

E-Commerce Important Questions

- 1) Explain types of E-commerce.
- 2) List any five cyber offences and related penalties under ITAct, 2000.
- 3) How can e-commerce portals make shopping secure ? Explain impact of E-commerce on business pedal.
- 4) Discuss how E-Commerce is helpful to business success.
- 5) Describe business -to-Consumer e-business model. What are the challenges that e-business face in implementing B2C initiate.
- 6) What is Electronic Payment system? Briefly explain
- 7) Explain mercantile models from the merchant's perspective.
- 8) Explain risks in electronic payment systems.
- 9) Explain digital token based electronic payment systems (E-cash, E-cheques).
- 10) EXPLAIN TYPES OF EDI.
- 11) What is e-payment? Why is orientation and standardization required for e payment businesses?
- 12) What are the security issues of E-Commerce?
- 13) EXPLAIN SECURITY, LEGAL, AND PRIVACY ISSUES IN EDI
- 14) In E-commerce how site can be secure? What measures are taken in this regard? Explain
- 15) EXPLAIN VAN.
- 16) Explain the Legal Disputes on the Internet
- 17) WRITE A NOTE ON NON-EDI SYSTEMS
- 18) Define the term 'EDI'. Explain its architecture with the help of a diagram.
- 19) Explain 5p's of internet marketing
- 20) Explain e-advertising techniques.
- 21) Write Short note on a. EDI b. Digital Certificate c. Threat to e-commerce security
- 22) Explain digital cryptography. What are symmetric and asymmetric cryptosystems?
- 23) Explain web based marketing
- 24) What is the need for firewalls? What are various types of firewalls
- 25) Explain web based marketing
- 26) Explain benefits of E-commerce to organizations, consumers , society .
- 27) What are the applications of E-commerce?



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INTRODUCTION TO E-COMMERCE

MODULE 1



INTRODUCTION

Commerce refers to the well organized set up of large-scale interchange of products, service or something of value, for money or money's worth, among the economic agents. It covers all the activities which directly or indirectly assist in the process of exchange.

E-Commerce or Electronic Commerce means buying and selling of goods, [products](#), or services over the internet. E-commerce is also known as electronic commerce or internet commerce. These services provided online over the internet network. Transaction of money, funds, and data are also considered as E-commerce.



MEANING

- E-commerce is a popular term for electronic commerce or even internet [commerce](#). The name is self-explanatory, it is the meeting of buyers and sellers on the internet. This involves the transaction of goods and services, the transfer of funds and the exchange of data.
- The term ecommerce mainly refers to the sales of physical products on the internet. Still, one can also describe it as any commercial activity done on the internet. Individuals can perform these commercial activities on laptops, smartphones, tablets, and other intelligent devices.
- E-Commerce includes online retailers like Amazon, eBay, Etsy, Flipkart, Myntra, Paytm Mall, sellers of digital books like eBooks, online services, and many others.



EVOLUTION

The invention of online shopping and first transaction

1979 - Michael Aldrich in the United Kingdom pioneered online shopping.

1980 - The beginning of business-to-business selling started in UK, Spain, and Ireland.

1992 - Charles M. Stack established the first telephonic-order store in history to sell books.

1994 - Two individuals of a Sting CD made the first online transaction.

History of ecommerce timeline

1960 – 1990

The invention of Electronic Data Interchange (EDI) helped to share invoices and receipts.

Trading data format (ANSI ASC X12) set as the standard for document sharing in North America.

The VAN (Value-Added Network) was defined as the shopping order examination standard.

Michael Aldrich, an English entrepreneur, is considered the pioneer for inventing teleshopping.

France launched Minitel, an online free service for telephone subscribers.



EVOLUTION

1995 – 2000

- Jeff Bezos founded Amazon as the first online bookstore.
- Another success of ecommerce story is an online auction site, eBay.
- Miva launched the first catalog-based store for e-commerce market.
- Worldwide products distribution started over the Internet.
- Dell ranked as the mega online distributor by achieving one-day online sales of \$1 million.
- PayPal started its services as the first global ecommerce company.

2001 – 2010

- Amazon launched e-commerce site with mobile compatibility.
- Amazon announced a membership offering the Amazon Prime.
- The Payment Card Industry Security Standards Council (PCI) was formed to ensure security compliance requirements.
- The innovation and improved user experience led many investors as well



EVOLUTION OF E-COMMERCE OVER THE YEARS

Within years of its creation, the internet completely transformed the consumer buying journey, and continues to do so rapidly. But it is not random – there are trends. Studying this journey can help us predict and prepare for future disruptions

Here's how eCommerce (and Offline Retail) have evolved since the beginning of the internet:

KEY

- ▶ EVOLUTION STAGE
- ★ IMPACT



ECOMMERCE, RETAIL MERGE COMPLETELY

POSSIBLE FUTURE DISRUPTIONS

- 5G INTERNET
- AUGMENTED REALITY
- ABSOLUTE PERSONALIZATION (IOT & AI-DRIVEN)

1995-1998

- ▶ Launch of the early eCommerce sites – Books, Music, Movies etc.
- ★ Browsing large online catalogue became a habit

1998-2001

- ▶ eCommerce entry into Apparel, Electronics and Home goods
- ★ Consumers started buying “Touch and Feel” products online
eRetailers started investing more in Images and written Content

2001-2005

- ▶ eCommerce established in all categories, becomes a major competitor to Brick n Mortar
- ★ Consumers now researched online, before buying offline OR online
Brick N Mortar retailers started entering eCommerce



1
LAUNCH OF ECOMMERCE

2
ENTRY INTO ALL PRODUCT CATEGORIES

3
REACHING CRITICAL MASS

ERA OF UNIFIED EXPERIENCE

ENTRY OF SMARTPHONES, FAST AND CHEAP DATA

BIRTH OF OMNICHANNEL

6

5

4

2013-2018

- ▶ All channels (Website, App, Store etc.) are now integrated and in-sync
- ★ Consumers expect seamless transition between channels – all content and order info, updated everywhere instantly

2008-2013

- ▶ eCommerce portals launched Mobile Websites and Apps
- ★ Content and Purchase process customized for mobile phones
Pricing, Inventory/Order status, marketing – all were now tracked and updated in real-time

2005-2008

- ▶ Stores and Website were now linked, enabling hybrid consumer journeys
- ★ eCommerce made major inroads in CPGs
More options created for Exchanges and Returns

Fundamental Aspects of E-commerce

E-commerce companies mainly compete in the online marketplace, in three fundamental aspects which are:

- Customer interaction with the web portal.
- Delivery system
- Problem-solving ability.





FEATURES OF E-COMMERCE

- It occurs in a virtual space
- It allows the purchase and sale of different types of services .
- It fits a wide range of clients
- It is agile and comfortable
- Use avenues of contact with customers
- Accept multiple means of payment
- It allows to extend the geographic limits and schedule
- It involves risk of deception



| Points of differences | E-Business | Traditional business |
|------------------------------|-------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| Meaning | It means electronic business. It also refers to the activities through the internet. | It refers to the local store which provides the products and services to the local customers. |
| Cost | There is very less cost to start an electronic business. | Traditional business having a high cost for start-up and other activities. |
| Operating cost | Operating cost is less in e-business because all the activities are through online mode. | In traditional business, operating cost is high. |
| Physical examination | In e-business, no physical examination of goods is required. | This business includes all those activities which are related to the local market, so physical examination is possible in this case. |
| Distribution | As an online business, there is no channel of distribution because all the transactions are through the internet. | In this business, various intermediaries are involved such as wholesaler, retailer, sale agents etc. |
| Risk | High risk is involved in the electronic business as there is no personal or direct contact between the parties. | As all parties are connected and having personal interaction so there is very less chance of risk related to misconduct. |
| Human Resources | Technically qualified and IT professionals are needed to run an online business. | Semi-skilled and skilled human resources can run traditional business smoothly. |



BENEFITS OF E-COMMERCE

- Low Financial Cost
- 24/7 Potential Income
- Sell Internationally
- Easy to Showcase Bestsellers
- Personalized Online Experience
- Affordable Employees
- Easier to Encourage Impulse Buys
- Easy to Retarget or Remarket
- Customers Get a Less Invasive Experience
- Gain Access to Customer Data Easily



