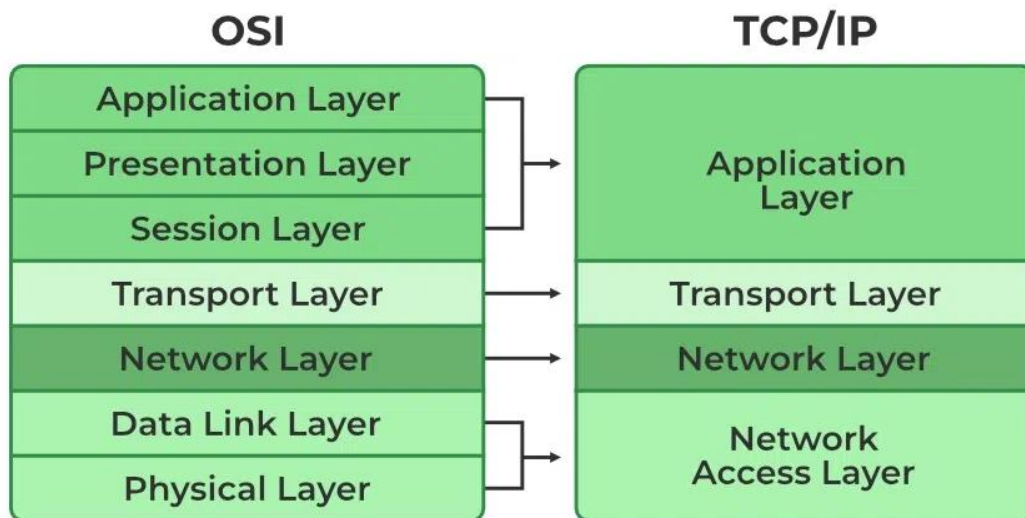
1. Physical Layer

It is a group of applications requiring network communications. This layer is responsible for generating the data and requesting connections. It acts on behalf of the sender and the Network Access layer on the behalf of the receiver. During this article, we will be talking on the behalf of the receiver.

2. Data Link Layer

The packet's network protocol type, in this case, TCP/IP, is identified by the data-link layer. Error prevention and "framing" are also provided by the data-link layer. Point-to-Point Protocol (PPP) framing and Ethernet IEEE 802.2 framing are two examples of data-link layer protocols.

3. Internet Layer

This layer parallels the functions of OSI's Network layer. It defines the protocols which are responsible for the logical transmission of data over the entire network. The main protocols residing at this layer are as follows:

- **IP:** IP stands for Internet Protocol and it is responsible for delivering packets from the source host to the destination host by looking at the IP addresses in the packet headers. IP has 2 versions: IPv4 and IPv6. IPv4 is the one that most websites are using

currently. But IPv6 is growing as the number of IPv4 addresses is limited in number when compared to the number of users.

- **ICMP:** <u>ICMP</u> stands for Internet Control Message Protocol. It is encapsulated within IP datagrams and is responsible for providing hosts with information about network problems.

- **ARP:** <u>ARP</u> stands for Address Resolution Protocol. Its job is to find the hardware address of a host from a known IP address. ARP has several types: Reverse ARP, Proxy ARP, Gratuitous ARP, and Inverse ARP.

The Internet Layer is a layer in the Internet Protocol (IP) suite, which is the set of protocols that define the Internet. The Internet Layer is responsible for routing packets of data from one device to another across a network. It does this by assigning each device a unique IP address, which is used to identify the device and determine the route that packets should take to reach it.

Example: Imagine that you are using a computer to send an email to a friend. When you click "send," the email is broken down into smaller packets of data, which are then sent to the Internet Layer for routing. The Internet Layer assigns an IP address to each packet and uses routing tables to determine the best route for the packet to take to reach its destination. The packet is then forwarded to the next hop on its route until it reaches its destination. When all of the packets have been delivered, your friend's computer can reassemble them into the original email message.

In this example, the Internet Layer plays a crucial role in delivering the email from your computer to your friend's computer. It uses IP addresses and routing tables to determine the best route for the packets to take, and it ensures that the packets are delivered to the correct destination. Without the Internet Layer, it would not be possible to send data across the Internet.

4. Transport Layer

The TCP/IP transport layer protocols exchange data receipt acknowledgments and retransmit missing packets to ensure that packets arrive in order and without error. End-

to-end communication is referred to as such. Transmission Control Protocol (TCP) and User Datagram Protocol are transport layer protocols at this level (UDP).

- **TCP:** Applications can interact with one another using <u>TCP</u> as though they were physically connected by a circuit. TCP transmits data in a way that resembles character-by-character transmission rather than separate packets. A starting point that establishes the connection, the whole transmission in byte order, and an ending point that closes the connection make up this transmission.

- **UDP:** The datagram delivery service is provided by <u>UDP</u>, the other transport layer protocol. Connections between receiving and sending hosts are not verified by UDP. Applications that transport little amounts of data use UDP rather than TCP because it eliminates the processes of establishing and validating connections.

5. Application Layer

This layer is analogous to the transport layer of the OSI model. It is responsible for end-to-end communication and error-free delivery of data. It shields the upper-layer applications from the complexities of data. The three main protocols present in this layer are:

- **HTTP and HTTPS:** <u>HTTP</u> stands for Hypertext transfer protocol. It is used by the World Wide Web to manage communications between web browsers and servers. HTTPS stands for HTTP-Secure. It is a combination of HTTP with SSL(Secure Socket Layer). It is efficient in cases where the browser needs to fill out forms, sign in, authenticate, and carry out bank transactions.

- **SSH:** <u>SSH</u> stands for Secure Shell. It is a terminal emulations software similar to Telnet. The reason SSH is preferred is because of its ability to maintain the encrypted connection. It sets up a secure session over a TCP/IP connection.

- **NTP:** <u>NTP</u> stands for Network Time Protocol. It is used to synchronize the clocks on our computer to one standard time source. It is very useful in situations like bank transactions. Assume the following situation without the presence of NTP. Suppose you carry out a transaction, where your computer reads the time at 2:30 PM while the server records it at 2:28 PM. The server can crash very badly if it's out of sync.

The host-to-host layer is a layer in the OSI (Open Systems Interconnection) model that is responsible for providing communication between hosts (computers or other devices) on a network. It is also known as the transport layer.

Some common use cases for the host-to-host layer include:

1. **Reliable Data Transfer:** The host-to-host layer ensures that data is transferred reliably between hosts by using techniques like error correction and flow control. For example, if a packet of data is lost during transmission, the host-to-host layer can request that the packet be retransmitted to ensure that all data is received correctly.

2. **Segmentation and Reassembly:** The host-to-host layer is responsible for breaking up large blocks of data into smaller segments that can be transmitted over the network, and then reassembling the data at the destination. This allows data to be transmitted more efficiently and helps to avoid overloading the network.

3. **Multiplexing and Demultiplexing:** The host-to-host layer is responsible for multiplexing data from multiple sources onto a single network connection, and then demultiplexing the data at the destination. This allows multiple devices to share the same network connection and helps to improve the utilization of the network.

4. **End-to-End Communication:** The host-to-host layer provides a connection-oriented service that allows hosts to communicate with each other end-to-end, without the need for intermediate devices to be involved in the communication.

Example: Consider a network with two hosts, A and B. Host A wants to send a file to host B. The host-to-host layer in host A will break the file into smaller segments, add error correction and flow control information, and then transmit the segments over the network to host B. The host-to-host layer in host B will receive the segments, check for errors, and reassemble the file. Once the file has been transferred successfully, the host-to-host layer in host B will acknowledge receipt of the file to host A.

In this example, the host-to-host layer is responsible for providing a reliable connection between host A and host B, breaking the file into smaller segments, and reassembling the segments at the destination. It is also responsible for multiplexing and demultiplexing the data and providing end-to-end communication between the two hosts.

