# 1

# INTRODUCTION TO ELECTRONIC COMMERCE

**Unit Structure**


1.1 Introduction to Electronic Commerce: Meaning, nature and scope

1.2 Channels of e - commerce

1.3 Business applications of e -commerce

1.4 Global trading environment and adoption of e-commerce

1.5 Business Models of E-commerce and Infrastructure; B2B, B2C, B2G and other models of e-commerce

1.6 Applications of e-commerce to supply chain management; product and service digitization

1.7 Remote servicing, procurement, and online marketing and advertising

1.8 E- commerce resources and infrastructure planning

1.9 Questions


## 1.0 LEARNING OUTCOMES

1. To understand basic concepts of online business
2. To know insides of Ecommerce
3. To know how technology helps bridging gaps in business

## 1.1 INTRODUCTION TO ELECTRONIC COMMERCE: MEANING, NATURE AND SCOPE

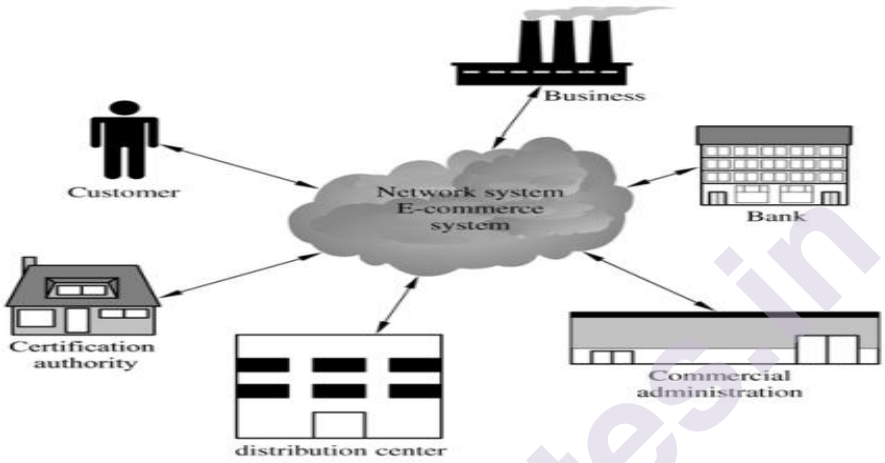
E-commerce or business done electronically has changed the way business is done. The growth of internet and smartphones has led to the growth of online commerce/e-commerce. From UD $46.2 billion in the year 2020, e-commerce in India is slated to grow to a whopping US $ 111.40 billion dollars in 2025 and US$ 350 billion by the year 2030. Apart from smart phones and internet other factors that have boosted the growth of e-commerce are, the government of India's Digital India campaign that aims to 'transform India into a digitally empowered society and knowledge economy.'

The COVID 19 pandemic and the lockdown also helped consumers shift to online shopping and online payment modes. According to NASSCOM, 'despite COVID-19 challenges/disruptions, India's e-commerce market continues to grow at 5%, with expected sales of US$ 56.6 billion in 2021.'(*E-Commerce in India: Industry Overview, Market Size & Growth| IBEF*, n.d.)

Dictionary meaning of E-commerce is: Transactions conducted electronically on the internet. It includes the act of buying and selling of products, shipping of goods and producing financial statements, all without human intervention.

ISO defines e-commerce as: it is the general term for exchange of information among enterprise and between enterprise and customers.

The Global Information Infrastructure Committee defines it as the economic activities using electrical communications, with which people can purchase products, advertise goods and settle.




**Components of E-commerce include the following:**

**(1) Network:** It includes Internet, Intranet, and Extranet.

Internet is the foundation of e-commerce and the carrier of commercial business information. Intranet is the network of computers which help carry out the internal work of an organization.

Extranet is the link between enterprises and users to carry out commercial activities.

**(2) E-commerce user:** Individual consumers and business consumers. The business consumer scientifically manages staff, wealth, goods, production, supply and sales by Intranet, Extranet and MIS. Personal consumer has access to information and purchases goods by connecting Internet with browsers, set-top boxes, PDA (the personal digital assistant), Visual TV etc.

**(3) Authentication Authority:** The authentication Authority (CA), the authority recognized by law, is responsible for issuing, managing digital certificates and facilitating parties involved in online sales to identify each other.

**(4) Distribution center:** It is in charge of sending goods that cannot be delivered online to consumers and keeping track of goods flow.

**(5) Online bank:** It provides the sellers and buyers the traditional bank business, such as settlement, and round-the-clock service.

**(6) The administration of the commercial activity**: It consists mainly of departments of industry, customs, tax and trade. (Qin, 2009)

**E-commerce performs the following functions:**

a. Delivery of communication between the transacting parties

b. Process Management Function - it includes order processing, exchange of business transaction between two computers

c. Service Management Function - Application of technology to improve quality of service. (Place order, track consignment, payment options)

d. Transaction function - buy and sell, trade over the internet.

## 1.2 CHANNELS OF E – COMMERCE

Online marketplaces provide the customer with a list of options available from various sellers in the market to choose from. Similarly, it provides the seller with an option to list their products and make them visible to the audience searching for these products. Customers get to look through categories and competition and select the best offer made to them. They have the choice of saving products to their 'wish-list', which they may refer to. At a later point to complete the transaction.

The means deployed to reach the target audience is know as the channel. On the e-commerce platform there are multiple options available to any firm for example, using the right key words (SEO- search engine optimization) or paid ads on search engines (SEM- Search engine marketing). Firms also have the option of reaching their customer by sending out an email, or putting an advertisement on the social media, etc. A company may decide to use a multiple channel option, also known as Omni-channel strategy to reach the right customer at the right time.

The decision on which channel to choose depends on the marketing objectives that the company may deploy. These could be any or all of the following:

a- Attract prospective customers.

b- Re-engage past customers.

c- Reach out to completely new customers.

d- Increase quantity or quality of traffic to the site.

Today a customer has many media options and therefore a company too has to cater to many media touch points of the customers in order to make a sale. Not all channels cater to all customers and to all objective of a company's marketing plan. While some channels can create interest in an

unsuspecting customer, another channel can re-engage an existing customer. There are different channel options available for any business.

**Some of the popular channels are:**

**1. Search Engines:**

Any customer looking for a product online will be using a search engine to look for available options. Search Engines like Google and Bing are the commonly used search engines. They provide options for promotion via paid ads, banner ads, display ads and search engine optimization. These also generate quick conversions as consumers coming on this search engines are already looking for products and hence the advertisements on these pages leading to quick sales. Search Engine Optimization like key-word based backlinks can boost ecommerce sales.

**2. Online Marketplace:**

Selling your products on online market places like Amazon and eBay is another method of generating sales. These market places offer a varied range of products from varied sellers under one roof. These marketplaces provide the delivery and promotion for the seller.

**3. Email Marketing:**

Email marketing is targeted at customers who have already interacted with your company and shared their email addresses. This channel can be used as reminder promotion for an 'abandoned cart' or providing incentive to shop on an occasion.

**4. Retargeting Networks:**

It's common in online shopping for customers to leave their shopping in the midst of searching for options. This could be because of other attractions or technical glitches or payment issues. Retargeting- going back to the customer in order to persuade them to complete their transaction can help close sales and generate revenue. Retargeting is done by promoting the products that the customer was shortlisting on other media touch points like Facebook, Google, Instagram, Etc.

**5. Social Networks:**

Social networking sites like Facebook, Instagram, YouTube, Twitter, Snapchat provide numerous opportunities for retargeting and advertising. The social networking sites provide targeted opportunities to advertisers based on precision data analytics.

**6. Affiliate networks:**

Affiliate networks are like intermediaries that provide the opportunities for sellers to interact with probable customers. The affiliate network partners like the price comparison engine or shopping directory to a blog or reward website, is working on a similar area of interest as the customers

who could be a possible customer for the company. It is like a referral system where the affiliate gets paid for each conversion. When a company is looking to diversify its traffic source increase traffic to its site or increase quality of traffic to its store, then a company looks at affiliate networks. (*W*)

**7. E-commerce content marketing:**

It is a process of creating high quality content providing information to the audience and keeping them engaged through different content formats like blogs, videos, infographics, guides, articles, etc. The rich information can attract prospective customers to the sites through backlinks provided in the content.

**8. E-commerce PPC Strategy:**

Pay Per Click strategy (Search Engine) Marketing refers to the paid search advertising where a company pays for the ecommerce landing page to appear in the paid advertising sections of relevant search engines results pages. PPC gives a good return on investment as it includes website traffic that arrives on the company's page from accessing paid ads on search engines.

**9. Ecommerce Influencer Marketing:**

Influencers are like opinion leaders who are known for their authority, knowledge, position or relationship with their audience. They specialize in a particular niche area have the power to influence the buying behavior of their followers. For example, @beastoftraal know for his marketing reviews, @komalpandey is fashion influencer and @yasminkarachiwala for fitness are some of the top influencer in India with over a million followers.

**10. Social media Stories:**

Stories on social media are emerging ecommerce channel and are gaining popularity over actual posts. They have disappearing message and are an interesting way to engage the customers. These are also a good platform to induce viral marketing. Stories last for 24 hours and then they are off the Instagram account. They provide a good channel to connect with the audience, they can be used as a causal connect with the audience. Stories also have the option to provide links to posts and websites.

**11. Chat-bots:**

Software programs that interact with the customer directly without the need for human intervention. They solve help resolve issues arising during the transaction and also help close a sale. Chat bots are a good way to manage customer service.

## 1.3 BUSINESS APPLICATIONS OF E – COMMERCE

E-commerce is applied in many areas of business ranging from marketing, retailing, wholesale, e-banking, bookings, etc.,

**Marketing:**

Marketing decisions for any organization revolve around the 4Ps of marketing mix -product, price, promotion and place. Information generated from e-commerce can be used for making strategic decisions related to marketing.

In traditional business the market intelligence is gathered and analysed once a month, where as in e-commerce the data is available on real time basis. Which product is selling more, which variant is selling more, which item is being returned, what kind of complaints are been registered, what are the reviews of the customer and many more related information is available on the click of a button. This information can be used by the organization to make changes to their products, pricing, place, and distribution systems in real time basis.

**Promotion:**

Data analyzed from e-commerce transactions can help trace customers from various un-explored sources. For example, a customer who has clicked on the like button of your advertisement or a customer who is reading a blog which talks about a product that features in your product portfolio or a customer who is following a certain influencer who promotes products and services similar to your business. These customers can be tapped to promote your product using machine learning technology which is used in e-commerce. Using technology, communication can be customized allowing a company to send out right message to the right user at the right time.

**Manufacturing:**

E-ecommerce helps in exchange of information between the different departments of an organization, like sales, marketing, production, logistics etc., this sharing of information helps to keep track of inventory, market share, sales, purchase and enables companies to fluidly carry out their operations. E-commerce helps relay live sales figures to the company's manufacturing department which can plan its production process by checking on the inventory and the stocks available in real time.

**Finance:**

E-commerce and online payments are synonymous. Banks are connected online like never before. All banking operations are available online like, bill payments, money transfers etc., online stock trading is done using information available through EDI (electronic data interchange). Reports, analysis, performance analysis are all made available in real time.

**Retail and Wholesale:**

E-commerce stores work with virtual inventories, the stocks are stored at various retail and wholesale outlets. When a customer access an online store and makes a purchase, the information is shared with the closest store available which services the demand in the shortest time possible.

**Mobile commerce or M-commerce:**

E-commerce activities carried out on the mobile using smart phones is known as M-commerce. Customers can use Mobile based web applications (Mobile Applications) or simply use the websites on their mobile phones to carry out their transactions. M-commerce has increased the scope and opportunity for customers to shop. It provides the shopping opportunity on the go, a customer is no longer tied down to the desk or home to shop, they can use their phone to do transactions 24/7.

Mobile Applications or Apps are software applications or computer programs that are designed to run on the smart phone, watch or a tablet. A customer can access a company's product offering or a virtual store through these apps and make purchases. This is similar to shopping on the online marketplace like Amazon and eBay. The only difference is that an App confines the customers search to the companies' products and does not show any competitive product offering whereas on an online marketplace a customer has access to competitive offerings from various sellers. Therefore, the instance on downloading the Apps by the individual sellers.

**Online Booking:**

Bookings of services like for the purpose of travel and tourism has been made easy by online booking options. Consumers can book hotels, flight, trains, transportation etc., and using e-commerce options. The ease of booking and also cancelling provided by the online services has led to an increase in travel and tourism business.

**Customer Service:**

E-commerce provides real time customer service. Customer queries and complaints can be handled spontaneously. Use of Chat-bots help customers streamline their queries and complaints too by use of data analytics and artificial Intelligence.

## 1.4 GLOBAL TRADING ENVIRONMENT AND ADOPTION OF E-COMMERCE

Trade negotiations between nations for a common mutually beneficial goal is known as global Trading environment. Principles of economic cooperation between nations is of prime importance.

E-commerce has expanded the scope of global trade. Customers can buy goods and services from any country. Sitting in Mumbai, an Indian

consumer can easily avail the US based 'black Friday' sale on Amazon and get the goods delivered to them right at home. E-commerce sites are offering products from all over the globe. The ease of virtual store and inventory management provided by e-commerce sites have merged the borders between marketplaces across the world.

Consumers get to savor goods and services not available locally. E-commerce has boosted global trade by expanding the consumer base. It has become an imperative to sustain in the market as of today. The COVID 19 pandemic, brought this to the forefront, where online markets survived and continued to grow, while brick-and-mortar stores had to shut down business. According to a research global e-commerce revenue grew by 80% in the second half of the year 2020. Direct to consumer (D2C) brands are connecting directly with consumers, retailers are doing away with distributers and middlemen by partnering with delivery service providers to cater directly to consumer demand. E-commerce platforms are changing the way people shop. Sellers are able to customize products as per the local culture of the customers and are providing enhanced consumer experiences.

**Factors boosting global E-commerce trade are:**

Advancement in technology- consumers have access to latest technology and smart phones and good internet. This enables e-commerce and online shopping.

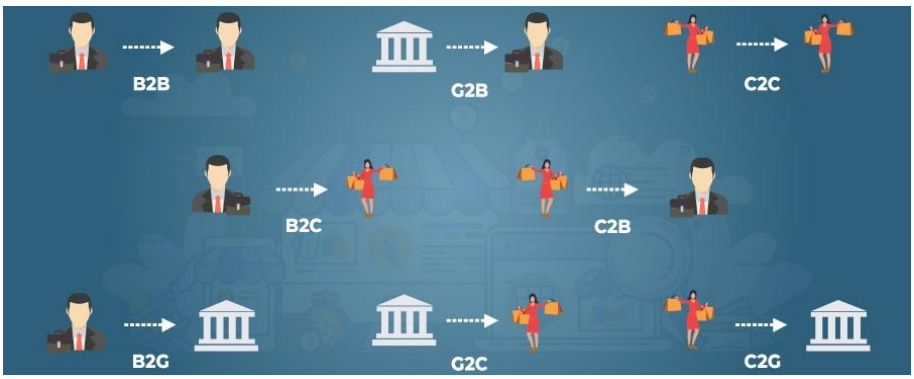
Consumers are aware of the options available to them from across the world. They are no longer restricted in their demand and options. Consumers are also becoming environment conscious and are looking for information about the production and labor involved in making of a product. Ethical buying is impacting global trade.

E-commerce is providing safe and reliable transactions for the consumers and the sellers. This is enhanced by the availability of delivery and payment options which makes global trade easy and as effortless as local store purchase.

E-commerce platform is a great equalizer. It provides equal opportunity to big and small players in the market by providing integrated services and deep consumer insights.