DISADVANTAGES OF E-COMMERCE

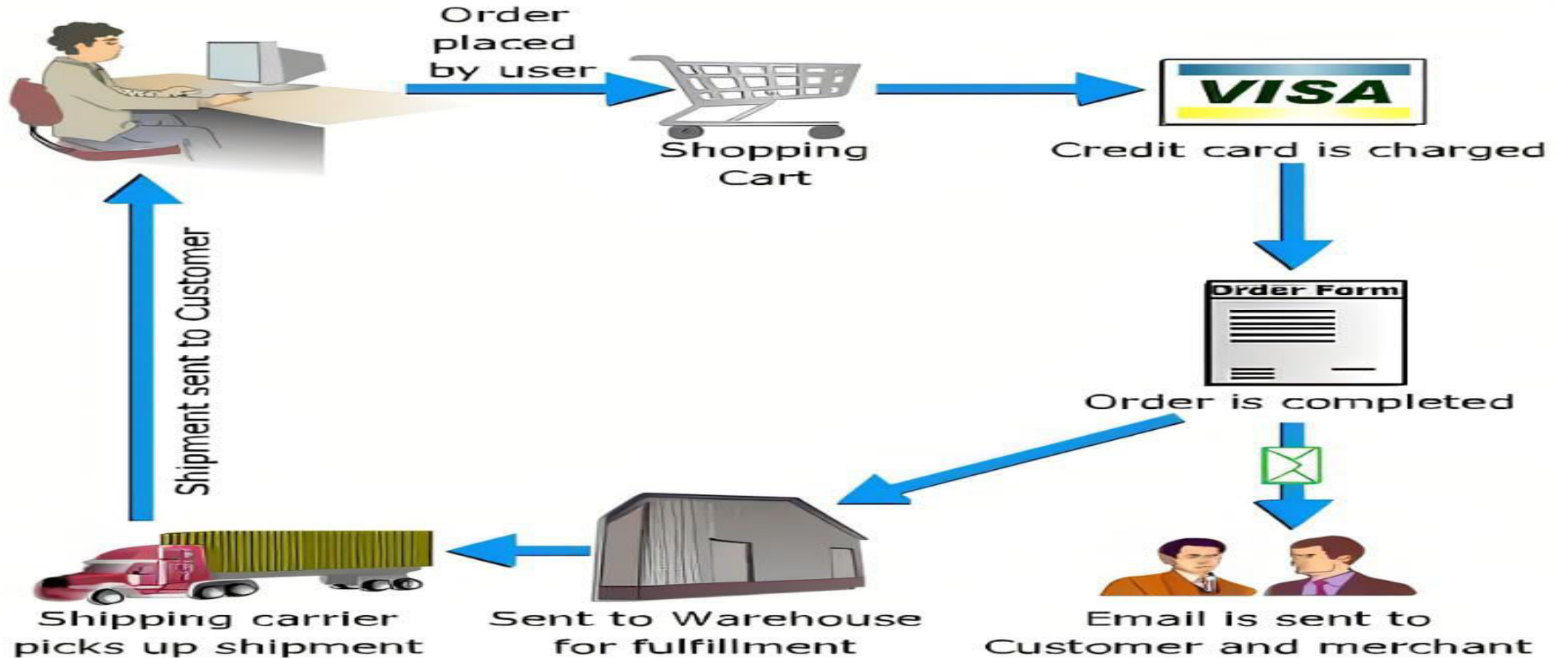
- No One Can Buy During a Site Crash
- Customers Can't Try Before They Buy
- Ecommerce Is Highly Competitive
- Customers Can Be Impatient
- Shipping Times Can Be Lengthy
- Physical Retail Is Still More Popular Despite Decline



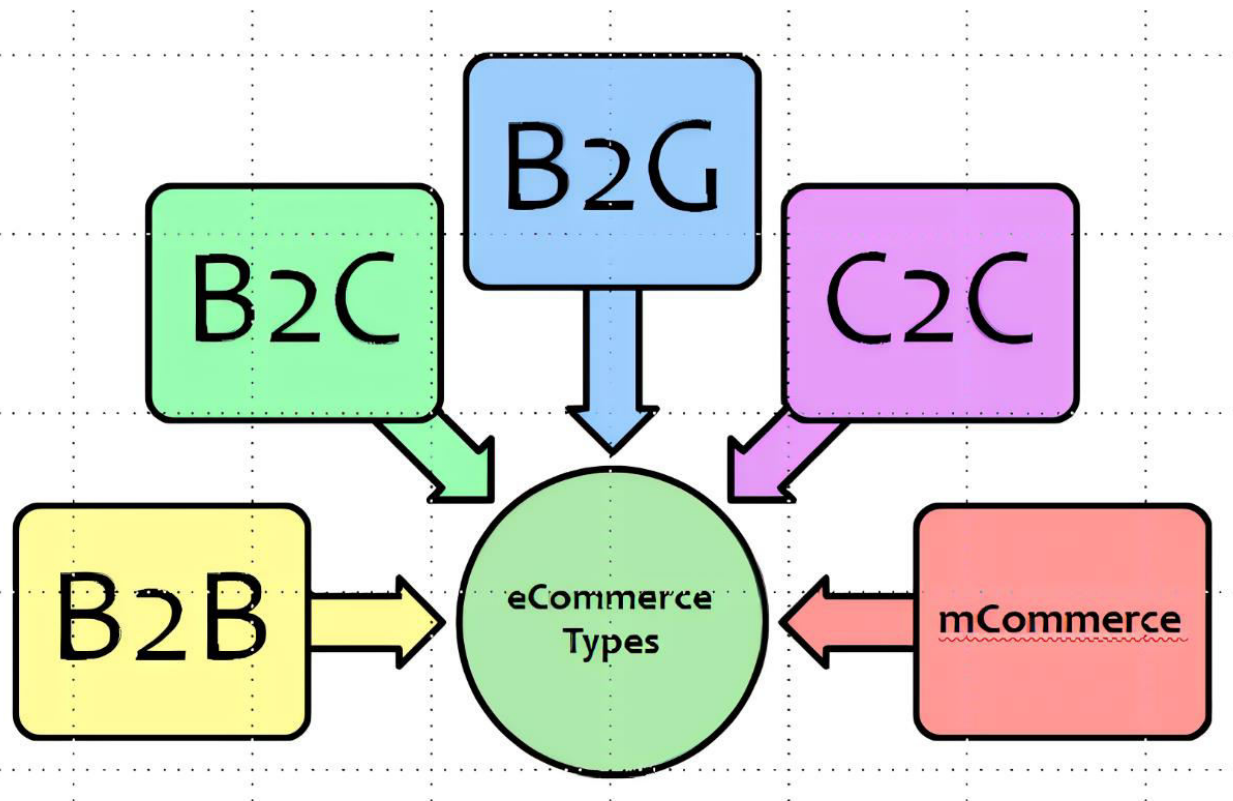
- User Friendly
- Shopping Cart and Checkout Process
- Mobile Compatibility
- Images and Descriptions
- Calls to Action (CTA)
- Images and Descriptions
- Customer Support
- Security and Privacy



PROCESS OF E-COMMERCE



TYPES OF E-COMMERCE



FORCES BEHIND E-COMMERCE

- Economic force
- Market force
- Technology force
- Societal and Environmental force
- Political force



Thank You.

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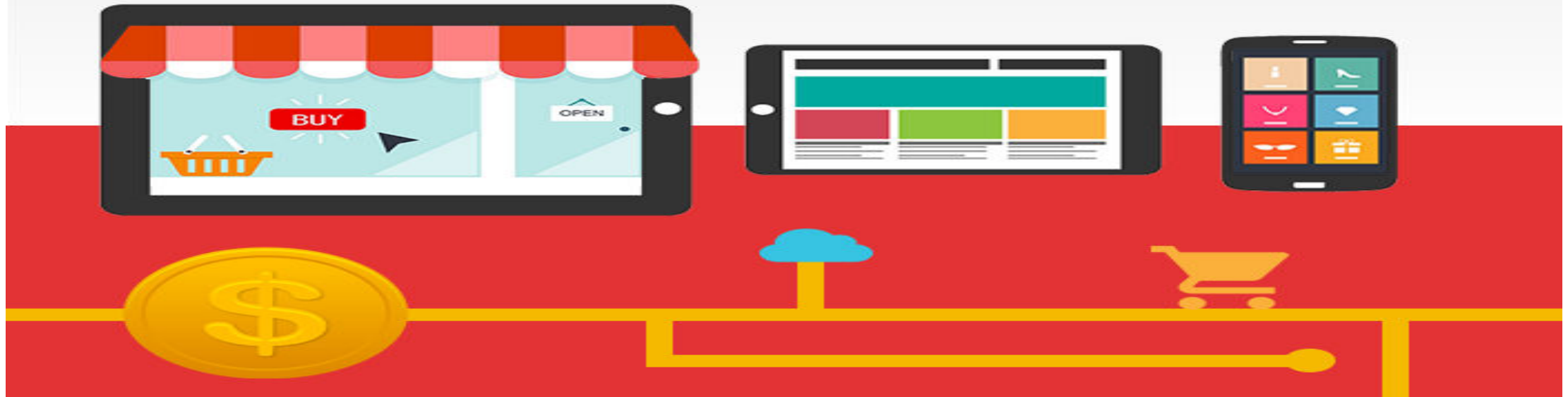


RETAIL ECOMMERCE

MODULE 2



Retail and E-commerce



- Retail refers to performing the commercial activities through person to person commercial activities like malls, super marts, departmental store to the consumer in a small quantity.
- In this physically interaction with the product is possible means customer can hold/touch the product, can feel the product and makes the decision.
- A customer can not compare price with different vendors easily.
- If a customer is going for retail marketing then he/she does not need to pay for the shipping cost only customer pays for the product he/she has purchased.
- It has not so large consumer focus and reach and its scope is limited to a particular region.

| Basis | E-Commerce | Retail Commerce |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Definition | E-commerce refers to commercial transactions carried out through an electronic network such as the internet. | Retail refers to the sale of goods in small quantities from a single point such as a departmental store, supermarket, shop or mall in small quantities. |
| Accessibility | It serves customers within a wide geographical location and is open on a 24/7 basis | It is only accessible to consumers within a specific region and may not be open on a 24/7 basis. |
| Customer focus | Ecommerce has a larger consumer focus and reach | retail has a smaller consumer focus and reach. |
| Shopping process | In e-commerce, businesses list their products on an online platform whereby consumers can view the product descriptions, prices, and images. Upon choosing a product, the consumer can then check out and pay for the goods through an electronic payment method. The goods are then delivered to the consumers' location. | customers in retail visit the physical stores whereby they can touch products and also read product descriptions of items on display before ordering, after which they purchase the product. |
| Market competition | ecommerce faces global competition | retail faces local competition |
| Initial costs | While the cost of starting an e-commerce business is low | costs of starting a retail business are high due to additional costs such as store rent. |
| Shipping costs | E-commerce is expensive due to shipping costs. | retail does not have shipping costs |
| Payment options | While e-commerce does not have the cash payment option | retail has the cash payment option. |
| Pricing comparison | E-commerce makes it easier to compare pricing with different vendors | retail makes it hard to compare pricing with different vendors. |
| Goods | In e-commerce, goods are not obtained immediately after purchase | goods are obtained immediately after purchase in retail. |

Types of e-commerce

- **Business-to-Business (B2B):**-B2B is one of the most common types of e-commerce. This is when a transaction of goods or services occurs between two businesses. B2B is one of the largest types of e-commerce. A B2B transaction could involve a mining company purchasing equipment from a heavy machinery company, or even a business getting supply chain logistics services.
- **Business-to-Consumer (B2C):**- Perhaps the most common form of e-commerce, B2C occurs when a business sells a good or service to a consumer. For example, Netflix engages in B2C e-commerce when it sells its service to viewers. The entire transaction occurs online. Goods can be purchased through B2C e-commerce as well. The purchase of a physical good off Amazon is considered a B2C transaction. In the B2C relationship, consumers often choose goods or services that have low prices, and [research shows](#) that consumers value expedient and affordable shipping.
- **Customer-to-Customer (C2C):**-Although businesses don't have as large of an impact on this type of transaction, customer-to-customer (C2C) transactions are still important. These transactions rely on a third party to act as an intermediary. As an example, consider eBay. While eBay isn't selling or purchasing goods, they're providing a service to their users. Payments are safely done through eBay's site, and the buyer's and seller's information is transferred online. In this C2C relationship, the intermediary doesn't facilitate shipping, though, as that service is generally provided by the seller.