Other Common Internet Protocols

TCP/IP Model covers many Internet Protocols. The main rule of these Internet Protocols is how the data is validated and sent over the Internet. Some Common Internet Protocols include:

- **HTTP (Hypertext Transfer Protocol):** HTTP takes care of Web Browsers and Websites.
- **FTP (File Transfer Protocol):** FTP takes care of how the file is to be sent over the Internet.
- **SMTP (Simple Mail Transfer Protocol):** SMTP is used to send and receive data.

Difference between TCP/IP and OSI Model

TCP/IP	OSI
TCP refers to Transmission Control Protocol.	OSI refers to Open Systems Interconnection.
TCP/IP uses both the session and presentation layer in the application layer itself.	OSI uses different session and presentation layers.
TCP/IP follows connectionless a horizontal approach.	OSI follows a vertical approach.
The Transport layer in TCP/IP does not provide assurance delivery of packets.	In the OSI model, the transport layer provides assurance delivery of packets.
Protocols cannot be replaced easily in TCP/IP model.	While in the OSI model, Protocols are better covered and are easy to replace with the technology change.
TCP/IP model network layer only provides connectionless services.	Connectionless and connection-oriented services are provided by the network layer in the OSI model.

Most Common TCP/IP Protocols

Some widely used most common TCP/IP protocol are:

TCP:

Transmission Control Protocol is an internet protocol suite which breaks up the message into TCP Segments and reassembling them at the receiving side.

IP:

An Internet Protocol address that is also known as an IP address is a numerical label. It is assigned to each device that is connected to a computer network which uses the IP for communication. Its routing function allows internetworking and essentially establishes the Internet. Combination of IP with a TCP allows developing a virtual connection between a destination and a source.

HTTP:

The Hypertext Transfer Protocol is a foundation of the World Wide Web. It is used for transferring webpages and other such resources from the HTTP server or web server to the web client or the HTTP client. Whenever you use a web browser like Google Chrome or Firefox, you are using a web client. It helps HTTP to transfer web pages that you request from the remote servers.

SMTP:

SMTP stands for Simple mail transfer protocol. This protocol supports the e-mail is known as a simple mail transfer protocol. This protocol helps you to send the data to another e-mail address.

SNMP:

SNMP stands for Simple Network Management Protocol. It is a framework which is used for managing the devices on the internet by using the TCP/IP protocol.

DNS:

DNS stands for Domain Name System. An IP address that is used to identify the connection of a host to the internet uniquely. However, users prefer to use names instead of addresses for that DNS.

TELNET:

TELNET stands for Terminal Network. It establishes the connection between the local and remote computer. It established connection in such a manner that you can simulate your local system at the remote system.

FTP:

FTP stands for File Transfer Protocol. It is a mostly used standard protocol for transmitting the files from one machine to another.

Advantages of the TCP/IP model

Here, are pros/benefits of using the TCP/IP model:

- It helps you to establish/set up a connection between different types of computers.
- It operates independently of the operating system.
- It supports many routing-protocols.
- It enables the internetworking between the organizations.
- TCP/IP model has a highly scalable client-server architecture.
- It can be operated independently.
- Supports a number of routing protocols.
- It can be used to establish a connection between two computers.

Disadvantages of the TCP/IP model

Here, are few drawbacks of using the TCP/IP model:

- TCP/IP is a complicated model to set up and manage.
- The shallow/overhead of TCP/IP is higher-than IPX (Internetwork Packet Exchange).
- In this, model the transport layer does not guarantee delivery of packets.
- Replacing protocol in TCP/IP is not easy.
- It has no clear separation from its services, interfaces, and protocols.

UNIT – V

E COMMERCE SUPPORTING FUNCTIONS

INTRODUCTION

As an area of research, Electronic Commerce has various facets that span from the economic and legal infrastructure over software standards and platforms to horizontal applications (which are specie for a certain function) and vertical applications that address the needs of a certain business sector. In this article, we will present electronic contracting as a horizontal transaction support function. Electronic contracting can be dined as the complete process that is required to achieve a legally supported business relationship that is accompanied by an electronic contract as the common and neutral representation for all obligations the involved parties agreed on.

PURCHASE AND SALES PROCEDURE

Purchase procedure

Purchasing is the process a business or organization uses to acquire goods or services to accomplish its goals. Although there are several organizations that attempt to set standards in the purchasing process, processes can vary greatly between organizations. Purchasing is part of the wider procurement process, which typically also includes expediting, supplier quality, transportation, and logistics. Following purchasing procedure is generally followed

1. Determining Purchase Budget:

Purchase Manager prepares a purchase budget for the forthcoming financial year. Purchase budget is prepared with the help of production planning department. It contains detailed information regarding quantity to be purchased, quality of materials, time of purchase and the sources of procurement. A schedule of materials and components needed for various jobs, known as bill of materials, is also prescribed for working out details of purchase budget. A bill of materials is also useful in exercising control over the utilization of materials.

2. Receipt of Purchase Requisition

The purchase officer initiates action for the purchase of materials only when he receives a request for the same. The store-keeper and departmental heads send requisition slips to purchase department giving details of materials required by their departments etc. A purchase requisition is a form used as a formal request to the purchasing department to purchase materials.

This form is prepared by the store keeper for regular stock materials and by the departmental head for specific materials not stocked as regular items. The store-keeper knows when an action or fresh procurements is to be initiated. He will send the requisition when materials reach re-ordering level. He retains one copy of the requisition with him for future reference. It is on the basis of purchase requisition that orders are placed for materials.

3. Determining Sources of Supply

Purchase Manager remains in touch with various suppliers of materials. The quotations are invited for the purchase of specific items. After receiving quotations a comparative study is made regarding terms and conditions offered. The factors to be considered include price, quantity, quality, time of delivery, terms of payment, trade discount and reputation of suppliers. After looking at various factors a final decision is taken about the supplier of goods.

4. Placing Order

After selecting a supplier a formal purchase order is sent for the supply of goods. A purchase order is sent on a printed form and is duly authorized by the purchase manager. This order should contain details about the quantity, quality, price, mode of delivery, terms of payment etc. The purchase order authorizes the vendor to despatch goods specified in it. It establishes a contractual relation between the buyer and the vendor.

5. Follow-Up of Purchase Order

A purchase order normally bears a date by which the goods must be delivered It is in the interest of the organization that goods are received in time for keeping uninterrupted flow of materials. The suppliers may be reminded of the date of delivery of goods. A follow-up of purchase order is necessary to receive stocks in time.

6. Receipt and Inspection of Materials

In big concerns the task of receiving materials is assigned to the purchase department whereas in small concerns this work is done by the store keeper. After unpacking goods their quantity is compared to that given in delivery challans. Any discrepancy in items is reported to the purchase department. The specifications and quality of goods is also checked at this stage.

7. Checking Invoices

Lastly, purchase department checks the invoices supplied by the vendor with that of its own records. The quantity, quality, price, terms etc. are compared with those given in purchase order. After making full checking the invoices are sent to accounts department for payment.

Sales procedure

A sales process is a set of repeatable steps that a sales person takes to take a prospective buyer from the early stage of awareness to a closed sale. Typically, a sales process consists of 5-7 steps: Prospecting, Preparation, Approach, Presentation, Handling objections, Closing, and Follow-up.

7-step sales process

What are the seven steps of the sales process according to most sales masters? The following steps provide a good outline for what you should be doing to find potential customers, close the sale, and retain your clients for repeat business and referrals in the future.

1. Prospecting

The first of the seven steps in the sales process is prospecting. In this stage, you find potential customers and determine whether they have a need for your product or service—and whether they can afford what you offer. Evaluating whether the customers need your product or service and can afford it is known as qualifying. in mind that, in modern sales, it's not enough to find one prospect at a company: There are an average of 6.8 customer stakeholders involved in a typical purchase, so you'll want to practice multi-threading, or connecting with multiple decision-makers on the purchasing side. Account maps are an effective way of identifying these buyers.