Ease of payment across countries via online payment options:

## 1.5 BUSINESS MODELS OF E-COMMERCE AND INFRASTRUCTURE; B2B, B2C, B2G AND OTHER MODELS OF E-COMMERCE




***Source:*** *https://magnetoitsolutions.com/blog/top-ecommerce-business-models*

Business model refers to the way in which a business is planned out. It includes the process of managing customers and revenue. (Admin, 2019). Based on the way in which transactions are done between two parties, there are various business models of E-commerce. These are:

a. B2B (Business to Business)

b. B2C (Business to Consumer)

c. B2G (Business to Government)

d. C2B (Consumer to Business)

e. C2C (Consumer to Consumer)

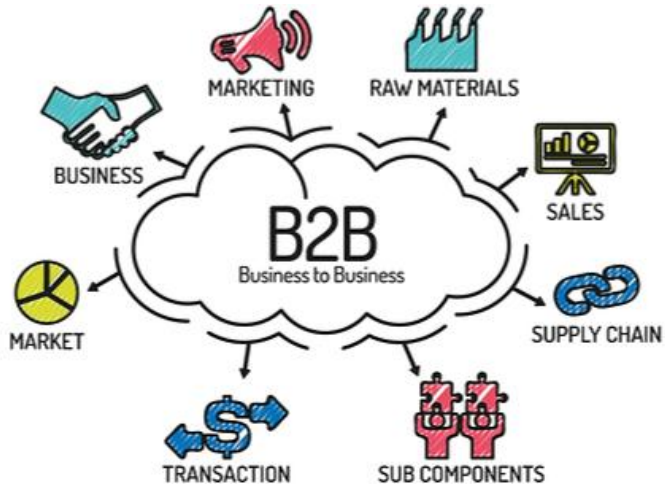
f. C2G (Consumer to Government)

g. G2B (Government to Business)

h. G2C (Government to Citizen)

**a. B2B (Business to Business):**

Exchange of goods takes place between two business enterprises. For example, data security services offered by one company to another. Office furniture, raw material providers, etc.




*Source: https://www.globaltranz.com/b2b-e-commerce/*

**b. B2C (Business to Consumer):**


The most common and most popular form of e-commerce is business to consumer. The buying and selling that happens in traditional retail outlet is transacted online. This helps in saving time for transaction and cost of transaction too. The delivery time has also reduced drastically over the years from a waiting time of a few days to a few hours as by end of 2021.

The COVID 19 pandemic has turned most of the customers to shop online. Examples of B2C are Amazon, Big Basket, Myntra.

**c. B2G (Business to Government):**

When a business sells its products or services to the government either locally or on a larger platform is known as Business to Government model of e-commerce.

**d. C2B (Consumer to Business):**

This is the opposite of B2C model. Here the consumers offer products and services on their websites, which bring in interested buyers to the

transaction space. For example, media content writers, bloggers, and influencers.

**e. C2C (Consumer to Consumer):**

In this model, the consumers sell their products and services to other consumers through a third-party website or an independent online platform that is created for this very purpose. Example, OLX, eBay

**f. C2G (Consumer to Government):**

Consumers offering services to the government via online platform is known as consumer to government model. Example, Filing of Income Tax returns by citizens.

**g. G2B (Government to Business):**

Services offered by the government to business, online. These could be in the form of submission of application, IT returns, rebates, tenders etc.

**h. G2C (Government to Citizen):**

Online services provided by the government for the citizens on the online platform. Objective is to maximize reach and reduce cost. Example, Issuing birth certificate, registration of marriage, property etc.

## 1.6 APPLICATIONS OF E-COMMERCE TO SUPPLY CHAIN MANAGEMENT; PRODUCT AND SERVICE DIGITIZATION

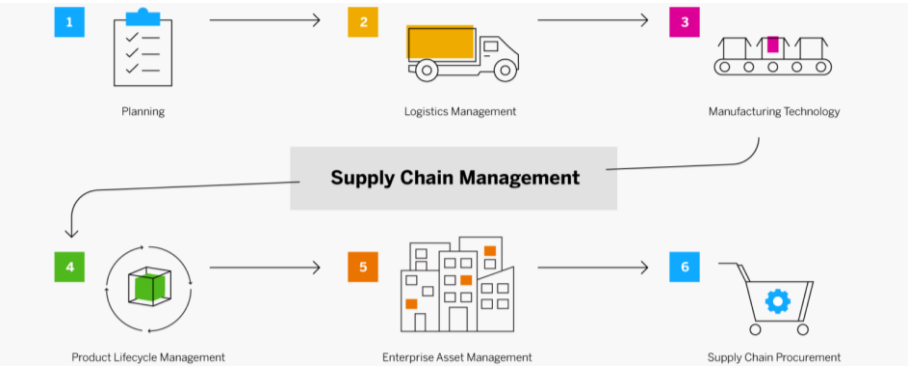
Supply chain involves the entire process starting from accepting a customer's order and the processes that go on till the product is delivered to the customer. This broadly involves, procurement, transportation, production and inventory management.

**Step Include:**

Order generation

Order taking

Order fulfillment




***Source: https://insights.sap.com/what-is-supply-chain-management-scm/***

SCM includes management of the flow of goods and services right from procurement of raw material to the final product delivered to the customer.

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 helps control costs, limiting inventory shortage and making faster delivery.

1. **Increased productivity: Use of technology and knowledge management helps run the system more efficiently. Productivity can be made more efficient by reducing order processing, reducing bottlenecks.** Automated processes help make faster shipping and delivery.

2. **Reduced supply chain costs:** Efficient data management using e-commerce help reduce wasteful stockpiles, avoids material shortages, ensures effective forecasting and reducing transportation cost.

3. **Greater supply chain agility and resiliency: Real time data provided by e-commerce can help organize better workflow systems.** Virtual inventories and smart warehouse processes keep supply and demand aligned. Customer feedback can be acted upon in real time.

4. **Improved product quality: Machine learning and analytics provide real time feedback to the manufacturing team, thereby streamlining the production process and aligning the product as per customer requirement and market trends.**

5. **Better customer service:** SCM ensures constant and real time customer feedback thereby allowing companies to implement customer feedback and trends all the way from the design and manufacturing stage through to last-mile logistics, delivery, and returns.

***New supply chain technologies:***

New and emerging technologies are driving the digital supply chain transformation. Artificial Intelligence (AI) and machine learning are being used in supply chain management to process customer requests faster and to do target marketing. Other emerging technologies like the Internet of Things (IOT), cloud and edge computing, predictive analytics, robots and drones, 3D printing, augmented reality (AR), virtual reality (VR), and Blockchain are bringing in a new era of industrial revolution.

**Trends In Scm:**

Businesses that incorporate artificial intelligence, machine learning, and predictive analytics into their SCM systems can make smart decisions, adapting quickly when the unexpected happens – and improve resiliency.

***The Amazon Effect***:

The impact created by online, e-commerce or digital marketplace on the traditional brick and mortar business model in terms of shopping patterns, customer experience and business environment is known as the Amazon Effect, after the biggest e-commerce enterprise. Maximum disruption in SCM has been felt by the conventional physical retail stores and has led to major restructurings – from wider warehouse networks to outsourced, last-mile delivery.

***Green supply chains:***

More so than ever, businesses are looking at creating a favourable carbon footprint. Trend in recycling and circular supply chains are promoting repurposing of all kinds of discarded waste. This is also impacting the product design and material sourcing and manufacturing.

***Supply chain transparency:***

Ethical business practices are gaining importance in current times. Since the pandemic, customers are becoming concerned about the ethical business practices. From sourcing of raw material to use of labour the new supply chain is providing links to every component involved in the process and consumers are paying heed.

**Omni channel supply chains:**

As the name suggests, channels present everywhere, from physical store to website, to an app or a messaging service. There should be a fluid movement of information between the channels and the customer should be able to access and pick up the transaction from any channel at any time. SCM systems are integrating customer service and shopping experiences across all customer contact points.

***Trade and political shifts:***

The world today is seeing unprecedented shifts in business policies and trade partnerships. Companies like Apple whose iPhone went out of stock during pandemic because their manufacturing units were concentrated in China are now realizing the need for decentralization and the need for diverse options and risks. Technology focused on data management and demand manufacturing solutions like 3D printing are making virtual inventories and domestic manufacturing solutions an increasingly realistic option.

## 1.7 REMOTE SERVICING, PROCUREMENT, AND ONLINE MARKETING AND ADVERTISING

E-commerce requires a huge IT based set up that needs monitoring and servicing. It is the backend on which the e-commerce is built. **Remote servicing** refers to outsourcing the IT requirements of running an e-commerce site. Remote service providers are generally third-party service

providers that maintenance and service e-commerce sites while the e-commerce firm concentrates on the front end of the business with SEO, SEM, product listing and delivery etc., Remote servicing helps build efficiency and cut down lost revenue due to technical glitches by providing 24/7 service. By providing remote services, the cost of maintaining is cut down.

**Procurement** refers to sourcing supplies or raw material at the competitive price to maximize value. It involves all activities starting at sourcing raw material, negotiating terms, purchasing items, receiving goods, inspecting, payments and keeping track of the steps involved in the process. Helps in reducing cost of procurement, increases speed of transaction, brings in transparency as all data is available at all check points, it drastically reduces chances of errors and paperwork. Procurement is a part of the supply chain management. SCM, besides procurement also handles shipping, warehousing, production management and distribution to channel partners and ultimately to consumers.

**Online Marketing and Advertising:**

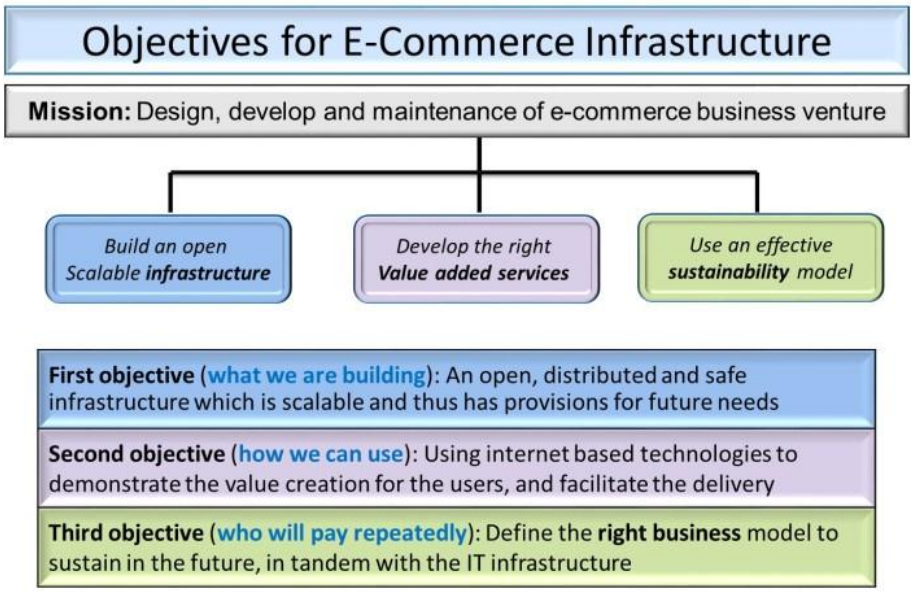
Marketing using internet is known as online marketing. It makes use of channels like emails, search engines, website, social media, blog posts etc., to find and connect with current and prospective customers. Different types of digital marketing options have been explained in 1.2 above. Online marketing objectives include, reaching out to new customers, engaging customers to interact with the company website, converting casual visitors to customers and customers to loyal customers and ensuring good reviews and word of mouth publicity.

Digital advertising is a part of digital marketing, it is more focused on ensuring that promotional messages reach the right customers. An advertisement on the internet is digital advertising. Compared to online marketing, online advertising has a narrow focus and objective. PPC or pay per click, display ads are examples of online advertising. Online advertising is based on the online marketing objectives of the firm.

## 1.8 E-COMMERCE RESOURCES AND INFRASTRUCTURE PLANNING

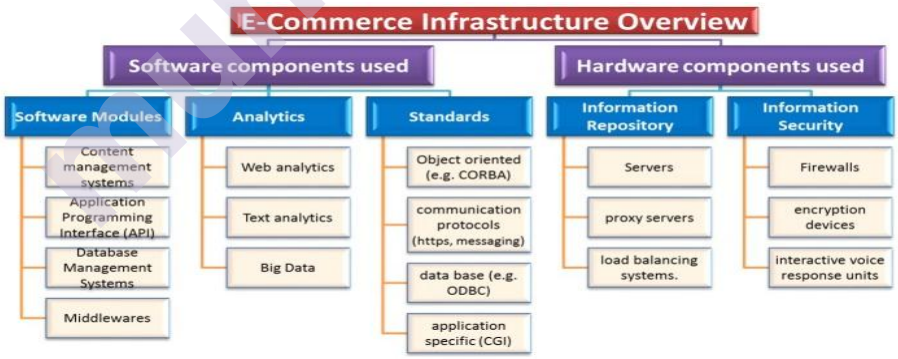
E-commerce infrastructure refers to the hardware and software requirements needed to cater to the service level requirements of the site, including the requirements for managing and servicing the site.

The requirements depend on the objective of the e-commerce site.




***Source:*** *https://tech-talk.org/2015/02/10/e-commerce-infrastructure-planning-and-management/*

- **Software components used:** Content management systems, Web analytics, Text analytics, Application Programming Interface (API), Database server, Middleware's etc. Object oriented (e.g., CORBA), Transaction processing, communication (https, messaging), data base (e.g., ODBC), application middleware (CGI)
- **Hardware components used:** Servers, proxy servers, load balancing systems. Firewalls, encryption devices and interactive voice response units etc.




***Source:*** *https://tech-talk.org/2015/02/10/e-commerce-infrastructure-planning-and-management/*

A few factors to be considered while **evaluating infrastructure for e-commerce setup:**

- **Flexibility:** The ability to respond quickly to changing requirements, and scale up based on the need of the customer. Resource virtualization can be an important factor in such a scenario.
- **Costs:** The CapEx & WorkEx, like acquisition and maintenance costs for servers, licenses and other hardware and software. License

cost and its renewal policy would also play a significant part of the evaluation.

- **Scope & performance:** Factors include degree of fulfilment of specific requirement, knowledge about service and performance quality. Service uptime could be another sub-criterion.
- **IT security & compliance:** Factors like government, industry and firm specific needs in the areas of security, compliance and privacy are covered. How the information assets are protected could be a regulatory issue.
- **Reliability & trustworthiness:** Factors like service availability, consistency of delivery and fulfilment of the Service Level Agreements. Whether the consumer can get the same uniformity of service every time, is the evaluation parameter.
- **Service & cloud management:** Factors like offered support and functions for controlling, monitoring and individualization of the web interface.

## 1.9 QUESTIONS

1. What is e-commerce? What is the scope of e-commerce?
2. What are the components of an e-commerce setup?
3. Describe the various e-commerce channel options available to a firm.
4. What areas of business does e-commerce impact?
5. How does e-commerce impact global trade?
6. State and explain the various models of e-commerce.
7. Explain the role and impact of e-commerce in supply chain management.
8. Write short notes on the following:

   - Remote servicing

   - Procurement using e-commerce

   - Online marketing

   - Online advertising
9. What are the components of e-commerce infrastructure?
10. What are the factors influencing e-commerce infrastructure decision?

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# 2

# BUSINESS TO CONSUMER E-COMMERCE APPLICATIONS

**Unit Structure**

2.0 Objectives
2.1 Introduction
2.2 Cataloguing
2.3 Order Planning and Order Generation
2.4 Cost estimation and Pricing
2.5 Order Receipt and Accounting
2.6 Order Selection and Prioritizing
2.6.1 Order Scheduling
2.6.2 Fulfilling and Delivery
2.6.3 Order Billing & Payment Management
2.6.4 Post Sales Service
2.7 Exercise Questions

## 2.0 OBJECTIVES

After studying this unit students will be able to:

- Understand the concepts of E-commerce application such as Order planning, scheduling, prioritizing.
- Identify methods involved in billings & payments.

## 2.1 INTRODUCTION

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. Modern electronic commerce typically uses the World Wide Web at least at one point in the transaction's life-cycle, although it may encompass a wider range of technologies such as e-mail, mobile devices, social media, and telephones as well.