Types of e-commerce

- **Customer-to-Business (C2B):**-A lesser-known form of e-commerce, C2B is similar to C2C in that an intermediary is often required. In this transaction, the consumer acts as a seller and the business acts as a buyer. Stock photos are an excellent example of a C2B transaction. The consumer takes a photo and uploads it to a stock photo site. The business then pays for the right to use the stock photo. The intermediary site hosts the transaction, transferring the money and information online.
- **Mobile Commerce (M-Commerce):**-One interesting development in online traffic has been the booming growth of cell phone use. In fact, the [majority of internet use](#) occurs on mobile phones. Unsurprisingly, this has correlated with the growth of m-commerce. M-commerce can look like another type of e-commerce. For example, a B2C purchase that takes place on a mobile device is considered both B2C and m-commerce. To keep up with competitors, all e-commerce businesses need to use responsive, mobile-friendly sites and checkouts. As more people go mobile, sites also need to do a better job of targeting mobile users.

The Impact of E-Commerce on Business

- The quick growth of e-commerce hasn't just forced businesses to adjust their long-term strategies. Online sales add more steps and variables than in-person sales, the most important of which is shipping.
- To meet the shipping demands of their customers, businesses need to focus on their supply chains. Since the application of [same-day shipping](#), traditional supply chains aren't always efficient enough to keep businesses competitive. Oftentimes, e-commerce businesses can't afford to maintain their own fleet, own and manage their warehouses, or employ workers at every stage of the shipping process.

Electronic Retailing

- The **Electronic Retailing** also called as *e-tailing or internet retailing*, is the process of selling the goods and services through electronic media, particularly the internet. Simply, the sale of retail goods and services online is called as electronic retailing. It follows the B2C business model wherein the business interacts directly with the customers without the involvement of any intermediaries.
- The e-retailers can be of two types:
- **Pure Play e-retailers** such as Amazon, that emerged as the online bookseller. It is present only online and do not have any physical outlet for the customers.
- **Brick and click e-retailers** such as Dell, that sells computers through the internet as well as has the physical store front for the customers.

Advantages of Electronic Retailing

1. Through electronic retailing, customers can save both the efforts and time.
2. The wide range of products is available online, so the comparison can be made easily before the purchase.
3. The customer can shop anytime and from anywhere, the facility is available 24*7
4. The huge discounts can be availed while shopping online.
5. The detailed information about the product is available online; that helps the customer to make the purchase decision.
6. The electronic retailing offers the easy payment terms such as payment on delivery that instigate the customer to shop online.

- **Direct Online Sales Model:-** A sales model is the strategy a company uses to get its products to consumers. A company using a direct sales model sells directly to consumers instead of selling its product to resellers such as department stores and third-party web sites. The primary benefit of this type of sales model is that it often allows a company to keep product prices lower and to offer faster, more personalized customer service.
- **Online Advertising Sales Model:-**If you are an advertiser and would want to know how to go about budgeting your outlay for paid inclusion, the following analysis and discussion would provide some guidelines in this regard. Therefore, advertisers choose the option that suits them and is aligned with their business model.
- **CPC (Cost per Click)**
- Cost per Click (CPC) or Pay per Click (PPC) is a form of internet marketing wherein the advertisers pay the search engine or the publisher of the ads whenever their ads are clicked. It is defined as the “amount spent to get an advertisement clicked”. CPC is also defined as an “online advertising payment model in which payment is based solely on qualifying click-through”.
- The calculation of CPC is done in the following manner:
- Cost Per Click = Advertising Costs / Ads Clicked.
 - In other words, the CPC to the advertiser is the cost that is obtained by dividing the total advertising cost by the number of times the ads are clicked.

ONLINE ADVERTISING SALES MODEL

- **CPM (Cost per Mille):-** is a popular advertising model that is used by advertisers across the media and as we are discussing the online advertising models, it is defined as the cost to the advertiser for every thousand impressions. In the online realm, CPM is obtained by dividing the total cost to the advertiser for each thousand of page views that the website clocks up through the users navigating to it from the search engine results page.
- CPM is especially used to calculate the ROI or the Return on Investment from the advertising within and across different media. For instance, if a particular advertiser is running multiple ad campaigns across different media, CPM provides the advertisers with a countable metric on how well their investment is faring or otherwise. Further, in the online medium, CPM is widely used to track the efficacy of ad campaigns that take recourse to paid inclusion across different search engines.
- **CPA (Cost per Action):-** We have seen how advertisers opt for various pricing models for their marketing on search engines and publishers. Another form of pricing is the CPA or the Cost per Action, which is also known as Cost per Conversion. This is defined as the cost entailed to the advertiser based on the users performing a certain predefined action. For instance, it is common for many websites to request users who click on ads and arrive on their homepages to sign up for their newsletters, or register themselves, or request for a contact.
- In the CPA pricing model, the advertiser pays the publisher only when the users perform the defined action and when contrasted with the CPC, which is simply based on click through, the CPA is more effective in adding value to the advertiser.

ONLINE ADVERTISING SALES MODEL

- **CPL (Cost per Lead):-**Now that we have considered CPA, it is time to look at another form of pricing which is the CPL or the Cost per Lead. While CPA and CPL seem alike as both are based on an action or a lead occurring after the click through, there are some important differences between them.
 - Whereas CPA is usually determined based on an elaborate transaction typically involving users submitting their credit card information etc, CPL is a more basic form of pricing where the “lead” is all that matters.

Process of Product Selection

- Products serve the business as the most important and visible first contact with buyers i.e. end-users. The physical nature of products to the consumers typifies the psychological symbols of personal attributes, goals, and strategic pathways. In other words, consumers are most likely to form opinion and perspectives for the entrepreneur
- Criteria and Factors to be Considered in New Product Selection Stages
 - Supply- Demand gap
 - Financing
 - Availability of and Access to Starter Materials
 - Technical Considerations
 - Profit viability/Marketability
 - Qualified and Skilled Personnel
 - Government Policies and objectives

E business models

- A [business model](#) is a framework with all business components to [create value](#) and meet business objectives. A business model is a set of business processes to achieve the business objectives. It's a core architecture around which the whole business of the organization is woven. It gives the direction to implement various business processes. The business model is important as it gives structured approach to guide idea generation in early phase of the business. It also works as planning tool to [define business plan](#) and implement it. It performs as communication tool to communicate internally with various departments of the organizations as well as with partners, customers and other stake holders.
- Elements of E-business Models
 - 1. Products / Services
 - 2. Customer Relationship
 - 3. Structural Resources
 - 4. Virtual Network
 - 5. Financial Aspects

Types of E-Business Models

- **E-business Models Based on Functionality**

1. **Merchant Model**
2. **Community model**
3. **advertising model**
4. **brokerage model**

E-business Models Based on Transaction Types

1. **B2B E-business Model**
2. **B2C E-business Model**
3. **C2C E-business Model**
4. **B2G E-business Model**

Steps to Building a Digital Business PLATFORM

- **Vision and capabilities**
- **Sequenced goals**
- **Multi-year budget**
- **Create organization**
- **Engage service provider**
- **Plan for skills development**
- **Select technologies**
- **Develop and deploy the MVP[most valuable player]**
- **Scale and expand**



- **1. Create a Fully Functional Website**
- **2. Add a Blog Page to Your Site**
- **3. Build a Valuable Email Lists**
- **4. Give Away Opt-in Freebies and Lead Magnets**
- **5. Strengthen Social Media Channels**
- **6. Get a Professional Logo Design**
- **7. Have a Catchy Tagline or Catchphrase**
- **8. Showcase Media Kits and a Perfectly Done Portfolio's**
- **9. Integrate Authentic Testimonials to Call-To-Actions**
- **10. Leverage on SEO to Get Organic Traffic**

Common Online Business Models

- One question remains, though, after you decide to create your business online. What online business model is the best for your internet business?
- There are three basic business models for online businesses, and you can choose the one that best fits your vision:
 - Sell a physical product
 - Sell a service
 - Sell an information product

Online Customer Service

- Any service that helps customers solve problems that are delivered using a digital channel. Online service best practices can be used by customer support agents, individuals whose primary goal is to assist customers. Best practices can also be provided digitally with no human intervention. Such a service is usually connected to a business or brand which sells products and offers support
- **TYPES OF ONLINE CUSTOMER SERVICE**
 - 1. FAQs
 - 2. Demos and webinars
 - 3. Social support
 - 4. On-site help
 - 5. Email
 - 6. Customer reviews