2. Preparation

The second stage has you in preparation for initial contact with a potential customer, researching the market and collecting all relevant information regarding your product or service. At this point, you develop your sales presentation and tailor it to your potential client's particular needs.

3. Approach

In the approach stage, you make first contact with your client. Sometimes this is a face-toface meeting, sometimes it's over the phone. There are three common approach methods. approach: Presenting your potential client with a gift at the beginning of your interaction Question approach: Asking a question to get the prospect interested Product approach: Giving the prospect a sample or a free trial to review and evaluate your service Dive deeper into the various sales approaches you can use to start a relationship off on the right foot.

4. Presentation

In the presentation phase, you actively demonstrate how your product or service meets the needs of your potential customer. The word presentation implies using PowerPoint and giving a salesy spiel, but it doesn't always have to be that way—you should actively listen to your customer's needs and then act and react accordingly.

5. Handling objections

Perhaps the most underrated of the seven steps of a sales process is handling objections. This is where you listen to your prospect's concerns and address them. It's also where many unsuccessful salespeople drop out of the process—44% of salespeople abandoning pursuit after one rejection, 22% after two rejections, 14% after three, and 12% after four, even though 80% of sales require at least five follow-ups to convert. Successfully handling objections and alleviating concerns separates good salespeople from bad and great from good. Use this flowchart to map out objections and link to relevant collateral

6. Closing

In the closing stage, you get the decision from the client to move forward. Depending on your business, you might try one of these three closing techniques.

Alternative choice close: Assuming the sale and offering the prospect a choice, where both options close the sale—for example, "Will you be paying the whole fee up front or in installments?" or "Will that be cash or charge?" Extra inducement close: Offering something extra to get the prospect to close, such as a free month of service or a discount Standing room only close: Creating urgency by expressing that time is of the essence—for example, "The price will be going up after this month" or "We only have six spots left"

7. Follow-up

Once you have closed the sale, your job is not done. The follow-up stage keeps you in contact with customers you have closed, not only for potential repeat business but for referrals as well. And since retaining current customers is six to seven times less costly than acquiring new ones, maintaining relationships is key.

Supply chain management in e-commerce

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. SCM represents an effort by suppliers to develop and implement supply chains that are as efficient and economical as possible. Supply chains cover everything from production to product development to the information systems needed to direct these undertakings.

Objectives of SCM

A well designed SC is expected to support the strategic objectives of

1. Solving supplier's problems and beyond his level.

2. Customer service performance improvement.

3. Reduction of pre & post production inventory.

4. Minimizing variance by means of activities like standardization, variety reduction, etc.

5. Minimum total cost of operation & procurement.

6. Product Quantity control.

7. Achieving maximum efficiency in using labour, capital & plant through the company.

8. Flexible planning and control procedures.

Importance of Supply Chain Management

It is well known that supply chain management is an integral part of most businesses and is essential to company success and customer satisfaction. The main importance of Supply Chain Management are

REDUCE OPERATING COSTS

Importance of supply chain management Decreases Purchasing Cost – Organizations generally prefer quick distributions of costly products and raw materials to avoid expensive inventory Decrease Production Cost – A reliable supply chain delivers materials to assembly plants and avoid any costs that may occur due to delays. importance of supply chain management

IMPROVE CUSTOMER SERVICES

Right quantity and quality – Customer expects delivery of right quantity and quality of products.

On-time delivery – Customers expect to receive the correct product mix and quantity to be delivered on time. A reliable supply chain can help in avoiding any bottlenecks and ensure customers get their products in the promised time frame

Services – After sales services is one of the important aspects in any business. If any kind of problem occur in the product, customer expects it to be fixed quickly. A right supply chain ensures that customers get the service they want.

Today's global supply chains are increasingly complex, making a data-driven approach to supply chain management a must. Data-driven SCM provides visibility from end to end for monitoring the flow of information, services and goods from procurement to manufacturing and delivery to the end consumer. Data isn't the only driver of effective supply chain management; other factors such as good vendor and supplier relationships, effective cost control, securing the right logistics partners and adopting innovative supply chain technologies make a big impact, too. Supply chain optimization isn't a simple undertaking, but effective SCM offers numerous benefits that improve the bottom line. Here's a look at eight of the most important benefits of effective supply chain management.

Benefits of supply chain management

Better collaboration

Information flow is a prominent challenge for companies. According to Oracle, 76% of companies lack an automated flow of information across the supply chain, and half of companies say fragmented information results in lost sales opportunities. Integrated software solutions remove bottlenecks and allow for the seamless sharing of information, providing a big-picture view of the supply chain from end to end. Thanks to improved access to data, supply chain leaders have the information they need, in context, to make more informed decisions.

Improved quality control

Quality control issues follow the rule of 10, explains Arshad Hafeez, Global Expert for Supply Chain Management and Quality Control, SCM-Group Function (GF) in an article for CIO Review. According to the rule of 10, the cost to replace or repair an item increases by tenfold at each step of the progression, resulting in significant costs for companies when quality issues arise. Companies that have greater control over not only their direct suppliers but also their suppliers' suppliers benefit from improved quality control. Implementing standard minimum quality criteria, for instance, enables direct suppliers to identify and partner with secondary suppliers that meet those requirements. Likewise, process guidelines can help suppliers comply with your company's quality requirements. Some companies go beyond simply providing criteria, conducting periodic audits or requesting documentation verifying suppliers' compliance steps. Hafeez recommends implementing a Management Operating System (MOS) for monitoring key performance indicators including:

* On-time delivery

* Scrap rates, reworks and similar issues at suppliers

* Final product quality (as received by end customers)

* Time for complaint resolution * Findings from supplier quality assessments

* By analyzing performance data, companies can partner with the highest-performing vendors and suppliers to maintain strict quality control.

Higher efficiency rate

Having real-time data on the availability of raw materials and manufacturing delays allows companies to implement backup plans, such as sourcing materials from a backup supplier, preventing further delays. Without real-time data, companies often don't have time to initiate plan B, resulting in issues such as out-of-stock inventory or late shipments to end consumers.

Implementing smart automation solutions also results in higher efficiency. Healing Hands Scrubs, for example, implemented 6 River Systems' collaborative mobile robots, doubling productivity and reducing unnecessary walking by 75%. Investing in the right automation solutions and leveraging data to minimize delays supports a positive customer experience and boosts your company's reputation.

Keeping up with demand

"If consumer sales increase by 5 percent in a given week, a retailer could end up ordering 7 percent more product in response to the increase and a feeling that demand will continue," according to a report by VISA. "The next link in the chain, observing what appears to be a 7 percent increase in demand, then orders a larger increase on his supplier. Eventually the factory may observe an inflated 20 percent increase in orders." Known as the bullwhip effect, this phenomenon often results from delays in communicating supply and demand changes. Supply chain leaders with access to realtime, accurate information and integrated data can better predict demand and readily respond to changing market conditions to avoid challenges like the bullwhip effect.

Shipping optimization

According to Logistics Management's The State of Logistics Report, freight transportation costs increased by 7% from 2016 to 2017, while private and dedicated trucking costs increased by 9.5%. Less-than-truckload costs rose by 6.6%, and full truckload costs rose by 6.4%. Due to rising costs, shipping optimization is a priority for supply chain leaders. Identifying the most efficient shipping methods for small parcels, large bulk orders and other shipping scenarios helps companies get orders to customers faster while minimizing costs. Not only do those cost savings boost the company's bottom line, but savings can be passed on to consumers as well to improve customer satisfaction.