The term business-to-consumer (B2C) refers to the process of selling products and services directly between a business and consumers who are the end-users of its products or services. Most companies that sell directly to consumers can be referred to as B2C companies.

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.

E-commerce applications leads to two possible perceptions: one, where it refers to the use of e-commerce as a medium of marketing; retail and wholesale; auctioning; e-banking; booking and so on. The second idea one gets is that of a software application like Amazon, eBay, Groupon, etc. It may be a web application or mobile application (now popularly known as m-commerce applications). Mobile e-commerce applications are nothing but an extension of e-commerce. Mobile app ideas are the driving force behind every successful business app, be it an Uber-like taxi app or Zomato/Swiggy like a food delivery app.

## 2.2 CATALOGUING

Catalog marketing is **a sales technique used by businesses to group many items together in a printed piece** or an online store, hoping to sell at least one item to the recipient. Consumers buy directly from the catalog sender by phone, return envelope or online using information in the catalog.

Catalog processing is **the process of organizing all the products along with their specific brands, features, prices, offers, discounts, etc**. Moreover, it is one of the most favourable ways to promote the product in the market and to fascinate the customers.

**Different Types of Catalogs:**

The three major categories of catalogs are business-to-business catalogs, consumer catalogs, and catalog showrooms.

Business-to-business catalogs are those that provide merchandise to be used in the course of business, including everything from office supplies to **computers.** In industrial settings business-to-business catalogs are used to sell everything from heavy machinery to hand tools. Business-to-business catalogs are mailed to individuals at their place of business, with most purchases being made on behalf of the business rather than the individual.

Consumer catalog is the manufacturer-supported catalog. These may be designed to generate mail-order sales, build store traffic, or simply create an image. Incentive catalogs offer consumers discounted name-brand merchandise with some type of proof of purchase of a particular product or use of a particular credit card. Consumer catalogs issued by nonprofit organizations represent yet another type of consumer catalog. Museums have successfully used catalogs to increase sales of gift-shop items. Co-op catalogs are used to highlight merchandise from a variety of companies. Co-op catalogs are relatively cheap to produce and are often found in nontraditional **channels of distribution** such as bookstores and newsstands.

Syndicated consumer catalogs carry the name of a particular company, usually one that is well known and prestigious. The company whose name is on the catalog, however, is not involved in its production and does not carry the merchandise listed in the catalog. The syndicator pays a commission to the company for use of its name and handles all of the aspects of the catalog business.

Catalog showrooms are a category of consumer catalogers who combine retail marketing with catalog marketing. A catalog showroom is essentially a retail outlet. The catalog, usually quite large, serves primarily to build traffic in the showroom. The trend in catalog showrooms has been to de-emphasize the mail-order aspect of the catalog and present the showroom as a retail outlet with the added benefit of being able to place catalog orders from the showroom.

**Elements of Catalog Marketing:**

A successful catalog operation is built on several key elements, including the right personnel, merchandise, catalog design and format, **sales promotion,** mailing lists, and order processing and fulfillment.

**1) Catalog Personnel:**

Many of the functions necessary to maintain a catalog operation can be fulfilled either by employees or outside services. Within the company individual employees can be assigned to handle more than one function. Key functional areas include merchandising, catalog design, marketing and production, office services and data processing, warehouse operations, **customer relations,** and administrative areas covering office operations, personnel, legal affairs, and finance. In addition, most operations require some type of administrative support personnel.

**2) Merchandise:**

Merchandising involves selecting the appropriate items for the catalog. In the case of unaffiliated catalogers, merchandise is selected by buyers from a variety of trade shows and from merchandise centers such as New York City, Chicago, Dallas, and Atlanta where there are many showrooms to choose from. A wide range of publications also offer merchandise that is selected by catalog buyers.

Catalogs affiliated with retailers or manufacturers typically include merchandise that is also sold by the retailer or manufacturer through a store or other channels. Affiliated buyers, however, may be able to select additional merchandise for inclusion in the catalog. Catalog sales of such merchandise are then monitored to see if the items should also be offered through other channels.

**3) Catalog Design And Format:**

Once the merchandise has been selected, it is necessary to determine how it will be presented in the catalog. Catalogs come in a variety of sizes, shapes, and overall general appearances. A cataloger must select a design

concept for its catalog that is appropriate for its company. A catalog carrying discounted merchandise should look like a sale catalog. A catalog carrying high-end merchandise should have a quality look and feel about it. In the hands of a consumer it is the catalog that presents the image of the company.

Keys areas that catalog marketers focus their attention on when designing a catalog include page layout and design, space allocation for various products, the front cover, the back cover, sales copy, headlines, and the **sales letter.** The inside and outside of both covers as well as the center of a catalog are considered "hot spots" that have a disproportionally large influence on sales generation and how the prospect responds to the catalog.

**4) Sales Promotion:**

The order device is also an important "hot spot" in any catalog. Sales can be won or lost with the order form, so most catalog marketers regard it as an important sales tool. The key to a successful order form is making it easy to use. Whether the order is placed by mail or a **toll free telephone call,** a well-designed order form can facilitate the sale.

In addition the order form usually carries other information that is designed to overcome any reservations that prospects might have about ordering merchandise through the mail or over the telephone. Customers usually look to the order device or pages surrounding the order form to include information about **warranties and guarantees,** customer service, and any promotional incentives that might be offered.

**5) Mailing Lists And Databases:**

As with all types of direct marketing, a key factor in a successful catalog marketing campaign is being able to reach the right audience. Catalog marketers acquire customers by renting mailing lists, then they build in-house databases based on customer histories. The two basic types of lists are response lists and compiled lists. Response lists contain the names of prospects who have responded to the same offer. These typically contain individuals who share a common interest. Response lists are not usually rented; rather, they are an in-house list compiled by a particular business. Most list rentals involve compiled lists, including mass consumer, specialized consumer, and business lists.

Direct-marketing databases are similar to mailing lists in that they contain names and addresses, but they are much more. They are the repository of a wide range of customer information and may also contain psychographic, demographic, and **census data** compiled from external sources. They form the basis of direct-marketing programs whereby companies establish closer ties and build relationships with their customers.

As with mailing lists, there are two basic types of marketing databases, customer databases and external databases. Customer databases are compiled internally and contain information about a company's customers

taken from the relationship-building process. External databases are collections of specific individuals and their characteristics. These external databases may be mass-compiled from public data sources; they may contain financial data based on confidential credit files; they may be compiled from questionnaires; or they may be a combination of all three sources.

**6) Order Processing And Fulfillment:**

Catalogers who seek to build relationships with their existing customers and acquire new customers must have an efficient system of fulfilling orders in a timely and accurate manner. Nothing turns a customer off more than receiving the wrong merchandise or receiving it too late for the purpose for which it was originally ordered. In some cases catalogers may have their own warehousing operation that is involved in picking, packing, and shipping orders. In other cases merchandise may be drop shipped from another location, or the entire order-fulfillment process may be handled by an outside service bureau.

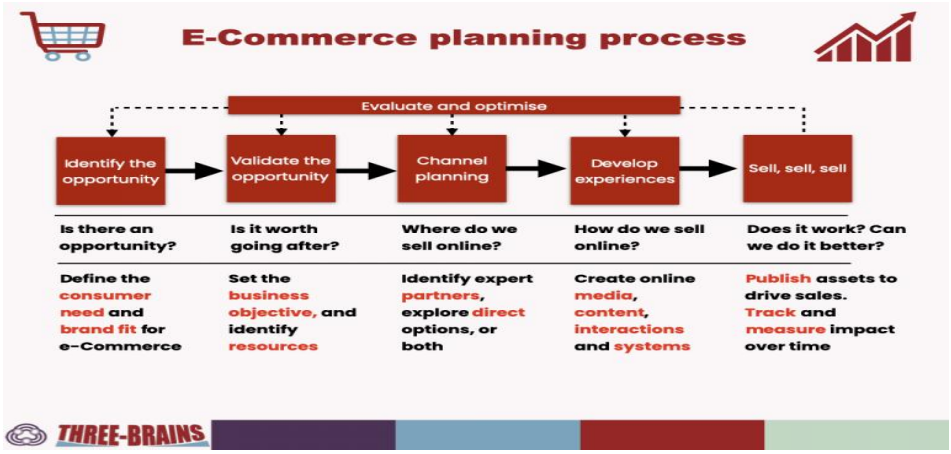
In addition to efficiently fulfilling orders, catalogers capture order information to build their in-house customer databases. Such databases typically contain information concerning the amount of the purchase, what items have been purchased, and the dates purchases were made. Armed with this data, catalog marketers can more effectively target future mailings to customers based on when, what, and how much they have ordered in the past.

The success of a catalog-marketing program depends on the same factors that determine a successful direct-marketing program. The catalog must deliver the right offer at the right time to the right person in the right way. The target audience must be correctly identified. The offer must be made in the best possible way, and the catalog must employ the most effective creative execution to present the merchandise offered for sale. At its most effective, catalog marketing is an ongoing process of communication to maintain relationships with existing customers and build relationships with new ones.

## 2.3 ORDER PLANNING & ORDER GENERATION

**Order based Planning:** Order-based planning is the functionality that plans planned orders to cover components and end items. This functionality largely corresponds to Materials Requirement Planning (MRP) and uses BOMs

(Bill of Materials) to explode material requirements and the routings to calculate. When production is planned in order-based planning, all necessary components and required production capacity is taken into account. This information is retrieved from the item's BOM and routing, respectively lead-time of planned production orders. Order-based planning is for short-term supply planning where planning data is recorded on a second by second basis.




**Procedure for Order based Planning:**

1) **Time phased overview:** This functionality is used to get a time-phased overview of order planning, which lists overview values for demand and forecasted consumption on the one hand, and scheduled receipts and planned supply on the other hand. It is possible to simulate the above values under various scenarios to see resultant projected inventory.

2) **Rolling and updating of actual scenario:** A rolling plan is a scenario of which the planning horizon and plan period division is regularly shifted in time. The goods flow transactions are updated here for all components of the plan items.

3) **Order Simulation:** This functionality is used to carry out an order-based-planning run to generate orders of the following order types. Planned supply orders are created within planned items order horizon for both main and component level items if the top down option is selected. In case of adoption of bottom up option, the item selection is extended to parent items.

   a) Planned production order.

   b) Planned procurement order.

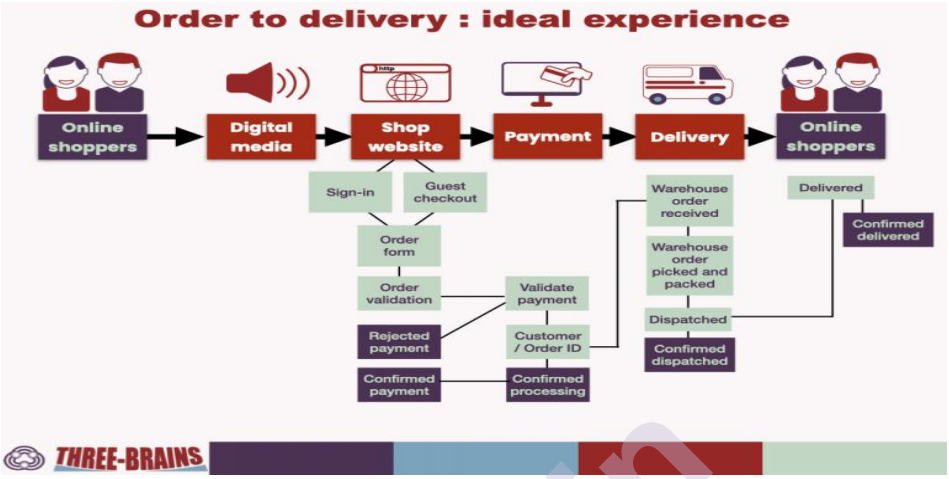
   c) Planned distribution order.

4) **Review and analyzing order plan:** Orders are reviewed and analyzed particularly in respect of goods flow mismatch between demand and supply, which can be further drilled down to various regions and sales channel. The system provides various graphical tools and planning board for this purpose. After taking corrective measure regarding materials availability and capacity constrain, planned orders are transferred to execution modules.

**Order Generation/Processing:**

Order processing is the **process of identification, sorting, picking, packaging, movement and delivery of the packed items to a shipping**

**carrier** after the customer has placed the order successfully. It is generally conducted at distribution centers. It is generally conducted at distribution centers. Order processing consists of all the activities that have to be completed from the point customer has placed the order to the point the customer receives it.




**Steps in the Order Processing:**

Order processing involves the following steps:

**Step 1 Order Placement:**

This is the step where the order is placed by the customer successfully. It typically includes the order and item details like the customer details, address, items ordered with quantity, order number, instructions etc. It also includes the inventory lookup to identify the optimized delivery of the products.

**Step 2 Picking:**

It refers to the collection of articles in a specified quantity before shipment, to fulfil the customer's orders. Picking could be of three types:

a. **Piece picking:** When the orders are picked one piece at a time, it is known as piece picking. This is generally done in repair part distributors or mail order catalogue companies.

b. **Case picking:** A case as a whole is picked instead of a single item.

c. **Pallet picking:** Here, the whole order is picked in one go and is shipped to the customer.

**Step 3 Sorting**

This stage refers to the sorting of the picked articles according to their destination, type size etc. depending on the customer's orders.

**Step 4 Pre-consolidation or package formation:**

In this the pricing, labelling weighting of the package is done.

**Step-5 Consolidation**

This is the final step. Here, the final packets are consolidated and filled in to the container. Ready to be transported to the customer.

**Factors in Order Processing:**

The factors that need to be considered while designing an order processing are:

i) **Nature of the product:** Shipping of vegetable and those of clothes needs two different processes.

ii) **Nature of the order:** Some orders are very huge and some are rather small. Shipping few kilograms and shipping huge tons of products are two different things.

iii) **Nature of shipping package:** Shipping of boxes of biscuits and cans of milk require different processes.

iv) **Costs:** Depends on time required, products weight that is to be shipped etc.

v) **Availability of work:** force and labor also affects the processes. If labour is not available, the processes need to be automated.

vi) **Seasonality:** Demand of some products varies according to seasons. The order processing changes with the seasonality.

To keep a business going, it is very necessary to fulfil the orders in time. It is also necessary to maintain the quality in order to keep the customer happy.

## 2.4 COST ESTIMATION AND PRICING

**(A) Cost estimation in project management** is the process of forecasting the financial and other resources needed to complete a project within a defined scope. Cost estimation accounts for each element required for the project—from materials to labour—and calculates a total amount that determines a project's budget. An initial cost estimate can determine whether an organization greenlights a project, and if the project moves forward, the estimate can be a factor in defining the project's scope. If the cost estimation comes in too high, an organization may decide to pare down the project to fit what they can afford (it is also required to begin securing funding for the project). Once the project is in motion, the cost estimate is used to manage all of its affiliated costs in order to keep the project on budget.

**Elements of Cost Estimation In Project:**

There are two key types of costs addressed by the cost estimation process:

1) **Direct costs:** Costs associated with a single area, such as a department or the project itself. Examples of direct costs include fixed labor, materials, and equipment.

2) **Indirect costs:** Costs incurred by the organization at large, such as utilities and quality control.

Within these two categories, here are some typical elements that a cost estimation will take into account:

a) **Labor:** The cost of team members working on the project, both in terms of wages and time

b) **Materials and equipment:** The cost of resources required for the project, from physical tools to software to legal permits

c) **Facilities:** The cost of using any working spaces not owned by the organization.

d) **Vendors:** The cost of hiring third-party vendors or contractors.

e) **Risk:** The cost of any contingency plans implemented to reduce risk.

**(B) E-Commerce Pricing:**

Pricing is a challenging project for most companies. It's possibly even more complicated for online businesses. **E-Commerce**, online marketing and selling to consumers, creates some challenges for companies to determine prices. The retail model is based on manufacturers suggesting a manufacturer's suggested retail price (MSRP). Some retailers may discount that price, but the MSRP is a standard price that is recommended for the sales amount offered to consumers. However, online retailers have been more aggressive in discounting and offering specials.