- **Online advertising** is any type of marketing message that shows up with the help of the Internet. That means it could appear in a web browser, search engine, on social media, on mobile devices, and even in email.
- **Types of Online Advertising**
 - ❖ Display Ads
 - ❖ Email Ads
 - ❖ Social Media Ads
 - ❖ Pop-Up Ads
 - ❖ Rich Media Ads
 - ❖ Pay-Per-Click Ads
 - ❖ Retargeted Ads

• **THANK YOU**



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WEB HOSTING

UNIT-3



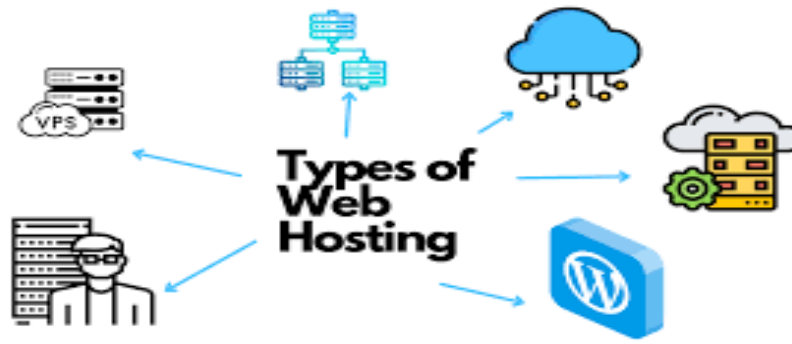


INTRODUCTION

- Web hosting deals with putting the contents of your website on a Web server. Hosting your website on your own server could be an option. But this will become very much expensive unless you are hosting a site like yahoo.com or google.com.
- Buying a server space or renting a complete server from an Internet Service Provider (ISP) is the most widely used option. This section guides you to choose a hosting type and makes you aware of other related concepts.

Hosting Platforms

- **Windows Hosting Servers** – If you are a Windows lover then you will find many hosting servers running different flavors of Windows and you can buy space from these servers. Normally [Windows hosting](#) servers are more expensive because of lot of software licensing costs are involved with these servers.
- **Linux Hosting Servers** – If you want to go for Linux then opportunities are unlimited and they will have to pay less than what you will pay for Windows Hosting Server. There are many ISP who provides Hosting Servers with different flavors of Unix.



Hosting Types

- Free Hosting:-Yes, this is true there are many service providers who will give you free space on their web server with a condition that you will allow them to run their advertisement at your web pages. So if you are OK with this option, then you have nothing to pay for a space. There are some websites like geocities.com, lycos.com, myspace.com, etc. that give you space to build your web pages.
- Shared Hosting:-With [shared hosting](#), your website is hosted on a powerful server along with other websites. On a shared host, you will have your own user ID and password to login to the shared host and you will be allowed to work in your work area. You would not be able to touch any file or directory belonging to other host partner.
- Virtual Dedicated Hosting:-This type of hosting is better for medium size business. With virtual dedicated hosting, you will have a dedicated bandwidth and dedicated RAM for your site. You will be given a root ID and password to maintain your Web server. You will be the complete owner of your virtual dedicated server and will be able to install or de-install any software

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Hosting Types

- **Dedicated Hosting:**-This type of hosting is very similar to virtual dedicated hosting, but here, a complete machine will be allotted for you. They are more expensive than virtual dedicated hosting and should be considered when you have a very high traffic requirement.
- **Collocated Hosting:**-It is very difficult to set dedicated resources such as high-security against fire and vandalism, regulated backup power, dedicated Internet connections and more. Collocation is the option which allows you to put your machine in a service provider's premises to avail all the available facilities. This is also a very expensive option and should be opted when you have very high traffic requirement.

HOW TO SET UP AN ONLINE STORE

- I. Choosing a Product
- II. Research and Prepare
- III. Setting Up Your Business
- IV. Preparing to Launch
- V. Post Launch



FACTORS TO CONSIDER WHILE SETTING UP AN ONLINE STORE

1. **Digital Certificate:-** A Digital Certificate is a technology for verifying the identity of the user or service you are communicating with. Digital certificates are issued by [certificate authorities](#) (CAs), which are public or private organizations that manage a [public key infrastructure](#) (PKI).

The standard specifies that a digital certificate must contain the following information fields:

- Version number
- Certificate serial number
- Signature algorithm ID used
- Name of certificate issuer
- Validity period (for certificate expiration)
- Subject name (name of certificate owner)
- Public key information for subject
- Unique identifier of certificate issuer
- Unique identifier of subject
- Extensions
- Digital signature for all the above fields



FACTORS TO CONSIDER WHILE SETTING UP AN ONLINE STORE

2. Online Transactions:-Online transaction is a payment method in which the transfer of fund or money happens online over electronic fund transfer. Online transaction process (OLTP) is secure and password protected. Three steps involved in the online transaction are Registration, Placing an order, and, Payment. Let us learn more about the different stages of Online Transaction in detail.

Stages of Online Transaction

- **Pre-purchase/Sale:** In this stage, the product or service is advertised online with some details for the customers.
- **Purchase/Sale:** When a customer likes a particular product or service, he/she buys it and makes the payment online
- **Delivery Stage:** This is the final stage where the goods bought are delivered to the consumer.

Steps Involved in Online Transaction

- 1] Registration
- 2] Placing an Order
- 3] Payment



FACTORS TO CONSIDER WHILE SETTING UP AN ONLINE STORE

- **3. Shopping Cart Software:-**The purpose of shopping cart software is to support the work of online merchants with larger customer databases, and enable at least a simplified self-service method. On an eCommerce website with a reliable shopping cart service, prospective buyers have the possibility to preselect, reserve, and store items they'd like to own. The cart itself is often the leading element that inspires trust in the shopping process, and lets them know they're dealing with a professional provider. On the owner's side of the axis, meanwhile, this leads to accelerated checkout and out-of-the-box possibilities to cross-sell related products, and please customers with 'just-what-I-w

Advantages of shopping cart software

- Safer shopping
- Convenient shopping
- A single hub for data management
- An official storefront for your business
- Easy payments
- The feedback



FACTORS TO CONSIDER WHILE SETTING UP AN ONLINE STORE

- **4. Internet merchant bank account:-** A merchant account is a type of bank account that allows your business to securely accept payments via credit cards, debit cards, and other electronic payment modes. It acts as an intermediary that connects your business with the card-issuing banks that offer your customers the debit and credit cards to make purchases. merchant account will require an agreement with the acquiring bank or other parties involved in payment processing. Whether this agreement is between you and the acquiring bank, or a payment aggregator, it requires you (the merchant) to adhere to certain operating regulations.



FACTORS TO CONSIDER WHILE SETTING UP AN ONLINE STORE



- **5. A payment gateway:-** It is a technology used by merchants to accept [debit or credit card](#) purchases from customers. The term includes not only the physical card-reading devices found in [brick-and-mortar](#) retail stores but also the payment processing portals found in online stores. However, brick-and-mortar payment gateways in recent years have begun accepting phone-based payments using QR codes or [Near Field Communication](#) (NFC) technology.

Payment Gateway vs. Payment Processor

- A payment gateway is distinct from a payment processor, a service that connects the customer's bank to the merchant account and facilitates the actual movement of money. You can think of these like two halves of the transaction: a payment gateway collects customer information for payment, and a payment processor uses that information to contact the customer's bank and the merchant account, debiting one account and crediting the other.

LOGISTICS OF E-COMMERCE BUSINESS

- Logistics for e-commerce is a chain of steps that involves everything that happens after the customer places the order on the website. That is, in general, it involves the choice of suppliers; [stock](#) of products; freight calculation; packaging and preparation of products; order tracking; delivery of goods; and, in some cases, exchange and return — the famous reverse logistics.
- A **e-commerce logistics** is an essential part of this type of trade. If done well, it contributes to the conversion, loyalty and retention of customers and, consequently, to the success of the store as a whole.

In general, it goes through the following processes:

- choice of suppliers;
- product stock;
- freight calculation;
- packaging and preparation of products;
- issuance of invoices;
- order tracking;
- delivery of goods;
- exchange and return.



E-COMMERCE BUSINESS MODELS

- **1. Manufacturer** A manufacturer creates its own product using raw materials or assembles pre-made components in order to create a product. Ecommerce manufacturers may sell their products directly to consumers or outsource their sales to a distributor.
- **2. Distributor** A distributor purchases products directly from a manufacturer and sells them to a wholesaler. A distributor will handle passively received orders and actively promote the products to find new buyers, acting as a sales representative for the manufacturer.
- **3. Wholesaler** Wholesalers work closely with eCommerce retailers to accommodate their needs, often buying products in bulk at a discount from manufacturers or distributors. A wholesaler's sole responsibility is to fulfill retail orders to the best of their ability.
- **4. Retailer** A retailer purchases product from a distributor or wholesaler, and sells those products to the general public. Some eCommerce retailers are also manufacturers, producing and selling their own products.
- **5. Franchise** In the franchise business model, an eCommerce entrepreneur pays for the right to sell a product or service under the franchise's name. A franchisee adopts the business model of a particular franchise, meaning they can be a manufacturer, distributor, wholesaler, or retailer!