Reduced overhead costs

With more accurate demand predictions, companies can reduce the overhead costs associated with storing slow-moving inventory by stocking less low-velocity inventory to make room for higher-velocity, revenue-producing inventory. Warehouse fulfillment costs contribute significantly to overhead. Reduce these costs by optimizing your warehouse layout, adopting the right automation solutions to improve productivity and implementing a better inventory management system. Identifying unnecessary spend is another way to achieve leaner operations. If you're facing high logistics costs, for instance, switching to another provider offering the same service level and quality at a lower cost is a quick win.

Improved risk mitigation

Analyzing big-picture and granular supply chain data can reveal potential risks, enabling companies to put backup plans in place to readily respond to unexpected circumstances. By taking proactive action, rather than reacting to supply chain disruptions, quality control issues or other concerns as they arise, companies can avoid negative impacts. Understanding risks also helps companies achieve leaner operations. For instance, 87% of companies believe they could reduce inventory by 22% if they had a better understanding of risks in their supply chains.

Improved cash flow

The benefits discussed above allow companies to make smarter decisions, choose the right partners, accurately predict and respond to market and demand changes and reduce supply chain disruptions, but that's not all: they also improve the company's bottom line. For example, working with reliable suppliers not only means fewer disruptions and more satisfied customers, but it also improves cash flow by allowing you to invoice (and get paid for products and services) sooner. Implementing more cost-effective solutions to eliminate wasteful spend and reducing overhead costs also contribute to positive cash flow. Supply chain disruptions have a domino effect, impacting every juncture throughout the supply chain, but the same is true for the positives: effective supply chain management has direct and secondary effects that support the efficient, seamless flow of information, goods and services from procurement through final delivery.

DISADVANTAGES OF SUPPLY CHAIN MANAGEMENT

Lack of Coordination between Various Departments

The biggest disadvantage of supply chain management is that it can work only if there is proper coordination between all the departments of the company and if departments are at loggerheads than this system will be a failure. Hence for example, if the marketing department does not inform the production department about the possible order than the production department will not be able to produce the desired order on time.

Complicated

Since it involves multiple departments sometimes it can be complicated and may hamper the normal working of the company besides workers as well as employees may feel insecure and demotivated because human beings by nature resist new things and to them the concept of supply chain management may appear very complicated resulting in them accepting this management half-heartedly.

Trained and Professional Staff

It requires professional and trained staff in order to properly execute supply chain management and in order to hire professional staff company will need to pay money which is an expensive proposition which is the reason why small companies seldom go for supply chain management as expenses of implementing this system outweighs its benefits. one can see from the above that supply chain management has advantages as well as disadvantages and that is the reason why any company thinking of adopting this management should carefully read above points and then decide whether to implement supply chain management into the company or not.

Value Chain

A value chain is a business model that describes the full range of activities needed to create a product or service. For companies that produce goods, a value chain comprises the steps that involve bringing a product from conception to distribution, and everything in between-such as procuring raw materials, manufacturing functions, and marketing activities.

A company conducts a value-chain analysis by evaluating the detailed procedures involved in each step of its business. The purpose of a value-chain analysis is to increase

production efficiency so that a company can deliver maximum value for the least possible cost.

IMPORTANCE OF E-PAYMENT SYSTEMS

The advancement in telecommunication, electronic payment systems are rapidly replacing the traditional modes of payment that involved personal contact between buyers and sellers. Electronic payment systems entail online financial transactions that utilize some form of a digital financial device, such as e-tokens, e-cash and checks. E-payment systems present a number of benefits to both individuals and businesses.

Variety of Choice

Electronic payment systems allow financial institutions, businesses and the government to offer a variety of payment options to their customers. These systems include automated teller machines, debit cards, credit cards, mobile banking and payment of bills through the phone. Traditional business payments systems depends mainly on a limited number of the business outlets situated in different locations. This limits the client coverage, however – through Internet services – systems that rely on e-payment are available to a large number of clients.

Reduced Costs

E-payments systems result in reduced costs for both businesses and individuals. Businesses save on operational and processing expenses mainly due to reduction in technological costs – for example, the use of the Internet and the acquisition of computers and other machines. Expenditures in paper and postage is cut down along with time spent in executing personal transactions. These reduced costs are often passed down to customers who in turn pay less fees associated with transferring money or making payments. Customers also save on time spent in dealing with personal transactions as in traditional payment systems.

Reliability

The use of e-payments cancels out the use of drafting checks, transmitting cash and invoices for both businesses and customers. This allows for faster execution of transactions – for example, you do not have to wait for the 30 days required in invoicing transactions. Credit cards also allow for customers to partake in transactions without immediate cash.

Security

The traditional payment systems mainly involved clients sending their confidential information via post or physically visiting the transaction site. This presented a number of security risks – for example, your mail may get lost or fall into the wrong hands. Additionally, places where financial transactions take place are targets for criminal attacks. E-payment systems offer encrypted services which protects the clients' private information during transmission and you do not even have to leave your home.

THE DIFFERENT TYPES OF E-COMMERCE PAYMENTS IN USE TODAY ARE

Credit Card

The most popular form of payment for e-commerce transactions is through credit cards. It is simple to use; the customer has to just enter their credit card number and date of expiry in the appropriate area on the seller's web page. To improve the security system, increased security measures, such as the use of a card verification number (CVN), have been introduced to on-line credit card payments. The CVN system helps detect fraud by comparing the CVN number with the cardholder's information.

Debit Card

Debit cards are the second largest e-commerce payment medium in India. Customers who want to spend online within their financial limits prefer to pay with their Debit cards. With the debit card, the customer can only pay for purchased goods with the money that is already there in his/her bank account as opposed to the credit card where the amounts that the buyer spends are billed to him/her and payments are made at the end of the billing period.

Smart Card

It is a plastic card embedded with a microprocessor that has the customer's personal information stored in it and can be loaded with funds to make online transactions and instant payment of bills. The money that is loaded in the smart card reduces as per the usage by the customer and has to be reloaded from his/her bank account.

E-Wallet

E-Wallet is a prepaid account that allows the customer to store multiple credit cards, debit card and bank account numbers in a secure environment. This eliminates the need to

key in account information every time while making payments. Once the customer has registered and created E-Wallet profile, he/she can make payments faster.

Net banking

This is another popular way of making e-commerce payments. It is a simple way of paying for online purchases directly from the customer's bank. It uses a similar method to the debit card of paying money that is already there in the customer's bank. Net banking does not require the user to have a card for payment purposes but the user needs to register with his/her bank for the net banking facility. While completing the purchase the customer just needs to put in their net banking id and pin.

Mobile Payment

One of the latest ways of making online payments are through mobile phones. Instead of using a credit card or cash, all the customer has to do is send a payment request to his/her service provider via text message; the customer's mobile account or credit card is charged for the purchase. To set up the mobile payment system, the customer just has to download a software from his/her service provider's website and then link the credit card or mobile billing information to the software.

Amazon Pay

Another convenient, secure and quick way to pay for online purchases is through Amazon Pay. Use your information which is already stored in your Amazon account credentials to log in and pay at leading merchant websites and apps. Your payment information is safely stored with Amazon and accessible on thousands of websites and apps where you love to shop. If you are planning to sell your products online, Amazon would be happy to help you in setting up payment gateways for your products and services. You can also consider selling on Amazon, one of the most popular e-commerce platforms in the world. To sell on Amazon, please register yourself for free.

ADVANTAGES AND DISADVANTAGES OF ELECTRONIC PAYMENT SYSTEM ADVANTAGES

System has a wide range of benefits for its users:

Reduced risk of loss and theft:

As these transactions used to take without any cash, so there is no risk of theft or

loss. Also, one cannot even forget a virtual wallet anywhere.

Time saving:

These transactions can be made from any nook and corner of the world. This usually takes a time of a few seconds. Whereas in the traditional method, minimum the time of a day is taken for a transaction to take place. This also facilitates its users that they are not required to stand in long queues.