**A pricing strategy takes several factors into consideration:**

1. **Your unique characteristics:** What makes your products and business different? Consumers want to do business with companies they trust and are connected with.

2. **Ratings from other consumers:** If other customers are satisfied with their purchases from your company, especially specific products that new customers are looking at, others are more likely to purchase those items. In fact, if two online retailers are offering the same product, the retailer with positive comments will likely win the sale even if the company's prices are higher. Consumers are taking a risk buying a product sight unseen. Reading a positive review from other shoppers builds their confidence and encourages them to make a purchase. Feeling confident about a purchase is more important than having the lowest price.

3. **Excellent Service:** Just because your customer is buying online, he may still may have questions or need assistance. Set up a process to respond quickly and politely to your customers. The faster your

response time, the more trust you build with the consumer. Shoppers will pay a higher price to buy from a company they trust. Service is often more important than low price.

## 2.5 ORDER RECEIPT AND ACCOUNTING

An order receipt is a document that provides information about the details of an order and confirms it has been received by the company responsible for fulfilling it. It may come by **email** or fax confirmation, and sometimes arrives in the mail when the lead time on an order is considerable. It offers notice to the buyer about the specifics of the order and usually has information on how to cancel or change it, if necessary, often by using a return slip included with the receipt for convenience.

A typical order receipt should list the name and contact information for the shipper and seller, and specify the items in the order. It will include an estimated ship and delivery date, if appropriate, and the amount of the order, including tax, shipping, handling charges, and any other expenses. If the buyer finds an error, she can correct it before the order is actually filled.

The order receipt should also discuss the terms and conditions of the order. It includes information on changing orders, returning or exchanging items after they are received, and paying for the order. Payment terms can vary from a note indicating the order is paid in full to a note that it comes with net 90 delivery, allowing the buyer 90 days to pay it. Online shopping cart and payment systems typically come with an order receipt generator that can send an email as soon as an order is placed and confirmed. The buyer will receive the email for review and usually has a narrow time window to make any changes, unless items are backordered or not yet released.

It is important to review an order receipt carefully to check for errors. If there are any problems, the shipper should be notified immediately so any necessary changes can be made. It is also advisable to review the terms and conditions to get familiar with the process for returns, complaints, and other issues that may arise during the process.

## 2.6 ORDER SELECTION AND PRIORITIZING

### 2.6.1 Order Scheduling:

Scheduling is **a communication tool that helps balance customer demands with your ability to fulfill that demand**.

With Scheduling Across Orders, users can schedule, **unschedule, reserve, unreserve** and perform ATP checks on lines across orders.

i) **Ship Set:** A set of lines which will be shipped together from the same warehouse to the same location.

ii) **Sourcing:** Selecting the warehouse for the order lines.

iii) **Supply:** Incoming inventory.

Perhaps most importantly, scheduled **deliveries save you money**. At the most basic level, a scheduled delivery costs less than an urgent, on demand one. You'll reap the savings when you can plan ahead. But scheduled deliveries also save you money by mitigating the need to purchase and maintain your own fleet

### 2.6.2 Order Fulfilling & Delivery:

Order fulfillment is the process of receiving, packaging, shipping, and delivering a product to the customer. The fulfillment also covers exchange and returns processing. In simple words, fulfillment of any order happens when the interaction between the business and the customer gets closed for the ordered product.

Order fulfillment is often measured based on the time it takes to complete an order completely — which can also be considered one of the essential order fulfillment metrics.

### 6 Steps In Order Fulfillment Process:

1. **Receiving Inventory:** Receiving inventory refers to the process of gathering the products directly from manufacturers or suppliers at local fulfillment centers**.**

The primary tasks involved at this stage include:

a) Ensuring items count

b) A thorough inspection of products for any damage

c) Creating Stock-keeping Unit (SKUs — scannable bar codes) for products

d) Ensuring product entry to warehouse management software

2. **Organizing Inventory:** Organizing the inventory category-wise on shelves is the second stage that helps ensure fast order fulfilment. It is always easier to organize items SKU-wise as it gets easy to pick, pack, and ship them.

   It is similar to organizing products in a brick-and-mortar store so that the shopkeeper can quickly locate the item the buyer is asking for. In case the items are scattered all over the shop — more will be the time to find it, and more are the chances of a customer buying from another nearby store.

3. **Picking:** When an order is placed on the app/website, it needs to be tracked across existing inventories for pick and pack. You can easily do this with an inventory management system that acts as a central database repository for all the inventory products.

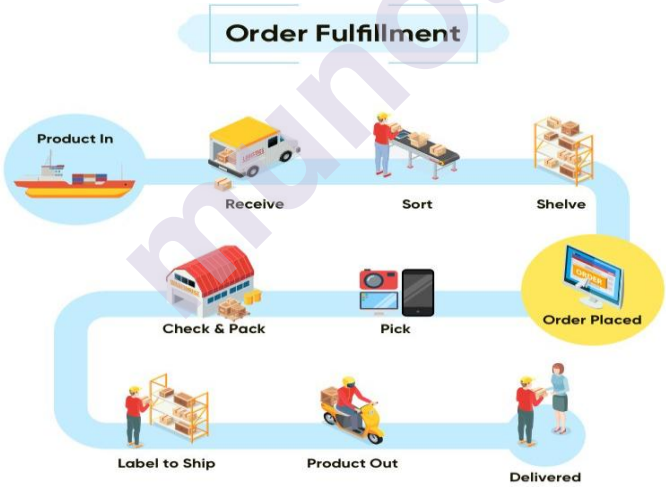
Digital transformation is also helping in effective and timely picking. For example, e-commerce giants such as Walmart have deployed automated bots called "Alphabots" to facilitate errorless and fast picking and packaging.

4. **Packaging**: Packaging involves choosing the right type of packaging box for the ordered product and packing it to ensure safe delivery. If you have your own inventory, you'll have to upkeep all kinds of packaging materials such as bubble wrap, carton boxes of all sizes, air fills, packaging tapes, and more. Safe packaging is one of the ingredients that ensure fulfillment as it equates to a better customer experience (it shows that you care).

5. **Shipping:** Once the order is collected from the fulfillment center and is packed securely, you can ship it. You can choose from third-party shipping, merchant shipping, or drop shipping as your mode of shipping orders**.**

6. **Exchange/Return:** Returns and exchanges should also be treated as a part of order fulfilment. Whenever the customer makes an exchange/return request, the order processing should begin spontaneously.

An E-Commerce business should not consider order fulfilment as order generation to doorstep delivery process. Instead, it should be order generation to a successful return/exchange process.




**Types of Order Fulfillment:**

The most popular online order fulfillment methods include — third-party fulfillment, merchant fulfillment, and drop shipping.

1) **Third-Party Fulfillment:** Third-party fulfillment refers to the outsourcing order fulfillment process. Third-party fulfillment manages everything from receiving inventory from merchants to order fulfillment**.** Third-party Order fulfillment Example: Amazon has its self-run fulfillment service called "Fulfillment by Amazon" (FBA)

that encourages e-commerce startups to partner with them to enable effective order fulfillment.

2. **Merchant Fulfillment:** Merchant fulfillment is also known as self-fulfillment or in-house fulfillment and refers to handling order fulfillment on your own without any third-party involvement.

3. **Drop Shipping:** Drop shipping is an order fulfillment method where the order received is forwarded to the manufacturer, who then handles the shipment and logistics process. This option balances the order fulfillment load between the manufacturer and the e-commerce business.

**Drop shipping is a suitable option when:**

- You have a minimal budget for investing in fulfillment services.
- Your business is new in the market.

**Delivery Order:**

A delivery order is a document that can be issued by the owner of freight, consignee, shipper or a carrier to deliver the goods to another party. Delivery services are essential in **aiding the country to adapt to the new normal**. ... In particular, they've been able to make use of cashless transactions, effectively minimizing physical touch, as they continue to service their customers. Delivery order must involve the following:

i) The name and contact details of the seller.

ii) The name and contact details of the customer.

iii) The date of issue.

iv) The date of delivery.

v) A description of the goods contained in the order.

vi) The quantity of each product included in the shipment.

**2.6.3. Order Billing & Payment Management:**

**Meaning:**

Also called invoicing, billing is **the process of requesting a payment from a customer**, by generating an invoice to recover the money resulted from the sale.

Billing is defined as **the step-by-step process of requesting payment from customers by issuing invoices**. An invoice is the commercial document businesses use to request payment and record sales. Billing is **the process of compiling charges in a customer's balance and creating a bill**. The amount due in the bill is sent to the customer as a payment request. During the time between bills, a customer's charges are stored in bill items.

**Order Management:**

Order management is the term used to describe the set of processes a company uses to track, handle and fulfil an order from the time it's made by a customer to when it's safely delivered.

Nowadays, order management even goes beyond delivery as well.

**Payment Management:**

An e-commerce payment system (or an electronic payment system) **facilitates the acceptance of electronic payment for online transactions**. ... Credit cards remain the most common forms of payment for e-commerce transactions.

**Types of Payment Methods In E-Commerce:**

**1) Credit/Debit card payments:**

Payments via cards are one of the most widely used and popular methods not only in India but on the international level. Credit cards are simple to use and secure. The customer just has to enter the card number, expiry date, and CVV, which has been introduced as a precautionary measure. Debit cards, they can be considered the next popular method for e-commerce payments.

Debit cards are usually preferred by customers who shop online within their financial limits.

**2) Prepaid card payments:**

As an alternative for credit/debit cards, prepaid cards are introduced.

They usually come in different stored values and the customer has to choose from them. Prepaid cards have virtual currency stored in them. Though the adoption rate of prepaid cards is low, they are gradually becoming popular for certain niche categories.

**3) Bank transfers:**

Though not popular nowadays but still bank transfer is considered as an essential payment method for E-Commerce. Customers enrolled in internet banking can do bank transfers for their online purchases. Bank transfer is the most secure method as the transactions need to be approved and authenticated by the customers.

**4) E-Wallets:**

E-wallet is one of the upcoming trends which gives a new shopping experience altogether. The use of e-wallets is becoming popular at an alarming rate.

E-Wallets require a sign up from merchants as well as customers. After creating an e-wallet account and linking it to the bank account they can

withdraw or deposit funds. Prepaid e-wallet accounts store customer information and multiple credit/ debit cards and bank accounts

**5) Cash:**

In India cash is the king. For E-Commerce, it comes in the form of the cash-on-delivery option. Cash is often used for physical goods and cash-on-delivery transactions. It does come with several risks, such as no guarantee of an actual sale during delivery, and theft. Though nowadays, cash on delivery does not necessarily mean customers pay with cash (they can use cards, mobile payments as payment terminals are often available with delivery agents), missing out on this is a strict NO.

**6) Mobile payments:**

This digital payment solution offers a quick solution for customers. To set up a mobile payment method, the customer just has to download software and link it to the credit card. As E-Commerce is becoming mobile mainstreamed, customers are finding it more convenient to use mobile payment options

**2.6.4 Post Sales Service:**

**Meaning:**

Post Sales Service /After-sales service is **any support provided to a customer after the product or service has already been purchased**. Companies use after-sales support as a business strategy as it typically leads to higher customer satisfaction, brand loyalty, and even word-of-mouth-marketing.

After sales service plays an important **role in customer satisfaction and customer retention**. It generates loyal customers and increase a brand value. A satisfied and happy customer brings more individuals and eventually more revenues for the organization for long time.

**Importance of After-sales Service:**

Why is after-sales service so important that businesses are including it in their overall marketing strategy? Well, here is why:

- For starters, a good quality after-sales service is a mandatory part of the "customer satisfaction" motto.
- It defiantly improves the brand image of a business and increases brand loyalty.
- After-sales service boosts the relation of trust between the seller and the buyer. Of course, trust wins long term clients.
- Good after-sales service can promote "word of mouth" marketing. A happy customer itself is a walking-marketer of the company. Positive feedback on social media platforms will definitely attract more customers.

- After-sales service, if handled effectively, can work as a secondary income generator. A company good with after-sales service can convince its customers to buy other products from the same company.

**Types of After-Sale Services:**

**1) Pre-installation Services:**

All the products in the market come with some sort of manual with them. These manuals contain basic information for using the product for the first time. It is very easy to use some devices for the first time. Some devices demand expert advice. Providing pre-installation services for items such as a copier machine or an air conditioner will greatly facilitate the customer. Some companies do it for free, while some charge a bit for it.

**2) Initial Training:**

Most of the household items are easy to use. They demand no training or expertise. Proper training is mandatory before the usage of industrial machinery. The medical equipment provided to the doctors demands technical expertise. This is essential that the user is having complete information about the usage of a machine. Most of the time, the companies arranging these machines provide the initial training.

**3) Warranty:**

This is one of the most common types of after-sale service. This is provided by almost all multinational companies for all their products. The duration and warranty of specific items may vary. Some companies allow their customers to replace their products if found faulty. The companies encourage the repair of the dysfunctional part. Companies also offer variable warranty policies to their customers.

**4) Online Support:**

This is the latest type of after-sale service. It is mostly provided by e-commerce companies. But this is not a hard-core principle. Almost all multinational companies have dedicated a helpline for their customers. The company helplines can be accessed conveniently round the clock. The company representative listens to the query of the customer and provides proper guidance for convenience.

**5) Replacement/Return:**

Companies provide free replacement or even return of their product. This service comes with proper terms and conditions are associated with it. After the sale of the product, this service lasts only a few months. Replacement can be either of the entire product or one part only. The return of the product is facilitated with a refund or another product from the same company. However, every company has a different policy.

**After-Sales Service Examples:**

Few prime examples of after-sales service. These companies are acing this section with uniqueness.

**1) After-Sales Support- Lenovo Vantage:**

Lenovo is a famous name in the electronics industry, especially the laptops and computers. Although Lenovo's offer fine quality products, their after-sales service is quite unique. Lenovo's laptops or computers have a preinstalled app (Lenovo Vantage) for after-sales service. This app helps the customer run diagnostics, update drivers, discover new apps, and contact customer support. Customers find it easier to diagnose any problem in their systems and can easily contact customer support if needed.

**2) Product Warranty- Smart Phone Companies:**

Smartphone companies can be taken as a good example of after-sales service in terms of the warranty. Apple, Samsung, Huawei, and many other famous brands offer a one-to-two-year warranty on their Smartphones. Different brands offer warranties in different terms, such as software, mobile battery, and hardware. Of course, terms and conditions apply to the warranties given.

**3) User Training – Get Response Courses:**

It is an online platform offering solutions related to webinar hosting, email marketing, landing pages, and similar services. The company not only provides high-quality services, but it also offers free specialized courses to its customers as a part of their after-sales service. These courses help the customers to understand the complexities of online marketing and how they can do it effectively.

**4) Return & Replacement – Amazon:**

World's biggest retailer, Amazon, has not only conquered the global markets with its high quality, cost-friendly products, but it offers impeccable after-sales service as well. The company offers free return and replacement options to its customers. This way, customers can replace or return a product if it is not according to their expectations. No wonder Amazon is bossing the e-commerce industry.

**5) Upgrades – Apple iOS:**

Apple Inc. provides software upgrades as a part of the after-sales service. An Apple user can get those upgrades for four to five years. After that, the device will still be functional, but it will not be eligible for upgrades.

**6) Free Installation- Air Conditioner Retailers:**

Companies dealing in air conditioners are a good example of free installation services. That's not it; there are a lot of companies that offer free maintenance and inspection services as well.

**7) Online Customer Support- Telecommunication Companies:**

Telecommunication companies are a fine example of 24/7 online customer support. In fact, these companies have dedicated helplines where customers can call anytime for their queries or issues, and that too free of cost. Moreover, these companies provide free customer support online through dedicated online **customer service** agents or chat bots.