ECOMMERCE REVENUE MODELS



- **1. Sales Revenue Model**-The most common of all eCommerce revenue models, here profits are achieved by selling products or providing services online versus, or in addition to, brick-and-mortar stores. Any business selling items through the internet, regardless of their business model, is following the sales revenue model. While they may have other revenue streams, this tends to be their bread-and-butter.
- **2. Advertising Revenue Model**-Is Bob's Bait & Tackle ever going to get the type of traffic as, say, Facebook or Google? Of course not. But they can advertise on those sites! The advertising revenue model is when popular platforms allow others to advertise with them for a fee. Media sites, such as magazines, newspapers, and TV channels also frequently use this model. While they may charge a flat fee for advertising, generally cost is based on pay-per-click (PPC), which is the number of people who click on the ad.
- **3 Subscription Revenue Model**-When it comes to the subscription revenue model, a lot of people think of Netflix or Spotify. However, there are also many popular [subscription box](#) brands like Bark Box, Hello Fresh, Ipsy, and Harry's. Regardless of the offering, with this model users are charged a recurring fee (monthly or annual) for using services or having existing products replenished and delivered regularly. Today, there are an estimated 7,000 subscription box services operating globally!
- **4. Transaction Fee Revenue Model**-This model charges a fee every time a transaction is made through their platform. For example, eBay charges sellers a fee whenever an item is sold; PayPal charges users a fee for transferring money; eTrade gains a transaction fee whenever a stock is sold; and so on. While fees tend to be minimal, if people are making thousands of transactions per day, the revenue can be substantial!
- **5. Affiliate Revenue Model**-Last but not least is affiliate marketing. With this model, businesses earn revenue just by promoting and selling another person's (or company's) product on their site (as opposed to the advertising revenue model, which doesn't allow for purchase on the host's site). The concept of affiliate marketing is based on revenue sharing. If a business has a product and wants to earn more, you can promote complementary products or services of another company that will, in turn, pay you for your referrals. It's a win-win for both parties; the affiliate gains a new, passive revenue stream, and the merchant gains new customers! Learn more about [affiliate marketing here](#).

5 Emerging trends in e-commerce



KOSHY'S
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- 1. Ubiquitous e-commerce and 24/7 sales
- 2. Digital supply chain
- 3. AI-powered personalization
- 4. Demand-driven forecasting
- 5. New payment services



Emerging Trends in E-Business

- **E-Marketing:-** refers to the use of the Internet and digital media capabilities to help sell your products or services. As with conventional marketing, e-marketing is creating a strategy that helps businesses deliver the right messages and product/services to the right audience. It consists of all activities and processes with the purpose of finding, attracting, winning and retaining customers
- **ERP:-** It integrates The information across functions and provides a set of tools for planning and monitoring the various functions and processes. It helps integrating business activities as inventory control, order tracking, human resources, finance, production, sales etc.
- **E-CRM :-**Electronic customer relationship management is the application of Internet-based technologies such as emails, websites, chat rooms, forums and other channels to provides an avenue for interactions between a business, its customers and its employees so as to achieve CRM objectives, sales, customer service and support (CSS) and marketing initiatives.
- **E-SCM :-**Electronic Supply Chain Management (e-SCM) is an optimization of business processes and business value in every corner of the extended enterprise – right from your supplier’s supplier to your customer’s customer. It uses e-business concepts and Web technology to manage beyond the enterprise, both upstream (suppliers) and downstream.
- **Mobile Commerce:-** Any electronic transaction or information interaction conducted using a wireless, mobile device, and mobile networks. Business transactions and payments are conducted in a non-pc based environment. M-Commerce is not about selling products and services on a mobile device.
- **Wireless Fidelity (Wi-Fi):-**It represents a collection of related wireless technologies and is an emerging industry standard that makes it possible for hardware firms to create wireless products. The appeal of Wi-Fi is for home users as well as in business. E-Commerce continues to grow at phenomenal rates, although most of the development involves wired infrastructures

E-Governance EMERGING TRENDS

- **E-Citizenship:** will include the implementation of ICT for facilitation of Government Services relating to citizenship of an individual. It may involve online transactions relating to issue and renewal of documents like Ration Cards, Passports, Election Cards, Identity Cards, etc
- **E-Registration:** will cover the online registration of various contracts. An individual enters into several contracts during his life. Many of these contracts and transactions require registration for giving it legality and enforceability. Such registration may also be made ICT enabled. E-registration will help to reduce a significant amount of paperwork.
- **E-Transportation:** services would include ICT enablement of services of Government relating to Transport by Road, Rail, Water or Air. This may involve online – • booking and cancellation of tickets, • status of vehicles, railways, boats and flights, • issue and renewal of Driving Licenses, • registration and renewal of vehicles, • transfer of vehicles, • payment of the fees of licenses, • payment of fees and taxes for vehicle registration,
- **E-Health:** services would be ICT enablement of the health services of the Government. Under this interconnection of all hospitals may take place. A patient database may be created. A local pharmacy database may also be created. All this can be done

Digital Commerce

- Digital commerce is a broad term that includes ecommerce and all other forms of online transactions. Digital commerce refers to commercial transactions undertaken through digital platforms, primarily the internet. This can include any form of transaction, from the purchase of goods and services to the transfer of funds for any service rendered.
- Types of digital commerce
- Digital commerce comprises several types of activities that can be divided broadly into marketing and promotion, customer support services, order fulfillment services, customer analytics, etc.
- Digital commerce importance
- Digital commerce is important as the activities included in digital commerce forms the backbone of a successful online business. Proper synchronization of the entire process is necessary to complete order fulfillment and to attract and retain customers

MOBILE E-COMMERCE

- Mobile E-Commerce is already making significant purchases and sales for online and traditional shop vendors. In this year of 2022, Mobile E-commerce will become a trend that will dominate the entire world's commercial force. Take an in-depth look at some of the dominant trends of Mobile Commerce in 2022.

Mobile E-Commerce trends:-

- Progressive web apps
- Mobile shopping apps
- One-click ordering
- Social commerce
- Voice shopping
- Virtual reality and augmented reality
- Mobile payments

Internet Business Models

- 1. Social Media Model
- 2. Affiliate Model
- 3. Subscription Model
- 4. Merchant Model
- 5. Advertising Model





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MODULE-3

ELECTRONIC PAYMENT SYSTEM



ELECTRONIC PAYMENT SYSTEM [EPS]

- An e-commerce payment system (or an electronic payment system) facilitates the acceptance of electronic payment for online transactions. Also known as a subcomponent of electronic data interchange (EDI), e-commerce payment systems have become increasingly popular due to the widespread use of the internet-based shopping and banking.
- Credit cards remain the most common forms of payment for e-commerce transactions.

IMPORTANCE OF E-PAYMENT SYSTEMS

- Variety of Choice
- Reduced Costs
- Reliability
- Security



TYPES OF E-COMMERCE PAYMENTS

- Credit Card
- Debit Card
- Smart Card
- E-Wallet
- Net banking
- Mobile Payment
- Amazon Pay

ADVANTAGES OF EPS

- Reduced risk of loss and theft
- Time saving
- Low commissions
- Expenses control:

DISADVANTAGES OF EPS

- Restrictions
- Necessity of internet access
- Problem of transferring money in different payment systems

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.

Mode of Payment/Types of Authentication

- Electronic Card (e-Card)
- Credit Card
- Debit Card
- smart card
- Electronic Cash

RISKS IN ELECTRONIC PAYMENT SYSTEMS

- The Risk of Fraud
- The Risk of Tax Evasion
- The Risk of Payment Conflicts
- The Risk of Impulse Buying

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 a 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
- 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.

E-BANKING OR INTERNET BANKING

- Means any user with a personal computer and browser can get connected to his banks, website to perform any of the banking functions. In internet banking system the bank has a centralized data base i.e., web-enabled. Best example for E-Banking is ATM.
- An ATM is an electronic fund transfer terminal capable of handling cash deposits, transfer between ALCS, Balance enquiries, cash withdrawals, and pay bills.

SERVICES THROUGH E-BANKING:

- Bill payment service.
- Fund Transfer
- Investing through internet Banking
- Shopping

Customers should never share personal information's like pin nos., passwords, etc., with any one.

Through internet banking, you can check your transactions at any time of the day, and as many times as you want

CRM IN E-COMMERCE

- eCommerce CRM's prime objective is to enhance and manage the relationship between sellers and buyers, which explains why CRM is abbreviated as 'Customer relationship management.' CRM helps you to register essential data related to your current prospects and future potential ones. CRM stores all of this data in one location, making it easy to access from one entity. This feature allows you to govern your business efficiently and forecast possible sales contingencies.
- **Types of CRMs**
- Operational
- Analytical
- Collaborative.

These are the three main types of CRMs that are widely used in the eCommerce industry.

E-Commerce store benefit from a CRM

- 1. Data analytics
- 2. Real-time communication
- 3. Task management
- 4. Forecasting
- 5. Business expansion

How do you choose the most compatible CRM for your eCommerce business?

- 1. Compatibility
- 2. Check for the type of CRM
- 3. Integration
- 4. Consider your purpose

CRM Architecture

- An effective CRM architecture can be a critical factor when it comes to your company's success. The architecture you create should be based on both your needs and your available resources, as well as any external factors that may affect these variables.
- The architecture of a CRM is the foundation of how your CRM will function and support your business needs. CRM architecture is the strategy and processes that go into how your company will use the CRM now and in the future as your company grows.

Why Is CRM Architecture Important?

- There are several reasons why an effective CRM architecture is essential for your company. A strong and versatile CRM architecture will allow you to:
- Identify your system's strengths and weaknesses.
- Determine how to improve performance.
- Make future decisions about enhancements or upgrades; ensure scalability as your company grows.

A CRM's architecture should be flexible enough to grow with your business while still addressing your current needs. Efficiency is key when it comes to CRM solutions.

Components of CRM Architecture

- There are several components that make up an effective CRM architecture. These include:
- **Marketing Automation** - Automates your marketing processes, including email campaigns, lead scoring, and lead management.
- **Sales Automation** - Automates the sales process, including contact management, opportunity tracking, and forecasting.
- **Administrative Automation** - This allows you to automate many of your routine administrative tasks, and it can save each employee hours per day.
- **CRM Integration** - Allows interconnectivity between your CRM and other business software, such as Accounting or other business software.
- **Analytics & Reporting** - Provides you with the tools needed to gather information about your sales pipeline, current customers, and marketing campaigns. You can use this data for both business planning purposes as well as reporting accurate return on investments (ROI).