Low commissions:

It is belied that if a person is paying directly to an internet service provider or mobile account replenishment with the help of an unattended payment terminal, he/she is required to make high payments. In case of electronic payment, one is required to make payment of just 1% of the total amount. Convenience: these transactions can be made anytime and anywhere in the world, where he/she has access to the internet.

Expenses control:

User friendly: this has been designed to reach the highest possible target audience. So, it has better understanding of the user interface. This is available for 24×7 for providing customer support service. One can always get answers to all his/her questions by making use of forums on the subject.

DISADVANTAGES

Restrictions:

Every payment system has some limitations associated with the minimum amount to be kept in the bank account. The amount of output as well as the transactions that are supposed to be done in a day.

Necessity of internet access:

It is mandatory to have an internet connection, in order to make a transaction without any disruption. Problem of transferring money in different payment systems: it is believed that most of the payment systems do not cooperate with each other. One can make use of currency exchange for solving this kind of problems.

WHAT IS PAYMENT AUTHENTICATION?

Authentication is the process of proving, showing or determining that something is true or genuine or that someone is truly the individual claimed. We take great pains every

day to prove who we are. We start our cars in the morning because we have a key which indicates that we own the car. Or for those of us more ecologically-oriented, we present a pass to ride the bus or subway to work. Most of us present identity cards to enter our offices. At the very least we have yet another key to open the door. On average, according to a 2007 paper released by Microsoft Research, we log in to eight separate internet accounts. The same study shows that the average person has 25 accounts which require a password. For those who travel frequently, government programs such as Nexus and Global Entry require retinal scans.

The factors of user authentication

Every time we authenticate, we use at least one mechanism to prove who we are. These mechanisms are known as factors of which there are three. In no particular order, the three factors are knowledge, ownership, and inherence. Knowledge is something you know such as a Personal Identification Number (PIN), a password, your mother's maiden name, your high school, etc. Answering questions that you know is known as Challenge-Handshake Authentication Protocol (CHAP). Ownership is something you have such as a credit card, an ID card, a key or a token. Inherence is something about you such as a fingerprint, appearance or signature. these factors with the previous examples, the key to start the car, the identity card and the office key are all ownership factors. Passwords and CHAP are knowledge factors and a retinal scan is an inherence factor.

The different types of authentication

When any one factor is used, the process is referred to single-factor authentication. Two factor authentication uses any two of the factors (inherence, knowledge or ownership). It is important to understand that using two of the same factor is not considered two-factor authentication. Two of the three factors must be used to qualify. Therefore, a password and the response to a challenge question is not two-factor authentication but simply two examples of single-factor authentication.

Mode of Payment

It means any method for the transfer of monies agreed on as acceptable by both the Investor and the Company. Any Mode of Payment used by an Investor to transfer a Contribution is deemed acceptable to both Parties unless one Party communicates

otherwise within seven (7) days of the receipt of funds. Any Mode of Payment thusly deemed acceptable for the transfer of Contribution is automatically deemed acceptable for any return of Contribution under Clause 4.4.2, or any Project Payment under Clause 5.

Electronic Card (e-Card)

An electronic card (e-card) is a special occasion, greeting or post card created and customized within a website and sent through the Internet to the recipient. Customizations may include a wide variety of backgrounds and text fonts including some as cursive writing, graphic images, cartoon-style animations (proprietary to Adobe), video and sometimes even music.

Credit Card

A credit card is a thin rectangular piece of plastic or metal issued by a bank or financial services company, that allows cardholders to borrow funds with which to pay for goods and services with merchants that accept cards for payment. Credit cards impose the condition that cardholders pay back the borrowed money, plus any applicable interest, as well as any additional agreed-upon charges, either in full by the billing date or over time. An example of a credit card is the Chase Sapphire Reserve.

Debit Card

A debit card is a payment card that deducts money directly from a consumer's checking account to pay for a purchase. Debit cards eliminate the need to carry cash or physical checks to make purchases directly from your savings. In addition, debit cards, also called "check cards," offer the convenience of credit cards and many of the same consumer protections when issued by major payment processors such as Visa or Mastercard. Unlike credit cards, debit cards do not allow the user to go into debt, except perhaps for small negative balances that might be incurred if the account holder has signed up for overdraft protection. Debit cards usually have daily purchase limits, meaning it may not be possible to make an especially large purchase with a debit card.

Smart card

Chip card, or integrated circuit card (ICC or IC card) is a physical electronic authorization device, used to control access to a resource. It is typically a plastic credit card-sized card with an embedded integrated circuit (IC) chip. Many smart cards include a

pattern of metal contacts to electrically connect to the internal chip. Others are contactless, and some are both. Smart cards can provide personal identification, authentication, data storage, and application processing. Applications include identification, financial, mobile phones (SIM), public transit, computer security, schools, and healthcare. Smart cards may provide strong security authentication for single sign-on (SSO) within organizations. Numerous nations have deployed smart cards throughout their populations.

Electronic Cash

In providing a simple definition of eCash, also known as electronic cash, it is a digital money product that provides a way to pay for products and services without resorting to paper or coin currency. Two models emerged for e-cash transactions:

The online form of eCash, which was introduced by the now defunct DigiCash, worked for all types of Internet transactions. The offline form of e-cash involved a digitally encoded card that replaced paper money. Mondex developed and tested this model with different banks, but the company has now transitioned into the development and management of smart cards also used for financial transactions.

RISKS IN ELECTRONIC PAYMENT SYSTEMS

Electronic payments allow you to transfer cash from your own bank account to the bank account of the recipient almost instantaneously. This payment system relies heavily on the internet and is quite popular due to the convenience it affords the user. It would be hard to overstate the advantages of electronic payment systems, but what about the risks? Certainly they exist, both for financial institutions and consumers.

The Risk of Fraud

Electronic payment systems are not immune to the risk of fraud. The system uses a particularly vulnerable protocol to establish the identity of the person authorizing a payment. Passwords and security questions aren't foolproof in determining the identity of a person. So long as the password and the answers to the security questions are correct, the system doesn't care who's on the other side. If someone gains access to your password or the answers to your security question, they will have gained access to your money and can steal it from you.

The Risk of Tax Evasion

The law requires that businesses declare their financial transactions and provide paper records of them so that tax compliance can be verified. The problem with electronic systems is that they don't fit very cleanly into this paradigm and so they can make the process of tax collection very frustrating for the Internal Revenue Service. It is at the business's discretion to disclose payments received or made via electronic payment systems in a fiscal period, and the IRS has no way of knowing if it's telling the truth or not. That makes it pretty easy to evade taxation.

The Risk of Payment Conflicts

One of the idiosyncrasies of electronic payment systems is that the payments aren't handled by humans but by an automated electronic system. The system is prone to errors, particularly when it has to handle large amounts of payments on a frequent basis with many recipients involved. It's important to constantly check your pay slip after every pay period ends in order to ensure everything makes sense. Failure to do this may result in payment conflicts caused by technical glitches and anomalies.

The Risk of Impulse Buying

Impulse buying is already a risk that you face when you use non-electronic payment systems. When you're able to buy things online at the click of a mouse. Impulse buying can become habitual and makes sticking to a budget almost impossible.

DIGITAL SIGNATURE

A digital signature is a mathematical technique used to validate the authenticity and integrity of a message, software or digital document. As the digital equivalent of handwritten signature or stamped seal, a digital signature offers far more inherent security, and it is intended to solve the problem of tampering and impersonation in digital communications.

Digital signatures can provide the added assurances of evidence of origin, identity and status of an electronic document, transaction or message and can acknowledge informed consent by the signer. In many countries, including the United States, digital signatures are considered legally binding in the same way as traditional document signatures.

How a Digital Signature Works

If you are sending a sensitive document, you would want the recipient of the document to know that it was from you and you would also want to ensure that the document gets to the recipient in the very same state you sent it in, without any alterations. The process of digitally signing your document would go something like this:

First, you should copy the document and paste it into an e-mail note.