**Tips for Effective After-Sales Service:**

Good after-sales service not only ensure the customer-retention but also attracts new customers. Customer retention is important for businesses from different aspects. Most importantly, the cost of customer retention is five to six times lesser than winning a new customer.

1. **Seek Customer Feedback:** Feedback from customers allows the entrepreneurs to find flaws in their products. Moreover, it helps them in improving the product quality with the help of suggestions from the customer. Last but not least, asking for recommendations from customers boost their confidence and brand loyalty.

2. **Give Discounts to Your Customers:** Discounts and promotions are a great way to keep your customers interested in your offerings. You can offer them promotional discounts or even customized discounts.

3. **Remember Your Customers on Special Occasions:** We love it when somebody remembers us on our special occasions. Similarly, customers love it when you remember them on their birthdays, wedding anniversaries, etc. You can send them wishes through messages, gift cards, etc., or you can also offer special discounts on your products.

4. **Send Them Helping Content:** The basic purpose of a product is to solve the problems of your customers. Well, of course, you can do that by selling your product. But, you can be more empathetic by educating them about their problems.

5. **Reward Them with "Commission":** A happy customer brings new customers through word-of-mouth marketing. But, what if you can reward them in monetary terms for bringing new customers? You can give them a commission for every customer they bring to you.

## 2.7 QUESTIONS

**(A) Fill in the Blanks:**

i) The term business-to-consumer (B2C) refers to the process of selling products and services directly between a business and consumers who are the end-users of its products or services.

ii) Catalog marketing **is a sales technique used by businesses to group many items together in a printed piece** or an online store, hoping to sell at least one item to the recipient.

iii) Scheduling is a communication tool that helps balance customer demands with your ability to fulfill that demand.

iv) Order processing is the process of identification, sorting, picking, packaging, movement and delivery of the packed items to a shipping carrier after the customer has placed the order successfully.

v) Order management is the term used to describe the set of processes a company uses to track, handle and fulfil an order from the time it's made by a customer to when it's safely delivered

vi) Post Sales Service /After-sales service is any support provided to a customer after the product or service has already been purchased.

vii) Feedback from customers allows the entrepreneurs to find flaws in their products.

viii) Discounts and promotions are a great way to keep your customers interested in your offerings.

ix) Though not popular nowadays but still bank transfer is considered as an essential payment method for E-Commerce.

x) World's biggest retailer, Amazon, has not only conquered the global markets with its high quality, cost-friendly products, but it offers impeccable after-sales service as well.

**(B) Write Short Notes:**

i) Cost Estimation and Pricing ii) Cataloguing

iii) Order Billing and Payment management

ii) Order Delivery

*****

# 3

# BUSINESS TO BUSINESS E-COMMERCE

**Unit Structure**


3.0 Objective
3.1 Introduction
3.2 Business to Business E-Commerce
3.3 Need and alternative models of B2B e - commerce
3.4 Using Public and private computer networks for B2B trading
3.5 EDI and paperless trading: characteristic features of EDI service arrangement
3.6 Internet based EDI
3.7 EDI architecture and standards
3.8 Costs of EDI infrastructure
3.9 Reasons for slow acceptability of EDI for trading
3.10 E-marketing
3.11 Traditional web Promotion: Web counters
3.12 Web advertisements.
3.13 Summary
3.14 Questions


## 3.0 OBJECTIVES

After studying this unit the student will be able to:

- Understand the functioning of B2B E-Commerce.
- Know about uses Electronic Data Interchange (EDI).
- Explain various concept of E-Marketing.

## 3.1 INTRODUCTION

Electronic commerce is an emerging concept that describes the process of buying and selling or exchanging products, services and information via computer networks including the Internet. E-Commerce can be mainly divided into Business-to-Business (B2B) electronic commerce and Business-to-Consumer (B2C) electronic commerce. Business-to-business ecommerce may be defined as the buying and selling of goods and services between companies through online. Therefore, B2B electronic commerce implies that both sellers (suppliers) and buyers are business corporations, while B2C electronic commerce implies that the buyers are individual consumers. B2B e-commerce is a slightly more evolved version

of commerce. This type of e-commerce is the electronic exchange of business documents among businesses for the purpose of conducting commerce. This began with the Electronic Data Interchange (EDI), which started in the 1960s. In the past, EDI was conducted on a direct link of some form between the two businesses whereas today the most popular connection is the internet. The two business firms pass information electronically to each other. Business to Business electronic commerce has been in use for quite a few years and is more commonly known as Electronic Data Interchange (EDI). Typically in the B2B environment, e-commerce can be used in the following processes:

- Procurement
- Order fulfilment
- Managing trading-partner relationships

## 3.2 BUSINESS TO BUSINESS E-COMMERCE

When a business sells goods and services to another business online, it is called B2B transaction.

In simple, one company will sell products or services to other companies. (i.e.,) wholesale distributors will sell products or services to retailers.

Normally this field includes the selling of goods that are not used by customers. For instance, businesses that manufacture products sold in Walmart stores are operating under a business to business e-commerce model because they are a business selling products to another business.

**Examples:**

- **Walmart:** Walmart India is based on the B2B process as it sells its products only to traders. Walmart India, a B2B website, landed on many states in India and any vendors can easily sell their products on Walmart's B2C marketplaces.
- **Alibaba:** Alibaba is a Chinese world-leading e-commerce, retail, internet and technology company. It has supplying partners worldwide. Those suppliers are business companies.
- **Amazon:** Besides B2C ecommerce, Amazon plays a major role in B2B ecommerce businesses as in the name of Amazon Business.
- **Indiamart:** IndiaMart connects buyers and sellers with their high-quality B2B products like Apparels, Industry Machinery, electrical & electronics, etc.,
- **Slack:** For communication, and sharing of files and documents, many B2B companies use slack.

## 3.3 NEED AND ALTERNATIVE MODELS OF B2B E - COMMERCE

**Need of Business To Business (B2b):**

1) **Custom pricing features:** With a B2C e-commerce website, pricing is usually simple as every customer gets the same price. B2B e-commerce websites, there might be different pricing for different customers. It could be because of the volume of business they do with them, the frequency of orders, or the type of products they buy.

2) **Custom Bulk Discount:** Bulk discounts are a common feature of B2B businesses. They are a way of encouraging higher order values and building customer loyalty. They can be based on the quantity or purchase amount.

3) **Minimum order quantities:** In addition to policies like discounts for buying in bulk, many B2B stores also operate a minimum order value for all or some of their products. Minimum order quantities are often essential for managing margins and ensuring that B2B e-commerce company remain profitable.

4) **Flexible Payments:** Having flexible payment options is an advisable feature for any ecommerce store, but it is particularly important for B2B businesses. B2B E-commerce company can offer flexible payment option along with selected days credit facility.

5) **Omni-Channel Presence:** Scalable, responsive, and fully customized e-Commerce platform solutions including mobile app and website for B2B e-Commerce gives comfort and ease to customer at online store.

6) **More business opportunities:** A web store can help strengthen online presence, letting potential clients and resellers find B2B e-commerce Company through search engines.

   This is especially effective the company chooses to make its catalog pages public. However, even if it decides to keep catalog private, company can use targeted marketing content (Customers to whom a company wants to direct its marketing efforts and o sell its products and services) in web store to grab the attention of new clients.

7) **Fewer customers:** In the B2B e-commerce, there are fewer number of customers. Although the market is small with fewer buyers and sellers, but their orders are big.

8) **Stability and Loyalty:** In B2B e-commerce, there is a very stable relationship between buyer and seller that goes for years. Before signing any contract, buyers and sellers both plan their budget, revenues, and rates. When both parties close the deal, then they rely on one another in terms of supplies and payments. So parties are loyal to one another.

9) **Lower cost:** In B2B e-commerce, both parties spend a lot of time planning and working on the details. In most cases, the work is done through automation (including order entry, client information provision and customer service) that eradicates the chances of errors and undue expenditure. Therefore, it leaves no room for mistakes and errors. As a result, everything works out as plan without costing any extra expenses. This especially true with ERP-integrated B2B e-commerce.

10) **Design easy order system:** B2B companies selling online need to put much effort into designing a website and ordering system that buyers find easy to use. This means presenting product and service information clearly, offering online demos or consultations and using order forms with appropriate options for quantities and any special customization needed.

11) **Reduces Distribution Costs:** B2B transactions reduce marketing and sales costs of the sellers. Eg. A seller need not to advertise heavily to attract customers. Also, the seller need not maintain a large number of sales force and support staff.

12) **Reduces Inventory Levels:** A seller need not maintain large inventory levels in anticipation of demand. The seller can maintain the level of inventory based on the orders received online. Therefore, the cost of maintaining inventory is less.

    Also, the buyer need not keep a large amount of inventory. He can order for inventory as and when required. The seller can supply the inventory under the just-in-time model. Therefore the cost of maintaining inventory is also less for the buyer.

13) **Benefit of Negotiation:** B2B permits negotiation between buyer and seller relating to price quantity and other terms and conditions of sale. However, negotiation is not possible in case of B2C model. Negotiation benefits both the parties and therefore, there is higher conversion of sales as compared to B2C model.

14) **Lower Rejection Rate:** Under B2B model, there is lower rejection rate as compared to B2C model. B2B model permits negotiation between the buyer and the seller. Also the sales representatives of the seller meet the buyer with samples and also provide clarifications, whenever required. Therefore, the return of goods is lower in the case of B2B model, which in turn reduces the cost for the seller

**Alternative Models of B2b E – Commerce:**

1) **Customer-Centric Model:** In this model the company prefers to establish a long term profitable relationship with the customers even after the sale. The value of the customer remains the same; it doesn't change after the transaction. When customers are the main focus of the business, then they would have a great influence over the branding and other operations of the company.

Amazon and Flipkart are the two major examples of e-commerce businesses, and they follow the customer-centric model. It took them years to develop reliable and trustworthy relations with their customers, and they are also loyal to their brand.

2) **Buyer Centric Model:** In this model, there are *few buyers and many suppliers*. The buyer has his/her own online marketplace.

   This model is mainly used among the big corporate companies as they have a higher rate of purchases. Here the buyer sets a portal where the sellers quote their price. The sellers approach the buyer with different quotations. It is the buyer's call to choose the most suited company regarding its specifications and budget.

   Walmart is the best example of the buyer-centric model because it has a shopping mall across the world. Every branch of Walmart has different and multiple suppliers. However, different suppliers approach the company and bid, and the best bidder becomes the supplier of the company.

3) **Supplier centric Model:** In this type of model, there are *many buyers and few suppliers*. The supplier provides a common marketplace. This market is used by both individual customers as well as businesses. For the success of this model, goodwill in the market and a group of loyal customers is very important.

   A successful example of this business model is Cisco. Cisco owns an online marketplace which goes by the name of Cisco Connection Online. In 1997 Cisco sold US$1 billion worth of network products such as routers and switches to business customers.

4) **Intermediary Centric Model:** In this type of model, there are *many buyers and many suppliers*. This model provides a common platform for both the sellers and buyers to interact and transact with one another. This common platform is formed by the intermediaries. In return, the intermediaries get their fair share as commission from the parties that are involved.

   Customers can't check out all the products in the digital market. But this intermediary provided platform is a great place to check out all the products.

   For instance, eBay and OLX provides a platform where seller can connect over with potential buyers for product or service. They agree to the terms of the commission that these third-party vendors would charge. For every transaction made or sale happened, the intermediate earns a certain sum of money.

5) **Managed B2B Model:** This model is a platform where the company outsources its entire B2B process requirements to an outside service provider and benefits by lowering the resource needs. This also cuts down the additional costs and complications of the process. The

model works on a system that lets the Service Provider receive the business documents through a direct medium of your ERP system.

The service provider would perform activities like translation, mapping, tech support, document tracking, and data center operations.

## 3.4 USING PUBLIC AND PRIVATE COMPUTER NETWORKS FOR B2B TRADING:

Organizations might use **private exchanges** to tap into the positives the Web has to offer, but in a secure environment. **Public B2B exchanges** have also had their share of the headlines. Once the inevitable shake-out comes, the select few that survive will offer an efficient means of realizing cost savings in areas of procurement where decisions are based purely on commodity pricing.

But not every corporate relationship boils down to carrying out transactions at the lowest possible price. When it comes to maintaining long-standing relationships with valued business partners it can pay to go private. By drawing together your intranet and extranet into a co-ordinated hub spanning key suppliers, customers and collaborators, you can create a secure trading environment that you alone control.

In practical terms, public B2B exchanges hinge on the transactional side of business. Transactional functionality can be built into a private exchange, but the real value-add comes in the areas of content and collaboration.

Private exchanges reflect the dynamics of human interactions and business relationships. If e-mail has automated communication, then private exchanges will automate collaboration. How do you securely share information with trading partners? How do you communicate inside and outside the enterprise? As ever, it's a question of automating existing processes to increase efficiencies - of doing the same things, only better.

If one of the benefits of a private exchange is that you own it, then one of the drawbacks is that you have to manage it. The challenge for the IT department is to learn to let go. It's rare for an IT manager to happily devolve responsibility for IT applications to the lines of business. On the other hand, private exchanges have to be living, dynamic environments, in which business managers can, as Darmohray puts it, "click and build" as the corporate landscape changes.

On a private exchange, e-mail is a notification mechanism, not a delivery mechanism. All data sits on the exchange, meaning varying the levels of access is essential. You need to establish and maintain a watertight security policy so the business can proactively add elements to the exchange, but only according to set parameters. Do that, and you are empowering, not devolving.

Choosing which business partners to embrace in your private exchange should be simple: if you have a complex, ongoing relationship with an organisation, there'll be value in buddying up, online.

**Edi and Paperless Trading:**

Electronic Data Interchange (EDI) is the computer-to-computer exchange of business documents in a standard electronic format between business partners. By moving from a paper-based exchange of business document to one that is electronic, businesses enjoy major benefits such as reduced cost, increased processing speed, reduced errors and improved relationship with business partners.

**Computer-to-Computer:** 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 also introduce errors. Instead, EDI documents can flow straight through to the appropriate application on the receiver's computer and processing can begin immediately. A typical manual process looks like this, with lots of paper and people involvement:

**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.

## 3.5 EDI AND PAPERLESS TRADING: CHARACTERISTIC FEATURES OF EDI SERVICE ARRANGEMENT

1) **Cost effective:** EDI make it possible to cut down on paper waste and all paper processing becomes quick. Therefore there are reduction expenses of printing, storing, processing, papers, reproduction and documents retrieval.

2) **Efficiency:** EDI enables cloud-computing and machine learning. This enables to eliminate computational repetition, redundancies, and errors that would be more common among human.

3) **Speed:** The electronic transfer of data ensures more consistency and accuracy without sacrificing pace (speed). The data can be transferred from one person to another in a shorter time period as compared to physical transferring of data.

4) **Prompt and reliable service:** Faster processing means better customer service, over all, in turn, helps to expand customer base

5) **Costly:** EDI is costly software. Therefore, small business enterprise may not afford it.

6) **Accuracy:** Errors are a part of human nature. That is why the manual data interchange process is vulnerable to errors. But, with EDI, you can attain maximum accuracy, and that's why it is preferred over traditional data interchange solution. EDI solution wipes out keying

and rekeying errors, illegible handwriting, and incorrect document handling.

7) **Staff training cost:** Staff needs training in order to run EDI enabled software. Investment has to be done in training.

8) **Proper backup:** Proper backup of data should be maintained as the whole data depends on EDI. In case of any crash of EDI system, proper backup has to be maintained and extra cost is required for it.

9) **Limit your trading partners:** Some organization stops doing business which don't use EDI. For instance, Wal-Mart prefers to do business only with those organization which uses EDI.