The Benefits of a Well-Designed CRM System

- **Increased Sales** - The ability to track leads and opportunities throughout the entire sales process allows you to close more deals and lower customer acquisition costs.
- **Improved Customer Satisfaction** - By automating marketing and support processes, you can deliver faster, more personalized service to your customers.
- **Better Data & Insight** - Access to accurate customer data gives you the ability to make smarter business decisions that will help grow your company.
- **Improved Collaboration** - Sales, marketing, and support teams can all work together more effectively when they're on the same page with regard to information about leads and opportunities. This also reduces the risk of customer dissatisfaction.

Electronic Customer Relationship Management (E-CRM)

- E-CRM is a new form of customer relationship management that uses the internet and other electronic means in order to help the organization design, manage and track the relationship with their customers.
- An E-CRM system is a system that enables an organization to manage its relationship with its customers through the internet, social media, and other electronic channels.
- It includes online marketing, online [customer support](#), online feedback collection, online customer retention and it also has built-in social media tools.
- E-CRM has become very popular all over the globe due to its ability to save time and money for [organizations](#). But there are some things that you should consider before implementing an E-CRM system in your organization.



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UNIT-5

E-SECURITY



E-SECURITY

- E-Commerce security is the guideline that ensures safe transactions through the internet. It consists of protocols that safeguard people who engage in [online selling](#) and buying 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

NEED FOR E-COMMERCE SECURITY



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- 1. **ServerSecurePLUS™**:-adds additional security services and modifications to the your server's Linux operating system and cPanel. It greatly enhances the security, reliability and compatibility of your server and software by adding a multitude of server hardening initiatives.
- 2. **PCI Compliance**:-Complying with the [Payment Card Industry's Data Security Standards \(PCI-DSS\)](#) requires your organization to take all the necessary steps to protect your customers sensitive data while they shop online. These requirements include standards for your infrastructure and server setup to ensure your customers' private data stays safe. Liquid Web offers a scanning service that can verify you have met all the requirements in the PCI-DSS.
- 3. **Off-Server Backups**:-[Acronis Cyber Backup](#) is our fully managed, robust back up system that provides continuous data protection and off-site disaster recovery for Linux and Windows Managed Dedicated Servers. For an eCommerce operation this is especially critical, since losing your website database means losing records of important sales and customer information. With Acronis Cyber Backup, we continuously capture your entire system configuration to an off-server facility, which allows for up-to-the-minute recovery of your information.
- 4. **Firewalls**:-[Firewalls](#) are a proactive defense for your infrastructure from the constant threat of new and advanced malware, viruses, and malicious Internet traffic. Liquid Web's Firewall employs on-site, pre-server hardware firewalls, each containing its own operating systems and operating independently of the server(s) it is protecting.
- 5. **SSL Certificate Services**:-Keeping your online transactions secure with a strong encryption, [SSL Certificates](#) are a necessary and reliable way to gain your online shoppers' trust. We sell a number of different certificates from GlobalSign, one of the most respected names in the industry, to fit your unique security needs.



Common Ecommerce Security Issues

1. Lack of trust in the privacy and eCommerce security
 - Counterfeit sites
 - Malicious alterations to websites
 - Theft of clients' data
 - Damages to networks of computers
 - Denial of service
 - Fraudulent access to sensitive data
2. Malware, viruses, and online frauds
3. Uncertainty and complexity in online transactions

E-commerce website security measures to cover you 24/7

- 1. Use Multi-Layer Security
- 2. Get Secure Server Layer (SSL) Certificates
- 3. Use solid-rock Firewalls
- 4. Anti-Malware Software

CYBER CRIME

- Cyber-crime is a type of crime which falls under the virtual world that is known as “Cyberspace”. The Term Cyberspace is very broad with no barriers as in the current ERA we can see that the life is getting much easier and smoother which was not at all same in an earlier stage. Due to the latest technology advancements and this can be termed as CYBER ERA.

TYPES OF CYBER-CRIMES

- **Hacking:** Hacking in the simple language is getting unauthorized access to the victim’s computer and destroying the content or data files stored in it. Hackers are mainly programmers who have deep knowledge about the computers, their internal files, their loopholes, their virtual doors to get the unauthorized access. There are two types of hackers White Hat Hacker and the Black Hat Hacker. White Hat Hacker is the person who does hacking of computer for the purpose the security concern such as National Cyber Security Experts while Black Hat Hackers are the ones who do Hacking with the criminal intent or to harm others.
- **Data Spying:** It is for spying on the confidential information or data on the target computer. It is done remotely by the attacker.
- **Data diddling:** This attack involves altering raw data before processing and then changing it back after the processing is completed.
- **Salami attack:** This is newly discovered cyber-attack, it is used for the commission of financial crimes.
- **Internet time theft:** As the name suggests, in this the attacker steals the paid internet time of the user.

TYPES OF CYBER-CRIMES

- **Virus/worms bombing:** In this the attacker using an external device such as flash drives or through spam emails injects the virus into the target's computer and if the attacker wants to harm the other computers as well than attacker uses worms which will multiply and spread in other computers that will damage or manipulate the files of the computers connected to the target's computer.
- **Cyber-stalking:** It involves following the person's movement across the internet by posting messages (threatening) on the bulletin boards frequented by the victim, entering the chat rooms frequented by the victim.
- **Cyber/child pornography:** All the obscene pornographic material online in the websites, produced using a computer or transferred using a computer or downloading through any website, editing any photo with an obscene picture, all this will fall under the Cyber-crime.
- **Cyber defamation:** Any act, gesture, word, deed etc. in cyberspace, designed to harm the person's reputation on the internet or even offline, this will be considered as the Cyber-crime or particularly Cyber defamation.
- **Cyber–money laundering:** is a way to conceal illegally obtained funds. Money laundering works by transferring money in elaborate and complicated financial transactions which can mislead anyone who may seek to trace and review the transactions.
- **Credit card fraud:** Millions of rupees are lost because of the person who attacks the database where the information of the card is stored and the money from the account holder is stolen.
- **Cyberterrorism:** In this, the tools are used to interrupt the national infrastructure security by shutting down of energy, transportation, communication, forcing government for the submissions. Online harassment, internet bomb threats, and other technology-driven crimes are considered as cyber-terrorism.
- **Intellectual property crimes:** These crimes include copyright, patent or design infringement, software piracy, industrial piracy, corporate piracy.

CYBERSECURITY

- The “Cybersecurity” is the security or protection of the computer networks (includes Local area network and Wide area network), computer systems, files, confidential data, and other media files present in the cyberspace. Different level of securities is involved at every stage of the network layers, where the attacker makes the target to enter into the network and breach the security. In this digital era, IT infrastructure has become an important part of our daily routine, such as in telecommunication, banking systems, transportation, defence systems, etc.
- There are Cyber Security Experts who are the ones who are specialized in protecting the system from cyber-attacks, they are affiliated with the specialized cyber-security courses certification from various institutes.

LEGAL REMEDIES:

- These are few cyber-crimes involved in the different fields of the cyberspace, also there are various undiscovered cyber-crimes the count of cases solved is very less than that of the unsolved cases and each day the crime rate is increasing simultaneously with the internet usage and technological advancement.

Cryptology

- It is the study of the conversion of plain text to ciphertext and vice versa. It is also called the **study of encryption and decryption**.
- Cryptology Is the process of conversion of plain text to cipher text and vice versa.
- It is also called the study of encryption and decryption.
- It takes place on the sender and receiver side.
- In Cryptology, both sender and receiver send messages to each other.
- Cryptology can be seen as the parent of Cryptography.

Hacker

- A hacker is an individual who uses computer, networking or other skills to overcome a technical problem. The term also may refer to anyone who uses their abilities to gain unauthorized access to systems or networks in order to commit crimes. A hacker may, for example, steal information to hurt people via identity theft or [bring down a system](#) and, often, hold it hostage in order to collect a ransom.

Types of hackers

- **Ethical hackers** or authorized hackers -- previously known as *white hat hackers* -- strive to operate in the public's best interest rather than to create turmoil. Many ethical hackers who work doing [pen testing](#) were hired to attempt to break into the company's networks to find and report on security vulnerabilities.
- **Ethical hackers** or authorized hackers -- previously known as *white hat hackers* -- strive to operate in the public's best interest rather than to create turmoil. Many ethical hackers who work doing [pen testing](#) were hired to attempt to break into the company's networks to find and report on security vulnerabilities.
- **Gray hat hackers** fall somewhere between ethical hackers and threat actors. While their motives may be similar to those two groups, gray hats are more likely than ethical hackers to access systems without [authorization](#); at the same time, they are more likely than threat actors to avoid doing unnecessary damage to the systems they hack.
- **Red hat hackers**, also called *eagle-eyed* or *vigilante hackers*, are similar to ethical hackers. Red hat hackers intend to stop [unethical attacks by threat actors](#). While red hat hackers may have a similar intent to ethical hackers, they differ in methodology, as red hat hackers may use illegal or extreme courses of action.
- **Blue hat hackers**, also known as *vengeful hackers*, use hacking as a social weapon. Frequently, it is used as a means for revenge against a person, employer or other organization
- **Script kiddies** are amateur, inexperienced hackers who attempt to use pre-written scripts in their hacking efforts. Often, these are fledgling hacking enthusiasts who cause little damage.
- **Hacktivism** are organizations of hackers that use cyber attacks to affect politically motivated change. The purpose is to bring public attention to something the hacktivist believes might be a violation of ethics or human rights.