Second, you use a special software to obtain a mathematical summary (commonly known as a message hash) of the contract.

Thirdly, you will use a private key that you purchased from a trusted public-private key authority for encrypting the message hash.

Lastly, you send your document with the message hash as your digital signature.

The digital signature can be used for signing any form of electronic document whether or not the message is encrypted. The digital signature is protected with a digital certificate that authenticates it. Your digital certificate will contain the certification-issuing authority's digital signature which makes it possible for anyone to verify that your certificate is real.

ADVANTAGES OF DIGITAL SIGNATURES

The following are the main benefits of using digital signatures:

Speed:

Businesses no longer have to wait for paper documents to be sent by courier. Contracts are easily written, completed, and signed by all concerned parties in a little amount of time no matter how far the parties are geographically.

Costs:

Using postal or courier services for paper documents is much more expensive compared to using digital signatures on electronic documents.

Security:

The use of digital signatures and electronic documents reduces risks of documents being intercepted, read, destroyed, or altered while in transit.

Authenticity:

An electronic document signed with a digital signature can stand up in court just as well as any other signed paper document.

Tracking:

A digitally signed document can easily be tracked and located in a short amount of time.

Non-Repudiation:

Signing an electronic document digitally identifies you as the signatory and that cannot be later denied.

Imposter prevention:

No one else can forge your digital signature or submit an electronic document falsely claiming it was signed by you.

Time-Stamp:

By time-stamping your digital signatures, you will clearly know when the document was signed.

DISADVANTAGES OF DIGITAL SIGNATURES

Just like all other electronic products, digital signatures have some disadvantages that go with them. These include:

Expiry: Digital signatures, like all technological products, are highly dependent on the technology it is based on. In this era of fast technological advancements, many of these tech products have a short shelf life.

Certificates: In order to effectively use digital signatures, both senders and recipients may have to buy digital certificates at a cost from trusted certification authorities.

Software: To work with digital certificates, senders and recipients have to buy verification software at a cost.

Law: In some states and countries, laws regarding cyber and technology-based issues are weak or even non-existent. Trading in such jurisdictions becomes very risky for those who use digitally signed electronic documents.

Compatibility: There are many different digital signature standards and most of them are incompatible with each other and this complicates the sharing of digitally signed documents.

Most businesses today are embracing the idea of paper-less offices. To do that, they have identified what is a digital signature and the advantages of using them. They are now

using digital signatures to authenticate important documents and make legally binding agreements.

Tech Security Hack: Worried about the internet security? Now remotely access all your Office 365 documents, catch up with important emails all on your encrypted citrix xendesktop from Cloud Desktop Online with the cheapest xen desktop cost in the market. Learn more about MS Azure and managed azure services by visiting Apps4Rent.com.

ENCRYPTION

Encryption is the process of converting data to an unrecognizable or "encrypted" form. It is commonly used to protect sensitive information so that only authorized parties can view it. This includes files and storage devices, as well as data transferred over wireless networks and the Internet.

You can encrypt a file, folder, or an entire volume using a file encryption utility such as GnuPG or AxCrypt. Some file compression programs like Stuffit Deluxe and 7-Zip can also encrypt files. Even common programs like Adobe Acrobat and Intuit TurboTax allow you to save password-protected files, which are saved in an encrypted format.

ELECTRONIC CERTIFICATE

An attachment to an electronic message used for security purposes. The most common use of a digital certificate is to verify that a user sending a message is who he or she claims to be, and to provide the receiver with the means to encode a reply. An individual wishing to send an encrypted message applies for a digital certificate from a Certificate Authority (CA). The CA issues an encrypted digital certificate containing the applicant's public key and a variety of other identification information. The CA makes its own public key readily available through print publicity or perhaps on the Internet. The recipient of an encrypted message uses the CA's public key to decode the digital certificate attached to the message, verifies it as issued by the CA and then obtains the sender's public key and identification information held within the certificate. With this information, the recipient can send an encrypted reply.

Types of Electronic Certificate

There are three main types of Digital Certificates, they are:

Secure Socket Layer

Secure Socket Layer [SSL] server Certificates are installed on a server. This can be a server that hosts a website like www.digi-sign.com, a mail server, a directory or LDAP server, or any other type of server that needs to be authenticated, or that wants to send and receive encrypted data. To automate the entire life cycle of your SSL environment, see the Automated & Authenticated Certificate Delivery™ System.

Code Signing Certificate

Code Signing Certificates are used to sign software or programmed code that is downloaded over the Internet. It is the digital equivalent of the shrink-wrap or hologram seal used in the real world to authenticate software and assure the user it is genuine and actually comes from the software publisher that it claims.

Client Certificate

Client Certificates or Digital IDs are used to identify one person to another, a person to a device or gateway or one device to another device. Client Certificates are issued in their thousands and millions each year and would be the principle reason for purchasing a CA.

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SEARCH

ADVANTAGES & DISADVANTAGES OF A DIGITAL CERTIFICATE

A digital certificate is an encryption technology that works similar to the Internet version of a passport. Using public key and private key information, digital certificates essentially ensure to the recipient of a message that the message is coming from a specific person. The digital certificate authenticates the identity of the sender to ensure safer communication and prevent fraud on the Internet.

The public key and the private key also work together to encrypt or "seal" your

information so that it is more difficult to intercept. In other words, digital certificates don't just work to authenticate the identity of the sender, but also of the recipient. For instance, an email sent on a digital certificate network is encrypted from the moment you click Send to the moment the intended recipient opens the message. If the recipient does not have the private key information indicated on your digital certificate, they will not be able to open the message.

The Advantages of Digital Certificates

The biggest advantages of digital certificate-based authentication are privacy-based. By encrypting your communications - emails, logins or online banking transactions - digital certificates protect your private data and prevent the information from being seen by unintended eyes. Digital certificate systems are also user-friendly, usually working automatically and requiring minimal action or involvement from either senders or recipients. Microsoft states that certificate servers are cheaper and easier to manage than other certificate authorities or systems used for encryption.

The Disadvantages of Digital Certificates

While the idea of digital certificates is to block outsiders from intercepting your messages, the system is not an infallible one. In 2011, for example, a Dutch digital certificate authority called DigiNotar was compromised by hackers. Since certificate authorities are the ones in charge of issuing digital certificates (think of them as the digital version of a passport office), hackers often target these authorities in order to manipulate certificate information. As a result, when a certificate authority is compromised, hackers can create websites or send emails that look genuine and pass certification tests, but are actually fraudulent.

FIREWALL

DEFINITION

A firewall is a network security device that monitors incoming and outgoing network traffic and permits or blocks data packets based on a set of security rules. Its purpose is to establish a barrier between your internal network and incoming traffic from external sources (such as the internet) in order to block malicious traffic like viruses and hackers.

What Is the Purpose of a Firewall?

A firewall helps protect your company's internal data network. A firewall is a vital piece of your business's defense against electronic threats. Serving as a gatekeeper between your company's servers and the outside world, a properly maintained firewall will not only keep external threats out, but it can also alert you to more subtle problems by intercepting outgoing data as well. Paired with a well-maintained anti-malware suite, a firewall can save your business from spending time and money dealing with virus infections or hacker attacks.

The Firewall

A firewall is a piece of software that stands between a computer or network and the Internet. Connecting a computer directly to the global network is like leaving your front door open, allowing outsiders free access to your system. Any request will pass through to vulnerable systems, allowing unscrupulous third parties to exploit your computers for their own gain. A firewall serves to block these unauthorized requests, passing through only designated traffic.