10) **Reduces Data entry efforts:** Data is entered automatically by EDI software. For instance, when purchase order (PO) from one company is received by another company. Sales order (SO) is automatically generated at other company's system with the help of EDI software

## 3.6 INTERNET BASED EDI

When considered as a channel for EDI, the Internet appears to be the most feasible alternative for putting online B2B trading within reach of virtually any organization, large or small. Firms should use Internet based EDI for several reasons:

- The Internet is a publicly accessible network with few geographical constraints. Its largest attribute, large-scale connectivity (without the need for any special company networking architecture), is a seedbed for growth of a vast range of business applications.
- The Internet's global network connections offer the potential to reach the widest possible number of trading partners of any viable alternative currently available.
- Using the Internet instead of a VAN can cut communication costs.
- Using the Internet to exchange EDI transactions is consistent with the growing interest in delivering an ever-increasing variety of products and services electronically, particularly via the Web.
- Internet-based EDI can complement or replace many current EDI applications.
- Internet tools such as browsers and search engines are very user-friendly, and most employees today know how to use them.
- Internet-based EDI has several functionalities not provided by traditional EDI.

**Types of Internet-Based EDI:**

- Internet e-mail can be used to transport EDI messages in place of a

VAN. To this end, standards for encapsulating the messages within Secure Internet Mail Extension (S/MIME) have been established.

- A company can create an extranet that enables its trading partners to enter information into a Web form, the fields of which correspond to the fields in an EDI message or document.

- Companies can use a Web-based EDI hosting service in much the same way that companies rely on third parties to host their EC sites. Netscape Enterprise is an example of the type of Web-based EDI software that enables a company to provide its own EDI services over the I

**The Prospects of Internet-Based EDI:**

Companies that used traditional EDI in the past have had a positive response to Internet-based EDI. With traditional EDI, companies have to pay for network transport, translation, and routing of EDI messages into their legacy processing systems. The Internet simply serves as a cheaper alternative transport mechanism. The combination of the Web, XML, and Java makes EDI worthwhile even for small, infrequent transactions. Whereas EDI is not interactive, the Web and Java were designed specifically for interactivity as well as ease of use. The following examples demonstrate the benefits of Internet-based EDI.

- CompuCom Systems was averaging 5,000 transactions per month with traditional EDI. In just a short time after the transition to Web-based EDI, the company was able to average 35,000 transactions. The system helped the company to grow rapidly.

- Tradelink of Hong Kong was successful in recruiting only several hundred of the potential 70,000 companies to a traditional EDI that communicated with government agencies regarding export/import transactions. In 2001, Tradelink's Internet-based system had thousands of companies registered, and hundreds were being added monthly.

- Atkins Carlyle Corp., which buys from 6,000 suppliers and has 12,000 customers in Australia, is a wholesaler of industrial, electrical, and automotive parts. The large suppliers were using three different EDI platforms. By moving to an Internet-based EDI, the company is able to collaborate with many more business partners, reducing transaction costs by about $2 per message.

- Procter & Gamble replaced a traditional EDI system that had 4,000 business partners with an Internet-based system that has tens of thousands of suppliers

## 3.7 EDI ARCHITECTURE AND STANDARDS

EDI architecture provides a framework that enables you to standardize the information which can be easily exchanged between and within business organizations and government entities using electronic channels.

**EDI architecture specifies 4 layers:**

1) Semantic (application layer)

2) Standard transaction layer

3) Packing (transport) layer

4) Physical n/w infrastructure layer.

**1) Semantic layer:** It describes the business application that is driving EDI. For a procurement application, this translates into requests for quotes, price quotes, purchases orders, acknowledgements & involves.

The information seen at this layer must be translated from a company specific from to a more generic form so that it can be send to various trading partners, who could be using a variety of software applications at this end.

When a trading partner sends a document, the EDI translation software converts the proprietary format into a standard mutually agreed on by the processing system. When a company receivers the document, their EDI translation software automatically changes the standard format into proprietary format of their document processing software so that company can manipulate the information in whatever way it chooses to.

**2) EDI standards:** It specify business form structure and it also influence the content at application layer. The most two important standards are:-

- EDIFACT – developed by United Nations Economic Commission
- ANSI X12 – developed by American National Standards Institute

**3) EDI transport layer:** It corresponds closely with the non-electronic activity of sending a business form from one company A to company B. The business form could be sent via regular postal service, registered mail, certified mail or private carrier such as united parcel service (UPS) or simply faxed between the companies.

**4) Physical layer:** The physical infrastructure layer consisting of Dial up lines, Internet etc. enable for the transmission of the message..

**Edi Standards:**

To exchange documents with trading partners, you must convert the data to and from EDI Standard formats. EDI standards are the requirements for the format and content of EDI business documents. EDI standards determine the correct order and location of the units of data in an EDI document. All EDI transactions are defined by EDI standards.

EDI standards developers design and publish EDI Standard formats for various kinds of documents, such as purchase orders or invoices that you might exchange with your trading partners.

EDI Standard format is comparable to the language that you speak. For instance, an element of the EDI Standard can be compared to a word. A segment in the EDI Standard is comparable to a sentence. A transaction set in the EDI Standard is comparable to a paragraph or a document. In the EDI Standard, just as in the language that you speak, elements (or words) are combined to form a segment (or a sentence). Segments (or sentences) are combined to create a Transaction set (or paragraph or document). Two commonly used EDI standards are:

- EDI for Administration, Commerce, and Transport (**EDIFACT**) - generic international. EDIFACT was based on TRADECOMS developed by the UK Department of Customs and Excise. It is becoming widely accepted as the EDI standard.

- American National Standards Institute/Accredited Standards Committee X12 (ANSI ASC X12). ANSI X.12 committee develops standards to facilitate EDI relating to such business transactions as order placement and processing for products and services. The transaction sets generally map a traditional paper document to an electronic format that can move easily over a telecommunication network.

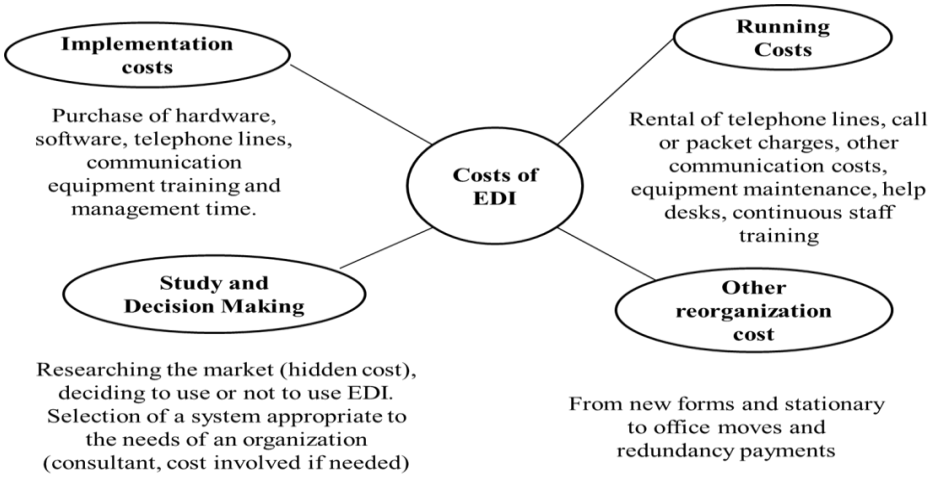
## 3.8 COSTS OF EDI INFRASTRUCTURE

Calculating the cost of EDI implementations is very important in order to ensure that it will deliver real financial and business benefits to your company. But first you must decide the approach you are going to take with EDI: In-house or working with a third party EDI provider (sometimes referred to as a value-added network, or VAN).

**In-house EDI:**

A few very large organisations have created their own EDI networks. This has the advantages of internal management, control and security but it is not something to be undertaken lightly.

**The cost of EDI could be the following:**




There are many soft benefits too, arising from most efficient operation, direct link with customers, and better management controls. These cannot be called as saving but a decision could be arrived from this to decide whether to adopt EDI or not.

The investment will get the firm to the start point. It will have an internal EDI system. It is likely that it will have to assist each of its trading partners to implement the system at their end, maybe even build it for them. Firm will need to do this with each trading partner that it wants to do EDI with and it will be an ongoing requirement as its trading community evolves, grows and changes.

**EDI Provider/VAN:**

There are different pricing models available from third-party providers. The provider's charge is usually based on the volume of data transmitted over the network. This is often measured in the number of kilo-characters (KCs) contained within EDI document. Based on this, providers offer a variety of subscription models that can be selected from, such as:

- Pay-as-you-go
- Monthly
- Annual subscription

Often these models operate within price bands based on anticipated volumes of KCs or documents. Firm should also be aware of hidden charges such as minimum record lengths.

It is important to understand the volume and nature of business transactions before selecting a provider. That way firm can select the pricing model that best meets to the business needs.

## 3.9 REASONS FOR SLOW ACCEPTABILITY OF EDI FOR TRADING

1) **Cost of Implementation:** It is true that EDI provides massive cost savings benefits but for small businesses re-designing and implementing software applications to fit in EDI into current applications can be quite costly.

2) **Electronic System Safety:** EDI also necessitates substantial investment in computer networks and security systems for maximum security. Any EDI system installed would require protection from hacking, malware, viruses, and other cyber security threats.

3) **Preliminary Setup Consumes Time:** Not only is the implementation of EDI system expensive to install, but it also consumes a considerable amount of time to set up the essential parts. Thus, such limitations of EDI can hinder fast-tracking of services if urgently required.

4) **Several Standards to Maintain:** Numerous businesses looking to implement EDI also consider the several standards involved. These limitations of EDI do not allow small businesses to exchange data with larger establishments that make use of latest edition of a document standard. Some known measures include ANSI ASC X12, GS1 EDI, HL7, TRADACOMS, and UN/EDIFACT

5) **Suitable Backup System:** EDI implementation also requires regular maintenance as the business functionality is highly dependent on it. Some robust data backup system is needed in case of system crash or for statistical purpose. Such limitations of EDI can cost some substantial amount to implement.

6) **Staff training cost**: Staff needs training in order to run EDI enabled software. Investment has to be done in training.

7) **Limit your trading partners:** Some organization stops doing business which don't use EDI. For instance, Wal-Mart prefers to do business only with those organization which uses EDI.

## 3.10 E-MARKETING

E-marketing is a process of planning and executing the conception, distribution, promotion, and pricing of products and services in a computerized, networked environment, such as the Internet and the World Wide Web, to facilitate exchanges and satisfy customer demands. Marketing (also referred to as web marketing or internet marketing) uses electronic communication technologies including the Internet, mobile phones and digital media

**Definition:**

**According to Kotler and Keller**, E-Marketing portrays company efforts to inform and communicate with buyers, and promote and sell its products and services over the Internet.

**Scope of E-Marketing:**

1) **Promotions:** E-Marketing can be used for promotions of either an existing product or a new product. With the help of emerging technology marketers can make use of creativity and promote their products in a better manner which was not possible in traditional method

2) **Market Analysis:** Market analysis forms a very important and one of the primary activities of any business activity. It helps the business to understand the market standing. It helps the organization to identify its competitors and form a combat force to fight the same. This basically forms a source of primary first-hand information for the business. E-Marketing can be used for gathering this crucial information.

3) **Strategic Web activities:** To be in constant touch with the customers and prospects, it is very important for the business to be in news and do things differently. It is often said 'Out of Sight is Out of Mind'. Hence, companies must keep engaging themselves in strategic activities over different platform to be visible. This can be done through E-Marketing.

4) **Business expansion: After** survival and Growth, Expansion is an inevitable part of any business organization. For expansion, it is not just enough to escalate the R & D process but also to communicate it efficiently in the market. Unless a better communication is done, even the best of products cannot pick up sales. E-Marketing, can be seen as a platform for launch of new products as well business expansion.

5) **Customer response:** Business and marketing are a continuous activity. Its continuity is largely based on the feedback that is received from the customer. In today's era, it is difficult to pay attention to individual responses and letters/ Grievances/ Satisfaction, but much easier when E-Marketing tools are used. It helps the organization to gauge the exact summary of customer feedback.

## 3.11 TRADITIONAL WEB PROMOTION: WEB COUNTERS

**Traditional Web Promotion:**

Despite ongoing changes in the web, traditional online marketing is still an important part of a successful online strategy, and should not be neglected. Classic banner advertising still draws the attention of many potential customers. Even intelligent email marketing offers opportunities if

implemented properly. Offline marketing can also be effectively linked to online marketing in order to significantly increase traffic.

**Web Counters:**

A web counter or hit counter once set up, these counters will be incremented by one every time the web page is accessed in a web browser.

The number is usually displayed as an inline digital image or in plain text. Image rendering of digits may use a variety of fonts and styles; the classic example is the wheels of an odometer. The counter is often accompanied by the date it was set up or last reset, without which it becomes impossible to estimate within what time the number of page loads counted occurred. Some web counters were simply web bugs used by webmasters to track hits and included no visible on-page elements.

Counters were popular in the 1990s, but were later replaced by other web traffic measures such as self-hosted scripts like Analog, and later on by remote systems that used JavaScript, like Google Analytics. These systems typically do not include on-page elements displaying the count. Thus, seeing a web counter on a modern web page is one example of retro computing on the Internet.

## 3.12 WEB ADVERTISEMENTS

Web Advertisement is important not just because it helps you to get found online, but also because it can change the way your business is perceived by potential customers. For example, ranking high in search engine results pages, along with respected industry authorities, instantly boosts your business' credibility.

**Types of Web Advertisements:**

1) **Display Advertising**: Display advertising is a kind of online exhibit that typically uses images and text. The most popular forms of these kinds of ads are banner ads, landing pages (LP's) & popups. Display ads are found on websites and publisher web pages and redirect a user's attention to the brand's product.

2) **Search Engine Marketing & Optimization (SEM) & (SEO):** SEM and SEO promote content & increases visibility through online searches. In SEM, instead of paying for the ad, advertisers pay each time users to click on their ad to their website. In SEO, they use various tactics like linking, targeting keywords and creating high-level content that other sites will link to in order to drive traffic.

3) **Social Media Ads:** Placing online ads, promoted posts and sponsored stories on social media are a popular way to reach a target demographic without paying a hefty amount. Facebook and Twitter are the most popular social media platforms for companies to reach potential new customers with LinkedIn a popular avenue for B2B traffic.

4) **Pay Per Click (PPC):** Ads Pay per click (PPC) ads are advertisements where the promoters pay every time a user clicks on an ad. That means, even if the ad was seen by hundreds of personalities but only 1 person clicked on the ad, the cost of the ad would be calculated on the one click.

5) **Remarketing:** Remarketing is a kind of online advertising that uses online cookies to track followers around the internet, in order to target them again. These users are targeted once they leave the website by then seeing subtle hints (ads), reminding them about their previous interest.

6) **Affiliate Marketing:** Affiliate marketing promotes a brand's product while earning a commission for each successful transaction. This is widely used by publishers and bloggers who have massive followership and are looking to gain passive income.

7) **Video Ads:** Video ads are rapidly gaining popularity, especially among millennial and Gen Z consumers. YouTube is undoubtedly the No. 1 platform for online videos, and it uses a PPC method, i.e., brands pay when someone engages with an ad.

## 3.13 SUMMARY

When a business sells goods and services to another business online, it is called B2B transaction.

In simple, one company will sell products or services to other companies. (i.e.,) wholesale distributors will sell products or services to retailers.

Electronic Data Interchange (EDI) is the computer-to-computer exchange of business documents in a standard electronic format between business partners. By moving from a paper-based exchange of business document to one that is electronic, businesses enjoy major benefits such as reduced cost, increased processing speed, reduced errors and improved relationship with business partners.