Hacking Techniques

- **Phishing**. The criminal hacker creates a fraudulent email that appears to come from a legitimate organization and prompts the user to open it. Users are then tricked into entering their login credentials and disclosing other personal information, such as birth date, Social Security number or credit card details.
- **Viruses and malicious code**. A hacker inserts malicious code, including worms and Trojan horses, into website files, often with the intent to steal cookies that track a user's online activity.
- **User interface (UI) redress**. This technique, also known as *clickjacking*, creates a fake UI and link on top of an authentic webpage and tricks the user into clicking on the link.
- **DoS and DDoS**. These techniques make it impossible for users to access their computer systems, networks, services or other information technology (IT) resources. Typically, a criminal hacker uses this technique to crash web servers, systems or networks by disrupting the normal flow of traffic.
- **Domain name system (DNS) cache poisoning**. This technique, also known as *DNS spoofing*, exploits DNS clients and web servers by diverting internet traffic to fake servers.
- **Structured Query Language (SQL) injection**. This technique adds SQL code to a web form input box in order to gain access to unauthorized resources and data.
- **Keylogger injection**. A keylogging program is injected into the user's system as malware to monitor and record each of the user's keystrokes. This enables the threat actor to steal personally identifiable information, login credentials and sensitive enterprise data.
- **Brute-force attack**. These attacks commonly use automated tools to guess various combinations of username and password until they find the correct combination.

Encryption

- Encryption is a form of data security in which information is converted to ciphertext. Only authorized people who have the key can decipher the code and access the original plaintext information.
- In even simpler terms, encryption is a way to render data unreadable to an unauthorized party. This serves to thwart cybercriminals, who may have used quite sophisticated means to gain access to a corporate network—only to find out that the data is unreadable and therefore useless.
- Encryption not only ensures the confidentiality of data or messages but it also provides authentication and integrity, proving that the underlying data or messages have not been altered in any way from their original state.

Types of Encryption

- **Symmetric Encryption:**-In this simple encryption method, only one secret key is used to both cipher and decipher information. While the oldest and best-known encryption technique, the main drawback is that both parties need to have the key used to encrypt the data before they can decrypt it. Symmetric encryption algorithms include AES-128, AES-192, and AES-256. Because it is less complex and executes faster, symmetric encryption is the preferred method for transmitting data in bulk.
- **Asymmetric Encryption:**-Also known as public key cryptography, asymmetric encryption is a relatively new method that uses two different but related keys to encrypt and decrypt data. One key is secret and one key is public. The public key is used to encrypt data, and the private key is used to decrypt (and vice versa). Security of the public key is not needed because it is publicly available and can be shared over the internet.
- **Data Encryption Standard (DES):**-DES is a deprecated symmetric key method of data encryption. DES works by using the same key to encrypt and decrypt a message, so both the sender and the receiver must have access to the same private key. DES has been superseded by the more secure AES algorithm. It was adopted by the U.S. government as an official standard in 1977 for the encryption of government computer data. It can be said that DES was the impetus for the modern cryptography and encryption industry.
- **Triple Data Encryption Standard (3DES):**-The Triple Data Encryption Standard involved running the DES algorithm three times, with three separate keys. 3DES was largely seen as a stopgap measure, as the single DES algorithm was increasingly becoming seen as too weak to stand up to brute force attacks and the stronger AES was still under evaluation.
- **RSA:**-Rivest-Shamir-Adleman (RSA) is an algorithm and the basis of a cryptosystem—a suite of cryptographic algorithms used for specific security services or purposes. This enables public key encryption and is often used by browsers to connect to websites and by virtual private networks (VPNs). RSA is asymmetric, in which two different keys are used for encryption: one public and one private.
- **Advanced Encryption Standard (AES):**-Developed in 1997 by the National Institute of Standards and Technology (NIST) as an alternative to the Data Encryption Standard, the Advanced Encryption Standard is a cipher chosen by the U.S. government to protect sensitive information. AES has three different key lengths to encrypt and decrypt a block of messages: 128-bit, 192-bit, and 256-bit. AES is widely used for protecting data at rest in such applications as databases and hard drives.
- **Encryption in the Cloud:**-Cloud encryption is a service offered by cloud storage providers in which data is first encrypted using algorithms before being pushed to a storage cloud. Customers of a cloud storage provider must be aware of and comfortable with the level of depth of the provider's policies and procedures for encryption and encryption key management.

Encryption Challenges & Benefits

CHALLENGES

- Attackers will still attack even when they know that data or devices are encrypted. They figure that with some effort, they might get through. For many years, weak passwords served as the impetus for attackers to keep trying, as some sophisticated software could sooner or later figure out passwords.
- Such brute force attacks have become more sophisticated, as attackers hope that by making thousands or even millions of guesses, they will figure out the key for decryption. However, most modern encryption methods, coupled with multi-factor authentication (MFA), are helping organizations to become more resistant to brute force attacks.

BENEFITS

- Encryption has become an enormous asset to organizations, allowing them to confidently offer a more secure experience for employees, customers, and other stakeholders.

Ecommerce Security Solutions



- 1. Enhanced security for payment gateways:-**Payment gateways are an attractive target for hackers. As it contains transaction information of users and ecommerce websites. Especially is credit card information. For secure gateway payment, businesses need to comply with at least the following standards:
 - PCI DSS security standard
 - OTP password
 - MD5 128-bit encryption
 - Do not store user's card information
- 2. Use firewalls:-**One of the effective ways to secure an e-commerce website is to use a Firewall. The software will help to stream traffic and remove malicious traffic from entering the website.
- 3. Employ Multi-Layer Ecommerce Security:-**You can strengthen your security by using different layers of security. You can use the Widespread Content Delivery Network or CDN to protect your website from DDoS attacks and bad traffic. They do so by using machine learning to filter out malicious traffic from regular traffic.
- 4. Use Ecommerce Security Plugins:-**Security plugins are a simple way to enforce security protection on your website. They protect against bad bots, SQLi, XSS, and hundreds of other severe attacks. One of the securest, easy to implement, feature rich security plugin is Astra.
- 5. Backup Your Data:-**Data loss due to hardware malfunction or network attack is not uncommon. Data backup is a simple but effective solution. It helps to combat attacks or security risks for ecommerce. Use an automatic backup service so that even if you forget to do it manually, all of your data will be backed up automatically. Whenever your site has a problem that cannot be resolved with normal response measures, you can restore a backup to resume operations serving users.

Data protection

- Data protection is the process of protecting sensitive information from damage, loss, or corruption.
- As the amount of data being created and stored has increased at an unprecedented rate, making data protection increasingly important. In addition, business operations increasingly depend on data, and even a short period of downtime or a small amount of data loss can have major consequences on a business

Data protection strategies have three key focuses:

- **Data security** – protecting data from malicious or accidental damage
- **Data availability** – Quickly restoring data in the event of damage or loss
- **Access control** – ensuring that data is accessible to those who actually need it, and not to anyone else

Consumer Protection in E-Commerce



- The e-commerce has made a huge impact on most of the industries in India, the travel industry in particular. The other notable ones being the telecommunication industry, the online trading industry, etc.
- The government here has promoted e-commerce extensively, which is, in fact, a promotion of the e-consumer activities, mainly focusing on the delivery of services. However, the legal control still has to catch up with supply.
- E-commerce being global and domestic in nature, efforts have been thoroughly made to ensure its protection. In India, the Consumer Protection Act 1986 governs the relations between consumers and the provider of services/goods. It should be noted here that no specific act regulates the online transactions.
- The consumer protection act has been carefully designed to muster the confidence of consumers in law and liability under this act thus arises when there is a deficiency in services or defect in goods or sometimes as the case maybe, unfair trade practices.
- The Consumer Protection Act specifically excludes from its ambit any service that is free of charge. Depending upon who is selling the actual goods to the consumers, liability triggers. Also, distribution of goods comes within the purview of consumer protection act.

Some of the various protections under the consumer protection act on e-commerce can be listed below

- Removal of defects.
- Replacement of goods.
- Return of price in case of discrepancy.
- Discontinue any form of restrictive trade practice.

Management Information Privacy

- Information privacy is the privacy of personal information and usually relates to personal data stored on computer systems.
- The need to maintain information privacy is applicable to collected personal information, such as medical records, financial data, criminal records, political records, business related information or website data.
- Information privacy is also known as data privacy.

Information privacy relates to different data types, including:

- Internet privacy (online privacy): All personal data shared over the Internet is subject to privacy issues. Most websites publish a privacy policy that details the website's intended use of collected online and/or offline collected data.
- Financial privacy: Financial information is particularly sensitive, as it may easily used to commit online and/or offline fraud.
- Medical privacy: All medical records are subject to stringent laws that address user access privileges. By law, security and authentication systems are often required for individuals that process and store medical records.

Electronic Data Interchange(EDI)

- Electronic Data Interchange (EDI) - interposes communication of business information in standardized electronic form. Prior to EDI, business depended on postal and phone systems that restricted communication to those few hours of the workday that overlap between time zones

Why EDI?

- Reduction in transaction costs
- Foster closer relationships between trading partners.