Filtering

The primary purpose of a firewall is packet filtering. When a computer sends a request across the Internet, it takes the form of small packets of data, which travel through the network to their destination. The target server responds with its own packets of data, which return along the same route. A firewall monitors every packet that passes through it, considering its source, destination and what type of data it contains, and it compares that information to its internal rule set. If the firewall detects that the packet is unauthorized, it discards the data. Typically, firewalls allow traffic from common programs such email or Web browsers, while discarding most incoming requests. You can also configure a firewall to disallow access to certain websites or services to prevent employees from accessing non-work resources while on the clock.

Logging

Another important aspect of a firewall is its ability to log any traffic that passes through it. By recording the information from packets that pass through or that it discards, it can provide you with a clear picture of the kind of traffic your system experiences. This

can be valuable in identifying the source of an external attack, but you can also use it to monitor your employees' activities online to prevent lost productivity.

Internal Threats

While the primary goal of a firewall is to keep attackers out, it also serves a valuable purpose by monitoring outgoing connections. Many types of malware will send out a signal once they take over a system, allowing the author to trigger specific actions or even control the computer remotely. A firewall can alert you when an unknown program attempts to "phone home," alerting you to a possible malware infection and allowing you to shut it down before it causes major damage to your network. Heading off a malware attack before it activates will keep your employees productive, protect vital company data and save you the cost of cleaning up the problem with other security software.

ADVANTAGES OF FIREWALL

1. Monitor Traffic

A major responsibility of a firewall is to monitor the traffic passing through it. Whateverthe information traveling through a network is in the form of packets. Firewall inspects each of these packets for any hazardous threats. If any chance the firewall happens to find them it will immediately block them.

2. Protection against Trojans

Malwares especially the type Trojans are dangerous to a user. A Trojan silently sits onyour computer spying over all the works you do with it. Whatever the information they gather will be sent to a web server. Obviously you will not know their presence until the strange behaviours of your computer. A firewall in this instance will immediately block Trojans before they cause any damages to your system.

3. Prevent Hackers

Hackers on the internet constantly look for computers in order for carrying out their illegal activities. When the hackers happen to find such computers they will start to do even malicious activities such as spreading viruses. Apart from those hackers there can be unknown people such as the neighbours looking out for an open internet connection. Hence to prevent such intrusions it is a good idea to be with a firewall security.

4. Access Control

Firewalls comes with an access policy that can be implemented for certain hosts and services. Some hosts can be exploited with the attackers. So the best in case is to block such hosts from accessing the system. If a user feels that they need protection from these types of unwanted access, this access policy can be enforced.

5. Better Privacy

Privacy is one of the major concerns of a user. Hackers constantly look out for privacy informations for getting clues about the user. But by using a firewall many of the services offered by a site such as the domain name service and the finger can be blocked. Hence the hackers are with no chance of getting privacy details. Additionally firewalls can block the DNS informations of the site system. Due to this the names and the IP address will not be visible to the attackers.

DISADVANTAGES OF FIREWALL

1. Cost

Firewalls does have an investment depending on the types of it. In general hardware firewalls are more expensive than the software firewalls. Besides that hardware firewalls require installations and maintenance which can be costly. These types of configurations cannot be done without an expert IT employee. Comparing this to a software firewall, there is no much investment and it is easy enough for an average user to deploy them.

2. User Restriction

If is no doubt that firewalls prevent unauthorized access to your system from the network. While this can be advantageous for an average user, this can actually be a problem for large organizations. The policies used by the firewall cab be strict enough to prevent employees from doing certain operations. As a result of this, the overall productivity of the company an be affected severely. Sometimes this can also prompt employees from using backdoor exploits. However this can lead to security problems since the data travelled through these backdoor exploits are not examined properly.

3. Performance

Firewalls especially the software based has the capability to limit your computer's overall performance. The processing power and the RAM resources are some of the factors

which decides the computer's overall performance. When the software firewalls constantly run on the background they consume more the processing power and the RAM resources. This can lead to a diminished system performance. However hardware firewalls does not impact the system performance since they do not rely upon the computer resources.

4. Malware Attacks

Even though firewalls has the capability to block the basic types of trojans, it is proved to be defenseless against other types of malwares. These types of malwares can enter your system in the form of trusted data. Therefore even if you have firewall, it is still recommended to have an anti-malware software installed on your PC. Because the only way to remove them is through an anti-malware scan.

5. Complex Operations

Even though for small businesses the firewall maintenance is made easy, it is definitely not for large organizations. Firewalls for large organizations require separate set of staffs for operating them. These people make sure that the firewall is safe enough to protect the network from intruders.

6. Comments

I have a separate machine with no firewall or active protection that is great for doing things in a speedy fashion :) Windows bootable USB at the ready if the day comes that I need a clean install. No personal information on this machine makes it a fun little toy

SET ~ SECURE ELECTRONIC TRANSACTION (SET) PROTOCOL

Secure Electronic Transaction or SET is a system which ensures security and integrity of electronic transactions done using credit cards in a scenario. SET is not some system that enables payment but it is a security protocol applied on those payments. It uses different encryption and hashing techniques to secure payments over internet done through credit cards. SET protocol was supported in development by major organizations like Visa, Mastercard, Microsoft which provided its Secure Transaction Technology (STT) and NetScape which provided technology of Secure Socket Layer (SSL). SET protocol restricts revealing of credit card details to merchants thus keeping hackers and thieves at bay. SET protocol includes Certification Authorities for making use of standard Digital Certificates

like X.509 Certificate.Before discussing SET further, let's see a general scenario of electronic transaction, which includes client, payment gateway, client financial institution, merchant and merchant financial institution.

The security issues in e-commerce

Security risks associated with e-commerce can be as a result of human error, an accident or unauthorized access to systems. Online retailers are most likely to face credit card fraud or data errors. Their online stores are also likely to face phishing attacks, distributed denial of service (DDoS) attacks and man-in-the-middle attacks as explained below.

Credit Card Fraud

Credit card fraud is the most common security threat that online retailers face. It occurs when a hacker gains unauthorized access to customers' personal and payment information. To access this data, the hacker may penetrate the database of an e-commerce site using malicious software programs. At times, a hacker's intention when stealing customers' data is to sell it on black markets.

Distributed Denial of Service (DDoS) Attacks

This type of security threat aims at taking down an online retail store by sending overwhelming requests to its servers. The attacks originate from thousands of untraceable IP addresses. When this type of threat hits the servers, they slow down or completely shut down. An e-commerce site can also go offline temporarily when a DDoS attack affects its servers.

Man-in-the-middle Attacks

As hackers are becoming smarter with technology, they are devising ways of listening to the communications made by users of an e-commerce website. Through an approach known as a man-in-the-middle attack, these hackers maliciously trick users into connecting to a public wireless network. They gain access to people's devices once they are on public wireless networks. Hackers get to see a people's browsing history, credit card numbers, passwords and usernames if the websites they are visiting lack strong encryptions.

Bad Bots

Bots, either good or bad, are all over the worldwide web. Search engines such as Bing and Google use good bots for indexing search results. On the other hand, there are hackers that use malicious bots for gathering data such as product data, inventories and pricing data. These bots are also capable of accessing the database of an e-commerce site and listing the logins of user accounts.

Malware

In information technology, malware simply refers to malicious software programs. Attackers usually inject web pages or files with these malicious programs to help them in gaining access to online retails stores. Through means such as SQL injection, they can easily insert the malware into a website's database allowing it to compromise the data stored in the database.

Phishing Scams

E-commerce sites are also prone to phishing scams sent by known or unknown people in form of emails. These scams focus on targeting important user data like credit card numbers and login credentials. An attacker may use a scheme known as social engineering to lure online shoppers to give out their personal information. When sent in an email to an online shopper, a phishing scam may contain a link to a malicious site that resembles an e-commerce site.