## 3.14 QUESTIONS

**Fill In The Blanks:**

1) Wholesale distributors will sell products or services to retailers, is an example of _____ type of e-commerce. (B2C, **B2B**, C2B)

2) _____ is an example of B2B E-commerce. (**Indiamart**, Dmart, Reliance Fresh)

3) In _____ model, there are few buyers and many supplier and the buyer has his/her own online marketplace. (Customer-Centric Model, **Buyer Centric Model**, Supplier centric Model)

4) _____ is one of the characteristic of EDI. (**Speed**, Slow, Cheaper)

5) _____ is a computer software program that indicates the number of visitors, or hits, a particular webpage has received. (Spy, Hardware, **Web counters**)

**True or False:**

1) Cinema advertising is a type of web advertisement. **FALSE**
2) Alibaba.com is an example of B2B e-commerce. **TRUE**
3) EDI does not require staff training. **FALSE**
4) EDI transport layer corresponds closely with the non-electronic activity of sending a business form from company A to company B. **TRUE**
5) One of the reasons for slow acceptability of EDI for trading is due to cost factor. **TRUE**

**Match the Pairs:**

| Group - A | Group – B |
|---|---|
| 1) EDI | a) Walmart |
| 2) B2B e-commerce | b) Search Engine Marketing |
| 3) Customer-Centric Model | c) Paperless Trading |
| 4) EDI architecture | d) Alternative models of B2B e-commerce |
| 5) Web Advertisement | e) Semantic layer |

**(1-c, 2-a, 3-d, 4-e, 5-b)**

**Answer in Brief:**

1) Explain the need of B2B e-commerce model.
2) What alternative models of B2B e – commerce?
3) Write a note on Using Public and private computer networks for B2B trading
4) Discuss what is EDI and characteristic features of EDI service arrangement
5) Briefly explain Internet based EDI with examples.
6) Write a note on EDI architecture
7) Write a note on EDI standards
8) Describe the Costs of EDI infrastructure
9) What are the reasons for slow acceptability of EDI for trading?
10) Discuss the concept of E-marketing.
11) Explain Traditional web Promotion:
    - Web counters
    - Web advertisements.

*****

# 4

# ELECTRONIC PAYMENT SYSTEMS AND ORDER FULFILLMENT

Electronic Payment Systems and Order Fulfillment: Types of payment systems - e-cash and currency servers, e-cheques, credit cards, smart cards, electronic purses and debit cards; Operational, credit and legal risks of e - payment, Risk management options for e - payment systems; Order fulfillment for e –commerce.

**Unit Structure**


4.0 Objective

4.1 Introduction

4.2 Types of payment systems-e cash and currency services, E cheques, Credit Cards, Smart cards, Electronic purses and Debit cards.

4.3 Operational, Credit and legal risks of e payment.

4.4 Risk management options for e payment systems.

4.5 Order fulfilment for e commerce

4.6 Summary

4.7 Exercise


## 4.0 OBJECTIVE

After studying this unit student will be able to understand:

- Understand the concept of Electronic payment system.
- Know about various types of electronic payment system.
- Explain risk associated with e payment systems.
- Know about order fulfilment.

## 4.1 INTRODUCTION

An e-commerce payment system facilitates the acceptance of electronic payment for online transactions. Also known as a sample 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.

**Overview:**

**Definition:** Electronic Payment is a financial exchange that takes place online between buyers and sellers. The content of this exchange is usually some form of digital financial instrument (such as encrypted credit card numbers, electronic cheques or digital cash) that is backed by a bank or an

intermediary, or by a legal tender. The various factors that have leaded the financial institutions to make use of electronic payments are:

**Decreasing technology cost:**

The technology used in the networks is decreasing day by day, which is evident from the fact that computers are now dirt-cheap and Internet is becoming free almost everywhere in the world.

**Reduced operational and processing cost:**

Due to reduced technology cost the processing cost of various commerce activities becomes very less. A very simple reason to prove this is the fact that in electronic transactions we save both paper and time.

**Increasing online commerce:**

The above two factors have lead many institutions to go online and many others are following them. E-Commerce was began with EDI, primarily, for large business houses and not for the common man. Many new technologies, innovations have led to use of E-Commerce for the common man also. Some applications are:

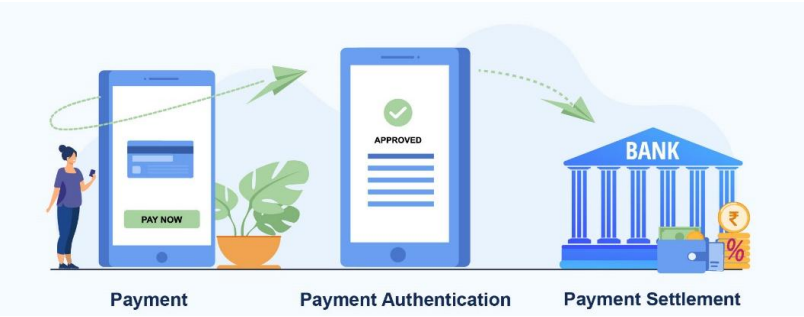
**Consumers:** Credit cards, Debit Cards, ATMs (Automated Teller Machines), stored value cards, E-Banking.

**Online commerce:** Digital Cash, E-Cash, Smart cards (or Electronic Purse) and encrypted Credit cards.

**Companies:** The payment mechanisms that a bank provides to a company have changed drastically. The Company can now directly deposit money into its employee‘s bank account. These transfers are done through Automated Transfer Houses.

**How does electronic payment system works?**

Electronic payments are instant and therefore convenient, saving a lot of time. How simply, with a click of a button, you successfully pay for your favourite dress, or order groceries or make an online booking. Even though all of this happens in a span of seconds, the process behind this is quite comprehensive.




**Source: https://www.atomtech.in/**

**Customer Action:** The journey of an electronic payment begins with a customer visit a merchant's site, add products or services they want to the cart and clicks on the checkout button. Post this, the customer chooses his preferred form of payment option and proceeds towards filling in the banking or card details. The customer then, is redirected to the bank's page to proceed with the payment.

**Payment Authentication and Authorization by the Operator:** Once the customer proceeds with the payment, the payment gateway along with various parties involved, authenticates if the payment information entered is valid. Upon entering valid information, a successful transaction message is reported back by the payment gateway, informing the customer about the payment confirmation on real-time basis.

**Payment Settlement in Merchant's Account:** On fulfilling the transaction, the Online payment provider receives payment from the customer's bank account and transfers the same into the Merchant's account.

**Problems with the traditional payment systems:**

1. **Lack of Convenience:** Traditional payment systems require the consumer to either send paper cheques by snail-mail or require him/her to physically come over and sign papers before performing a transaction. This may lead to annoying circumstances sometimes.

2. **Lack of Security:** This is because the consumer has to send all confidential data on a paper, which is not encrypted, that too by post where it may be read by anyone.

3. **Lack of Coverage:** When we talk in terms of current businesses, they span many countries or states. These business houses need faster transactions everywhere. This is not possible without the bank having branch near all of the company‘s offices.

4. **Lack of Eligibility:** Not all potential buyers may have a bank account.

5. **Lack of support for micro-transactions:** Many transactions done through the Internet are of very low cost though they involve data flow between two entities in two countries. The same if done on paper may not be feasible at all.

**Advantages of Electronic payment system:**

E-payment system has stunned the financial market in a way people could have never thought of. With the growing popularity of online shopping, electronic payments have become a need of the hour for the customers who buy online, making shopping and banking services more convenient than ever.

**Here are some of the key benefits for merchants adopting e-payment:**

1. When retailers or online shoppers promotes/supports e-payments system on their website, they can reach out to more prospects from all over the globe, therefore resulting in increased sales and revenue growth.

2. The e-payments system is a channelized and systematic structure of money collection where transactions and payment transfers happen within minutes, topped with high speed and accuracy.

3. Convenience is yet another feather to its hat. Customers today can indulge in shopping and banking services at any time of the day or hour, simply with an internet connection.

4. Lower transaction cost and decreased technology costs only adds more profits to the business and encourages regular discounts on products which leads to bulk purchase by consumers.

5. E-Payment gateways providers offer high security and anti-fraud to make transactions more reliable, safe and secure for both- the merchants and the consumers!

E-payments are considered as one of the fastest and most secured alternative to traditional payment methods like cash & cheques. Accepting electronic payments comes with lots of benefits for both merchants and consumers as it is highly effective for international transaction and is comparatively cheaper.

With e-commerce and m-commerce getting bigger year after year, make sure your website does not miss out on customers simply because it is not integrated with an electronic payment system. Atom's payment gateway lets you accept electronic or online payments through multiple modes, helping you to translate more sales.



## 4.2 TYPES OF E-PAYMENT SYSTEM

Electronic payment systems are proliferating in banking, retail, health care, online markets, and even government—in fact, anywhere money needs to change hands. Organizations are motivated by the need to deliver products and services more cost effectively and to provide a higher quality of service to customers. The emerging electronic payment technology labelled Electronic Funds Transfer (EFT)

EFT is defined as ―any transfer of funds initiated through an electronic terminal, telephonic instrument, or computer or magnetic tape so as to order, instruct, or authorize a financial institution. EFT can be segmented into three broad categories:

**1. Banking and financial payments:**

- Large-scale or Wholesale payments (e.g., bank-to-bank transfer)

- Small-scale or Retail payments (e.g., automated teller machines)
- Home banking (e.g., bill payment)

**2. Retailing payments:**

- Credit Cards (e.g., VISA or MasterCard)
- Private label credit/debit cards (e.g., J.C. Penney Card)
- Charge Cards (e.g., American Express)

**3. On-Line Electronic Commerce payments:**

- Token-based payment systems
  - Electronic cash (e.g., Digi Cash)
  - Electronic checks (e.g., Net Cheque)
  - Smart cards or debit cards (e.g., Mondex Electronic Currency Card))
- **Credit card-based payments systems:**
  - Encrypted Credit Cards (e.g., World Wide Web form-based encryption)
  - Third-party authorization numbers (e.g., First Virtual)

### 4.2.1 E Cash and Currency Services:

Since the explosion of the Internet, more and more people are being hooked to the convenience Internet has to offer. Internet has connected people around the world and subsequently enables businesses to offer products and services around the globe without being physically present in front of the consumers or potential consumers. As time goes by, Internet has become a part of the daily life, which demands more and more applications being created and services being made available to make full use of the infrastructure. In line with the online business transaction, E-cash is one of the services that attract people attention for doing business transaction electronically. It is a replacement for traditional coins and paper notes, which is not viable for e-commerce. Another alternative for online payment scheme is the credit cards, however notational schemes such as credit cards require recording of transactions to be made into some individual accounts. This method requires a trust from the merchant site, which usually facilitated by verification authority such as credit-card issuer or payment gateway. Because of the "trust" requirement, this method normally eliminates user-merchant transactional anonymity. On the other hand token-based payment schemes such as E-cash does not require transactions to be recorded since the token itself allows straightforward verification by the merchant. Even though E-cash can achieve anonymity in its implementation, it can also be implemented as traceable for higher security reason. E-cash can be implemented in two

ways, on-line and off-line. On-line means E-cash is stored by the bank or issuer and consumer needs to request for it when a consumer makes payment. Different from online, off-line e-cash is kept by consumer in a devise such as smart card or other type of token. Each of this implementation can be classified as identified (traceable) or anonymous (untraceable). By identified implementation, it means each transaction needs verification and validation from third party such as bank. This implementation offers better security because it uses encryption and digital signature to secure and authenticate the E-cash message respectively. Identified implementation enables banks to track down individuals who actually use the E-cash to avoid double spending. This type of implementation is suitable for larger amount of transactions and especially for system that is available on the Internet. This method however, gives consumers less freedom compare to traditional cash transaction where consumers can spent money anywhere and anytime they want without the need of having a third party for verification.

Anonymous implementation is more close to traditional coins and paper notes payment system. The implementation is made possible by using blind/digital signature. Blind/ digital signature is used for encrypting messages and also signing for authentication purposes. When a digitally sign (blind) document is sent to a bank, the bank could ensure the authenticity of the document but does not know who sent it; therefore the consumer's identity is not revealed. The bank then signs the document making the document a certified document or in case of E-cash, the signing process produces certified E-cash. This implementation is highly suitable for micro payment. However, this type of implementation may introduce the problem of double spending and even if the banks discover the problem, it is difficult for the bank to trace the culprit who is double spending the E-cash.

### 4.2.2 General E-Cash Implementation:

So, how does E-cash work? There are many E-cash system being introduced and developed but the basic idea of E-cash is as follow. It involves at least three parties, issuer not necessarily financial institutions, consumer as the end-user who use the E-cash and merchant who accept E-cash in exchange with products or services provided.

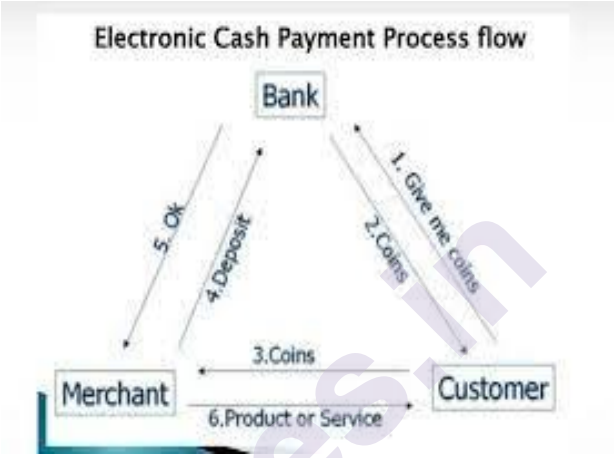
1. Consumer needs to open an account with a bank. Merchant who wants to participate in E-cash transaction need to have accounts with various banks in order to support consumer's transaction who might use any bank account. The banks on the other hand will handle both consumers' and merchants' accounts.

2. When consumer decides to purchase, he or she will transfers the E-cash from his/her bank account to his/her electronic purse (on-line system) or E-cash token (off-line system). The E-cash can then be transferred to the merchant in exchange with the merchant's products or services. The E-cash payment can be in term of softcopy (via

software) or token based. Transactions via Internet are normally encrypted.

3. Upon receiving E-cash payment from consumer, merchant will get confirmation from the bank. The bank will then authenticate the E-cash transaction. At the same time the bank will debit consumer's account based on the agreed amount. The merchant will then delivers the products or services and instructs the bank to deposit the agreed amount to the merchant's bank account.

The diagram below represent E-cash processes in general:




### 4.2.3 Properties of E-Cash:

To be able to replace coins and paper notes, E-cash should be as good as coins and paper notes in term of features. Some of the important features of coins and paper notes are: transferable, acceptable, dividable, untraceable and anonymous. Listed below are some of the important properties for E-cash implementation. Later discussions on E-cash implementations will be based on these few properties.

**1. Security:**

For any E-cash system to be accepted, security is one of the prime concerns that need to be considered. The originality of the message being transferred among consumers, merchants and banks need to be secured to avoid any unauthorized individual intercepting or changing the content of the messages. In order to protect E-cash from such illegal activity, E-cash system must possess quality such as integrity, nonrepudiation and able to authenticate. All parties must know to whom they are dealing with, before engaging or committing in any transaction. Integrity comes in place where the message sent by consumers, merchants and banks must be intact when it reaches respective recipients. Once the integrity and authentication are achieved, consumers, merchants or banks could no longer deny the transaction.

**2. Privacy:**

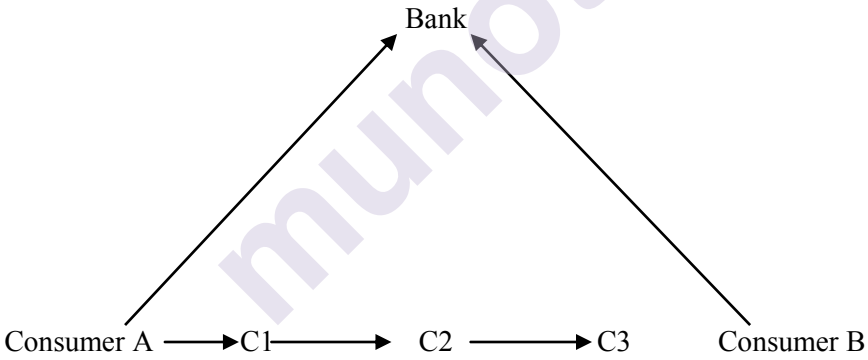
Privacy in E-cash means the existence of anonymity for the consumers who made the payment. Similar to coins and paper notes there should not be any link or trace to individual who uses the E-cash for any transaction. This feature is needed in order to protect consumers' privacy from being monitored for the purpose of financial surveillance. However, anonymity does impose certain danger such as counterfeiting, money laundering and blackmailing. Consumers should be aware that the more anonymity offered the less security achieved by the E-cash.