EDI & Electronic Commerce

- Electronic commerce includes EDI & much more
- EDI forges boundary less relationships by improving interchange of information between trading partners, suppliers, & customers

EDI

EDI layered architecture:

- Semantic (or application) layer
- Standards translation layer
- Packing (or transport) layer
- Physical network infrastructure layer

EDI semantic layer

- Describes the business application
- Procurement example – Requests for quotes – Price quotes – Purchase orders – Acknowledgments – Invoices
- Specific to company & software used

Standards translation

- Specifies business form structure so that information can be exchanged
- Two competing standards – American National Standards Institute(ANSI)X12 – EDIFACT developed by UN/ECE, Working Party for the Facilitation of International Trade Procedures

EDI transport layer

- How the business form is sent, e.g. post, UPS, fax • Increasingly, e-mail is the carrier • Differentiating EDI from e-mail – Emphasis on automation – EDI has certain legal status

Physical network infrastructure layer

- Dial-up lines, Internet, value-added network, etc

Information flow with EDI

1. Buyer sends purchase order to seller computer
2. Seller sends purchase order confirmation to buyer
3. Seller sends booking request to transport company
4. Transport company sends booking confirmation to seller
5. Seller sends advance ship notice to buyer
6. Transport company sends status to seller
7. Buyer sends Receipt advice to seller
8. Seller sends invoice to buyer
9. Buyer sends payment to seller



Applications of EDI

1. Role of EDI in international trade:

- Reduced transaction expenditures
- Quicker movement of imported & exported goods
- Improved customer service through —track & trace programs
- Faster customs clearance & reduced opportunities for corruption, a huge problem in trade

2. Interbank Electronic Funds Transfer (EFT)

- EFTS is credit transfers between banks where funds flow directly from the payer's bank to the payee's bank.
- The two biggest funds transfer services in the United States are the Federal Reserve's system, Fed wire, & the Clearing House Interbank Payments System (CHIPS) of the New York clearing house

3. Health care EDI for insurance EDI

- Providing good & affordable health care is a universal problem
- EDI is becoming a permanent fixture in both insurance & health care industries as medical provider, patients, & payers
- Electronic claim processing is quick & reduces the administrative costs of health care.
- Using EDI software, service providers prepare the forms & submit claims via communication lines to the value-added network service provide

4. Manufacturing & retail procurement using EDI

- These are heavy users of EDI
- In manufacturing, EDI is used to support just-in-time.



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UNIT - 6

LEGAL REQUIREMENTS IN ECOMMERCE



INTRODUCTION

E-commerce broadly means a commercial activity conducted with the support of electronic devices. Under E-commerce, there are digital business transactions/trades which are wholly/partially performed by using the internet. As E-commerce has evolved and become more feasible and a safer way of shopping/trading, it is such an industry that requires a well-built regulatory framework in order to ensure accountability and consumer protection. The legal obligations to start an E-commerce business in India are as follows:

1. Company or LLP Registration:-Every [business is required to get registered](#) with the Ministry of Corporate Affairs under the applicable laws. Such a business shall either be incorporated under the (Indian) Companies Act, 2013 or a foreign company or an office, branch or an agency outside India and necessarily be owned or controlled by an Indian resident.

2. GST Registration:-For a successful establishment of an E-commerce business, GST registration is mandatory. Every E-commerce business irrespective of its turnover is required to be compulsorily registered under the Central Goods & Service Tax (CGST) Act.

3. Bank Account:-Opening a bank account in the name of the business is a convenient process. In case of a Proprietorship firm, the first step is to obtain a GST registration in the name of the business in order to open a bank account. An active bank account is the bare minimum requirement to be able to list a business on an E-commerce marketplace or to obtain a payment gateway for a proprietary E-commerce website.

4. Payment Gateway:-A payment gateway is mandatory for a proprietary E-commerce website to process the payments. It allows the website to accept payments through credit card(s), debit card(s), net banking, internet banking from multiple banks. Therefore, one payment gateway is sufficient to accept various forms of online payments.

5. Legal Documents:-While selling on the internet, it is important to safeguard the business and the promoters by strict adherence to terms and conditions and the privacy policy of such businesses. In the case of a proprietary E-commerce website, the terms and conditions, disclaimer and privacy policy would have to be drafted as per the business, keeping in mind the nature of its activities and products they sell online.

Compliances For E-Commerce Business In India



1. Foreign Direct Investment:-Foreign Direct Investment means the investment made by the foreign entities in the companies situated in India. The same can be done either by opening a subsidiary or associate in a foreign country, acquiring a controlling interest in an existing foreign company, or by means of a merger or joint venture with a foreign company.

2. Information Technologies Act, 2000:-The E-commerce sellers conduct business in the same manner as the physical sellers with the only distinction of non-availability of the physical body in order to sell things. Through E-commerce, the vendors are required to generate bills, file returns, pay taxes, prepare ledgers and maintain records.

3. Payment And Settlements Systems Act, 2007:-As per the Payment and Settlements Systems Act, the E-commerce business shall succeed as a payment system if it follows the Rules specified by RBI for online transactions and payments. Further, it is compulsory for an intermediary that is receiving payments through digital modes to have an active Nodal Account for settling the payments of the sellers on its E-commerce platform.

4. Consumer Protection Act, 2019:-The E-commerce industry is also monitored by the [Consumer Protection Act](#) as it is working towards the interest of the consumers. In order to safeguard the consumers from unfair trade practices and further to address and solve their problems, the Ministry of Consumer Affairs, Food and Public Distribution on May 17, 2021, has notified the Consumer Protection (E-Commerce) Rules, 2021.

E-Commerce under Cyber Law

- E-Commerce has its unique advantages where it gives tremendous amounts of possibilities to all kinds of business owners to grow their business exponentially. It provides reach to new markets over the web which will otherwise be impossible with their physical sales force.
- Cyber Law, also called IT Law is the law regarding Information-technology including computers and internet. It is related to legal informatics and supervises the digital circulation of information, software, information security and e-commerce.

Types of Cyber Crimes

- Hacking
- Data theft
- Identity theft
- Cyber Stalking

Cyber Law in India

Cyber law is a term used to describe the legal issues related to the unlawful activities on cyberspace, i.e. the internet. In nutshell cyber law is an attempt to counter the challenges presented by human activity in cyberspace with a legal system of laws applicable to the physical world. In India, cyber laws are contained in the Information Technology Act, 2000 (IT Act) which came into force on October 17, 2000. The main purpose of the Act is to provide legal recognition to electronic commerce and to facilitate filing of electronic records with the Government.

IT Act 2000 has triggered amendments to existing acts to include IT offences related provisions. Below is the list of other main Acts which are amended by IT Act.

- **The Indian Penal Code, 1860:-** IT Act 2000 has amended the section dealing with records and documents in the IPC by inserting word 'Electronic' there by treating the electronic records and documents on a par with physical records and documents.
- **The Indian Evidence Act 1872:-** Prior to passing the IT Act, all evidence in a court was in the physical form only. With the IT Act giving recognition to all electronic records and documents. In the definitions part of the Act itself, the all documents including electronic records were substituted. Words like 'digital signature', 'electronic form', 'secure electronic record' 'information' as used in the IT Act, were all inserted to make them part of the evidentiary mechanism in legislation.



Hyper-Text Transfer Protocol Secure) is the secure version of HTTP, the system for transferring information between a web browser and website. The ‘Secure’ aspect is supported by Transport Layer Security (TSL), formerly known as SSL, and helps protect personal user data like credit card numbers, passwords and addresses.

- HTTP Protocol stands for Hyper Text Transfer Protocol.
- As languages, HTTP and HTTPS are rather complex. Each communication is independent of the communication before it which allows the internet to function individually for each user. HTTP and HTTPS are composed of two essential elements – Hypertext and hyperlinks.

Definitions of hypertext and hyperlinks.

- **Hypertext:** Hypertext is text on the internet that is linked directly to other text. Typically associated with internet web pages, hypertext consists of both text style links and graphics.
- **Hyperlinks:** Hyperlinks are a form of hypertext that directly connects one online document to another. Created by using clickable [anchor text](#), hyperlinks appear on every website and search engine.

Firewall Security Control

- 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.
- Firewalls carefully analyze incoming traffic based on pre-established rules and filter traffic coming from unsecured or suspicious sources to prevent attacks. Firewalls guard traffic at a computer's entry point, called ports, which is where information is exchanged with external devices.

Types of firewalls

Packet-filtering firewalls, the most common type of firewall, examine packets and prohibit them from passing through if they don't match an established security rule set. This type of firewall checks the packet's source and destination IP addresses.

Next-generation firewalls (NGFW) combine traditional firewall technology with additional functionality, such as encrypted traffic inspection, intrusion prevention systems, anti-virus, and more.

Proxy firewalls filter network traffic at the application level. Unlike basic firewalls, the proxy acts as an intermediary between two end systems. The client must send a request to the firewall, where it is then evaluated against a set of security rules and then permitted or blocked.

Network address translation (NAT) firewalls allow multiple devices with independent network addresses to connect to the internet using a single IP address, keeping individual IP addresses hidden.

Stateful multilayer inspection (SMLI) firewalls filter packets at the network, transport, and application layers, comparing them against known trusted packets. Like NGFW firewalls, SMLI also examines the entire packet and only allows them to pass if they pass each layer individually.

VPN

- A **Virtual Private Network (VPN)** is that private network built on a public network. The reasons that push the market in that direction are, mainly, of costs: it is much cheaper to interconnect delegations using a public infrastructure than to deploy a physically private network.

Types of VPNs

- **Intranet (site-to-site)**: they are indicated to connect fixed locations, branches, branches, and remote offices. They normally use dedicated connections within the company's WAN communications structure based on an operator's private IP network.
- **Extranet**: implemented to expand network services and provide limited and secure access to partners and customers of a company. These extensions are generally supported by public networks (typically the Internet, the public IP network par excellence), for client accesses and private IP networks with higher quality access for partners and collaborators.
- **Remote access**: they provide secure access to mobile users and small offices with very basic communication needs. They use existing access networks, RTB and ISDN, to connect over the Internet.

VPN advantages

- Reduced costs
- Reduces management problems
- Simplify the network topologies

Importance of Virtual Private Networks

- The network of networks, the Internet becomes increasingly important. Every day there are faster access speeds, and the range of services offered through the Internet widened. It happens that many companies or institutions, with particular growth, have established branches or terminals which have their computers.
- In many cases, it is necessary to connect these computers to the central office network. We also have the case of remote users, employees, who connect from home or when they are traveling to, for example, check their email.
- One of the solutions that have found to the problem of the remote connection is that of Virtual Private Networks or VPN, according to its acronym in English, which use the open Internet infrastructure to transmit corporate data between offices or branches.
- The intention here is to take advantage of the infrastructure of Internet providers (ISP) to interconnect remote users at a low cost. VPNs allow system administrators to connect the branches of a corporation with the central office in an economical way.



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