Protocol

A protocol is a standard set of rules that allow electronic devices to communicate with each other. These rules include what type of data may be transmitted, what commands are used to send and receive data, and how data transfers are confirmed. You can think of a protocol as a spoken language. Each language has its own rules and vocabulary. If two people share the same language, they can communicate effectively. Similarly, if two hardware devices support the same protocol, they can communicate with each other, regardless of the manufacturer or type of device. For example, an Apple iPhone can send an email to an Android device using a standard mail protocol. A Windows-based PC can load a webpage from a Unix-based web server using a standard web protocol. Protocols exist for several different applications. Examples include wired networking (e.g.,Ethernet),

wireless networking (e.g., 802.11ac), and Internet communication (e.g., IP). The Internet protocol suite, which is used for transmitting data over the Internet, contains dozens of protocols. These protocols may be broken up into four catagories:

Link layer - PPP, DSL, Wi-Fi, etc.

Internet layer - IPv4, IPv6, etc.

Transport layer - TCP, UDP, etc.

layer - HTTP, IMAP, FTP, etc.

Link layer protocols establish communication between devices at a hardware level. In order to transmit data from one device to another, each device's hardware must support the same link layer protocol. Internet layer protocols are used to initiate data transfers and route them over the Internet. Transport layer protocols define how packets are sent, received, and confirmed. Application layer protocols contain commands for specific applications. For example, a web browser uses HTTPS to securely download the contents of a webpage from a web server. An email client uses SMTP to send email messages through a mail server. Protocols are a fundamental aspect of digital communication. In most cases, protocols operate in the background, so it is not necessary for typical users to know how each protocol works. Still, it may be helpful to familiarize yourself with some common protocols so you can better understand settings in software programs, such as web browsers and email clients.

SSL

SSL (pronounced as separate letters) is short for Secure Sockets Layer.

Secure Sockets Layer (SSL) is a protocol developed by Netscape for transmitting private documents via the Internet. SSL uses a cryptographic system that uses two keys to encrypt data − a public key known to everyone and a private or secret key known only to the recipient of the message.

SSL URLs

Most Web browsers support SSL, and many websites use the protocol to obtain confidential user information, including credit card numbers. By convention, URLs that require an SSL connection start with https: instead of http:.

How SSL Works

When a Web browser tries to connect to a website using SSL, the browser will first request the web server identify itself. This prompts the web server to send the browser a copy of the SSL Certificate. The browser checks to see if the SSL Certificate is trusted -- if the SSL Certificate is trusted, then the browser sends a message to the Web server. The server then responds to the browser with a digitally signed acknowledgement to start an SSL encrypted session. This allows encrypted data to be shared between the browser and the server. You may notice that your browsing session now starts with https (and not http).

SHTTP

An earlier security protocol that provided secure transactions over the Web. Working at the application layer rather than the transport layer of the protocol stack, SHTTP was also used to authenticate the client. In contrast, SSL is used to authenticate the Web server. SHTTP was endorsed by a variety of organizations and integrated into various browsers and other systems, but gave way mostly to SSL for routine security over the Web. See HTTPS, SSL and security protocol.

S-HTTP (Secure HTTP) is an extension to the Hypertext Transfer Protocol (HTTP) that allows the secure exchange of files on the World Wide Web. Each S-HTTP file is either encrypted, contains a digital certificate, or both. For a given document, S-HTTP is an alternative to another well-known security protocol, Secure Sockets Layer (SSL). A major difference is that S-HTTP allows the client to send a certificate to authenticate the user whereas, using SSL, only the server can be authenticated. S-HTTP is more likely to be used in situations where the server represents a bank and requires authentication from the user that is more secure than a userid and password.

S-HTTP does not use any single encryption system, but it does support the Rivest-Shamir- Adleman public key infrastructure encryption system. SSL works at a program layer slightly higher than the Transmission Control Protocol (TCP) level. S-HTTP works at the even higher level of the HTTP application. Both security protocols can be used by a browser user, but only one can be used with a given document. Terisa Systems includes both SSL and S-HTTP in their Internet security tool kits. A number of popular Web servers support both S-HTTP and SSL. Newer browsers support both SSL and S-HTTP. S-HTTP

has been submitted to the Internet Engineering Task Force (IETF) for consideration as a standard. Request for Comments (RCFs) Internet draft 2660 describes S-HTTP in detail.

COMPUTER CRIMES

Alternatively referred to as cyber crime, e-crime, electronic crime, or hi-tech crime. Computer crime is an act performed by a knowledgeable computer user, sometimes referred to as a hacker that illegally browses or steals a company's or individual's private information. In some cases, this person or group of individuals may be malicious and destroy or otherwise corrupt the computer or data files.

Examples of computer crimes

Below is a listing of the different types of computer crimes today. Clicking on any of the links below gives further information about each crime.

Child pornography - Making or distributing child pornography.

Copyright violation - Stealing or using another person's Copyrighted material without permission.

Cracking - Breaking or deciphering codes designed to protect data.

Cyber terrorism - Hacking, threats, and blackmailing towards a business or person.

Cyberbully or Cyberstalking - Harassing or stalking others online.

Cybersquatting - Setting up a domain of another person or company with the sole intention of selling it to them later at a premium price.

Creating Malware - Writing, creating, or distributing malware (e.g., viruses and spyware.)

Denial of Service attack - Overloading a system with so many requests it cannot serve normal requests.

Doxing - Releasing another person's personal information without their permission.

Espionage - Spying on a person or business.

Fraud - Manipulating data, e.g., changing banking records to transfer money to an account or participating in credit card fraud.

Harvesting - Collect account or account-related information on other people.

Human trafficking - Participating in the illegal act of buying or selling other humans.

Identity theft - Pretending to be someone you are not.

Illegal sales - Buying or selling illicit goods online, including drugs, guns, and

psychotropic substances.

Intellectual property theft - Stealing practical or conceptual information developed by another person or company.

IPR violation - An intellectual property rights violation is any infringement of another's Copyright, patent, or trademark.

Phishing or vishing - Deceiving individuals to gain private or personal information about that person.

Salami slicing - Stealing tiny amounts of money from each transaction.

Scam - Tricking people into believing something that is not true.

Slander - Posting libel or slander against another person or company.

Software piracy - Copying, distributing, or using software that was not purchased by the user of the software.

Spamming - Distributed unsolicited e-mail to dozens or hundreds of different addresses.

Spoofing - Deceiving a system into thinking you are someone you're not.

Typosquatting - Setting up a domain that is a misspelling of another domain.

Unauthorized access - Gaining access to systems you have no permission to access.

Wiretapping - Connecting a device to a phone line to listen to conversations.

SECURITY IN E-COMMERCE

Ecommerce security is essential if you are to make it in this industry. Are you aware that cyber-criminals target mostly eCommerce businesses? Online businesses experienced 32.4% of all successful cyber attacks in 2018. A serious business should, therefore, employ rock-solid eCommerce security protocols and measures. It will keep the business and customers free from attacks.

What is eCommerce or electronic commerce security?

eCommerce security is the guidelines that ensure safe transaction through the internet. It consists of protocols that safeguard people who engage in online selling and buying of goods and services. You need to gain your customers' trust by putting in place eCommerce 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 online seller that a customer has chosen, no one else should access their personal information and account details.

A breach of confidentiality occurs when sellers let others have access to such information. An online business should put in place at least a necessary minimum of anti-virus, firewall, encryption, and other data protection. It will go a long way in protecting credit card and bank details of clients.

2. Integrity

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

3. Authentication

The principle of authentication in eCommerce security requires that both the seller and the buyer 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 clients should also give their proof of identity to make the seller feel secure about the online transactions. It is possible to ensure authentication and identification. If you are unable to do so, hiring an expert will help a lot. Among the standard solutions include client logins information and credit card PINs.

4. Non-repudiation

Repudiation means denial. Therefore, Non-repudiation is a legal principle that instructs players not to deny their actions in a transaction. The business and the buyer should follow through on the transaction part that they initiated. eCommerce can feel less safe since it occurs in cyberspace with no live video. Non-repudiation gives eCommerce security another layer. 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.

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