**3. Portability:**

E-cash should be portable, similar to the conventional money where it does not depends on physical location. E-cash should be transferable via network to portable storage devices.

**4. Transferability:**

Transferability features allow consumers to transfer E-cash from one person to another without a need to refer to the bank. Similar to conventional cash where coins or paper notes can be transferred easily, E-cash should be able to do the same. However, this feature imposes problem where double spending could not be trace since it might have been transferred to different entities too many times. The below diagram illustrates the transferability process of E-cash




**5. Divisibility:**

By divisible, it means E-cash should possess the ability to make change where E-cash can be divided into small denominations to allow small value transaction possible (this is known as micropayment). The challenge for divisible system is to be able to divide the E-cash value to small values where the total of the small E-cash value is equal to the original value. There are many systems being developed to solve divisible problem such as proposed by Eng, and Okamoto's scheme, Okamoto's scheme and Okamoto and Ohta's scheme, to name the few.

3.0 Some of The E-Cash Implementations This section discusses some of the famous implementations of E-cash. Some companies presented might no long in operation or change name, the objective of the paper is get the

understanding of E-cash implementation. The discussion will be focused on the methodology used and the properties presented earlier.

### 4.2.4 First Virtual:

First Virtual Holdings founded by Lee Stein in the late 1994 is one of the first companies who offer E-cash transferable via Internet. The system depends on electronic mail as the meant of communication among consumers, merchants and First Virtual. Consumers have to give away their credit card numbers as an exchange to First Virtual E-cash.

Consumers and merchants will be charge with extra charges for billing process. In summary, the First Virtual E-cash system works as follow:

1. Consumer opens account with First Virtual. Consumer must have an email account and credit card. First Virtual will give consumer an ID number as an exchange to consumer credit card number.

2. When consumer wants to purchase something from merchant who accepts First Virtual ID numbers, consumer will negotiate the price with merchant. Once agreed, consumer will give the merchant his or her First Virtual ID number.

3. The merchant then send an email to First Virtual's Internet Payment System server together with merchant's ID, consumer's IDs and description of the transaction such as the agreed price.

4. Upon receiving the merchant's email, the payment server will send an email to consumer for confirmation.

5. Consumers must reply to the email with any of these three answers:

- YES, means consumer agrees with the transaction and allows First Virtual to instruct the bank to debit the stated amount from consumer's credit card.

- NO, means consumer disagrees with the transaction and therefore no payment will be made. First Virtual however, will record all the refused transactions. This is done in order to avoid consumers from taking advantage of the merchants.

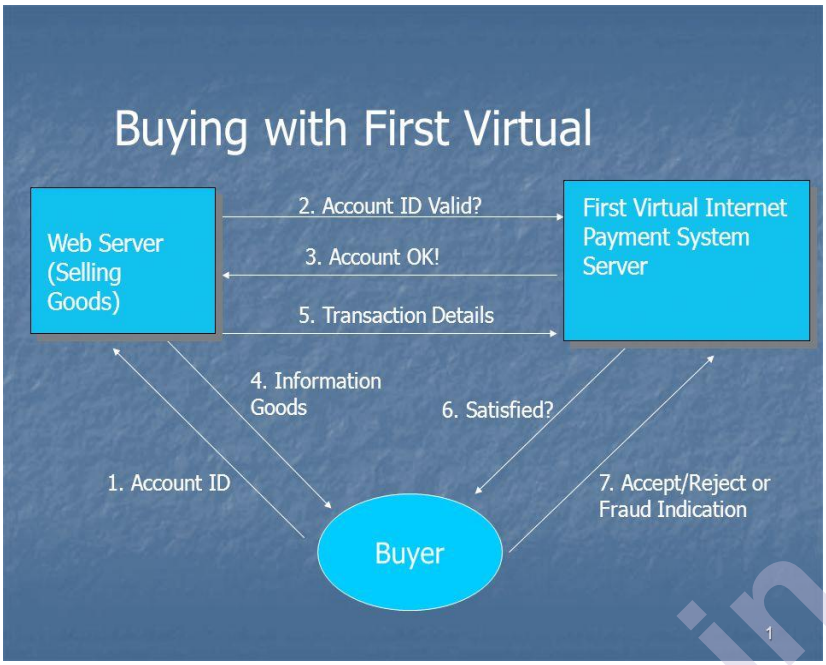
- Consumers who refuse transactions too often will then face the possibility of account termination.

- FRAUD means consumer do not initiate the transaction. First Virtual will conduct an investigation to determine the truth.

6. Once First Virtual acknowledges that the consumer has paid the credit card company,

First Virtual will credit the amount to merchant's account.

Below diagram illustrates the flow of First Virtual system.




From the description given above, First Virtual system can be categorized as identified on-line implementation where every transaction is being recorded and traceable with the need of a third party for verification. It also means the system does not provide privacy to consumers. In addition to consumer-to-merchant transaction, First Virtual also offers person-to-person E-cash transfer; therefore the E-cash introduced is transferable. This system has shown that the used of email makes it more portable since consumers could make the transaction anytime and anywhere, as long as there is a place for accessing email. Since the Internet infrastructure is getting better by the hour, consumers should not have any problem accessing email to initiate or verify transactions.

However, this system does not use neither encryption nor digital signature when sending email from consumers-to-merchants, merchants-to-First Virtual, First Virtual-to consumers and vice versa. Although the system claims that the security achieved by not having credit card numbers transfer on the Internet but the transfer of First Virtual ID from consumers to merchants is not secured and can be intercepted. The system also emphasize that consumers verification via email is enough to secure the transaction, but then again the email message is transfer on the open network in the plain text where the email can be intercepted and sabotaged by others.

Even though First Virtual implementation does not employs encryption, it is possible for the parties involve to secured their emails and their transactions. Meaning, consumers can encrypt their emails (could use non-commercial PGP) before submitting, merchants can development secure communication applications for consumers by utilizing secure protocol such as SSL to transfer the First Virtual ID and merchants can also use secured email to send details to the bank.

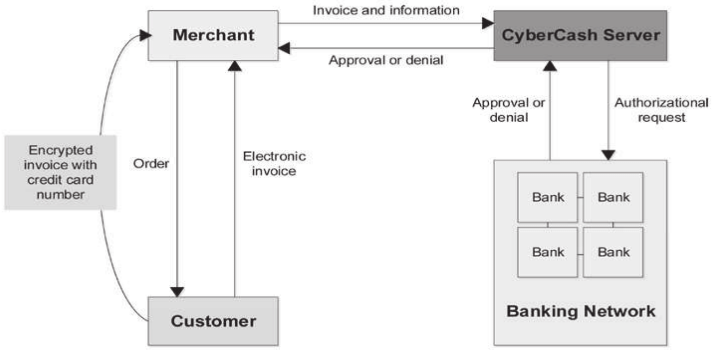
### 4.2.5 CyberCash:

CyberCash is an U.S.A based company, founded by Bill Melton and Daniel Lynch in 1994. CyberCash system is using what they called "Wallet" as a medium to handle credit cards, currencies, checks and CyberCoin. CyberCoin is a system to handle micropayment less than $10. CyberCash supports not only consumer-to-merchant but also consumer-to consumer services. Below is the description of how the implementation works:

1. Consumer request "Wallet" by downloading the free software from CyberCash Internet server. The software will establish links among consumer, merchant, CyberCash and consumer's bank. Consumer then will received a 768-bit RSA key and use a password to secure the key.
2. Once consumer decides to purchase, he or she will sends his or her "Wallet" via the communication software by pressing the "PAY" button. The system will then activate merchant's CyberCash software on merchant's storefront. The merchant sends consumer an electronic invoice with the detail information of the transaction.
3. Upon receiving the invoice, consumer will sign the invoice by adding his or her credit card number, name as appeared on the card and the credit card expiration date. The Wallet" will encrypt the signed document with CyberCash's public key and send the document to both CyberCash and merchant.
4. Merchant who received the signed document will then add merchant's identification information and price before signing it and forward it to CyberCash.
5. CyberCash who received signed documents from both consumer and merchant will unbind the document and compare the stated price. If the stated price is the same, CyberCash will instruct the bank to deduct the agree amount from consumer's credit card, credit the same amount to merchant's account. Details of the transaction are then send to the merchant.

1. Merchant will finally deliver the purchased product or service.

The below diagram summarizes CyberCash processes




**SOURCE: https://www.researchgate.net/figure/An-Online-Payment-Using-Cybercash-Software-13_fig2_261712275**

The implementation of CyberCash is based on on-line identified E-cash. Every transaction is recorded, traceable and needs third party verification. The use of encryption enables the documents to be authenticated. The system does support divisible property with the introduction of CyberCoin.

However, CyberCash does not protect consumer's privacy where consumer and merchant's identities are revealed before any transaction can be completed. In term of portability,

"Wallet" can only be installed on consumer's computer; therefore consumer could only make transactions from a computer where the "Wallet" is installed. This system support both transfers but from consumer-to-consumer and consumer-to-merchant transfer

### 4.2.6 DigiCash:

Founded by David Chaum in 1994, DigiCash is located in Amsterdam. The system was designed based on Chaum's digital cash system. DigiCash system uses digital signature for encryption and "blind" signature for authentication to ensure the security of transactions and to protect consumers, merchants and banks from illegal activities

DigiCash was designed to provide payment from one computer to another computer through Internet. DigiCash offers both anonymity and identified for both of its on-line and off-line services. The E-cash product introduced by DigiCash is called "e-cash" where it uses RSA encryption algorithm.

**The system works as follow:**

1. Consumer who wants to use DigiCash must open an account with bank that provides on-line DigiCash system.

2. Ecash software will generate a pair of keys, private and public keys when it is first executed on consumer's computer. The consumer will keep the private key, which is use to sign E-cash transactions originated from consumer. Public key will be made available for banks, merchants and other people to verify any messages or E-cash transferred from consumer.

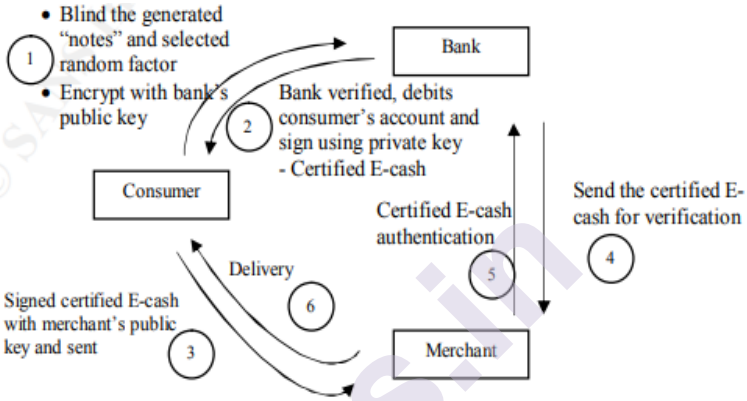
3. When consumer decides to purchase, consumer's computer will determine the denominations based on the amount needed and generate matching random serial numbers acting as "notes" for each denomination. The consumer's computer will also generate a selected random factor use to blind the denominations/random serial numbers. The blinded random serial numbers or the blinded "notes" are then encrypted with the bank's public key before sending it to bank for certifying.

4. The bank decrypts the message using it's private key. Once the message is decrypted, the bank will debit the amount found from the message from consumer's account. In exchange with the debited

amount, the bank then certified the blinded "notes" found in the message with it's private key. The signed blinded "notes" is then send back to consumer who will take out the blinding factor before using the "notes" in payment. Both the random serial numbers (the "notes") and the signatures (consumer's and bank's) are the certified E-cash.

5. Upon payment, the certified E-cash is sent to merchant who will send it to the bank for verification. The bank will verify whether E-cash is valid and have not been used before.

The diagram shown below is the visualization of the above process:




**SOURCE https://www.giac.org/paper/gsec/1799/overview-e-cash-implementation-security-issues/103204**

DigiCash system offers both anonymity for on-line and off-line services and the system allows transfers from consumer-to-consumer in additional to consumer-to-merchant. The certified E-cash is portable since it is a softcopy based, where it can be stored and transferred to other devices, making it easy and convenient to use. It also protects consumer's privacy via blind signature. The bank cannot make any connection as to who signed the document because only consumer know the random factor use in the blind signature.

Another property is the divisible feature that comes from the introduction of CyberCoin to handle micropayment. In term of security, DigiCash provides better security by using digital signature to authenticate the message send and received. Using this approach, bank's public key is available for both consumer and merchant, making it possible for both parties to authenticate the message.

However, both parties are unable to forge bank's signature since only the bank has the matching private key to sign (certified) the E-cash. Consumer is also being protected against illegal merchant activities and mistreated attempts by bank.

### 4.2.7 Mondex:

The development of Mondex started in the early 1990s. The concern on security has brought Mondex (E-cash application) and Multos (E-cash smart card based operating system) to the highest achievement in security

recognition; level E6 was awarded in 1999 by UK IT security Evaluation and Certification (ITSEC). Recognition has proved that Mondex is one of the most secured E-cash applications available today.

Mondex is an E-cash application, based on smart card where the E-cash is stored in the chip located in the smart card. The concept of Mondex is similar to DigiCash. Consumer requests E-cash from bank.

When consumer decides to purchase, consumer's E-cash will be transferred to the merchant who will then send it to the bank for verification and cashing. Upon receiving the E-cash, bank will verify and certify the E-cash, at the same time consumer's accounts will be debited and the same amount will be credited to the merchant's account.

Finally, the merchant will deliver the products or services to the consumer. Mondex is offering anonymity on both of its on-line and off-line services. For off-line transactions, merchant can do verification after the transaction completed (This might expose merchant to double spending that is difficult to trace).

Besides consumer-to-merchant transaction, Mondex also allows consumer-to-consumer E-cash transfer. In short Mondex had fulfilled almost all the desirable properties of E-cash mentioned earlier. It has security, which is based on digital signature where each message transfer among bank, merchant and consumer can be authenticated. The system is portable with the use of smart card. Mondex system also protects consumer's privacy by using blind signature. In term of divisibility, Mondex declares that the system is able to handle micropayment as small as one cent.

### 4.2.8 Advantages of E-Cash to consumer:

E-cash is more than a convenient way of carrying cash, since it also opens avenue for e-commerce to take place. Consumer only needs to have smart card like devices to initiate transaction, either on-line or off-line. For some implementations, E-cash can be stored in a computer for easy transfer over the Internet for on-line transaction. Anonymity implementation gives consumer a privacy to use E-cash just like the conventional coins and paper notes. Consumers are also able to make transactions without the need of third party verification. E-cash environment enables consumers to purchase small item over the Internet, which is cumbersome in other implementations such as credit cards. To merchant, E-cash provides an opportunity to expand their businesses across the globe without the barrier of different currencies. By using identified approach, merchant can be protected against fraud, since each transaction needs verification from financial institutions or banks. For the banks, E-cash implementation does reduce cost in maintaining cash in the bank and therefore increase bank management efficiency. Furthermore with E-cash, banks are now able to provide their services to the world via the Internet more easily.

### 4.2.9 Disadvantages of E-Cash:

One of the disadvantages of E-cash is the existence of counterfeiters who are able to recreate E-cash either stored in smart card or softcopy based. All parties involve, consumers, merchants and banks/issuers, are affected by this counterfeit activity. Liability of the loss E-cash on damage smart card or crashed computer where the E-cash is installed is also in question. Although the number of Internet users is increasing in number, there are many others who do not have the opportunity to own computers and get connected to the Internet. These are the people who will be left behind even further with the introduction of the E-cash. Not to mention that consumer needs to learn new things such as installing software on the computer and understand how E-cash software operates. Furthermore, the numbers of participating companies are still low and it seems companies are not willing to accept e-cash system in order to attract more consumers.

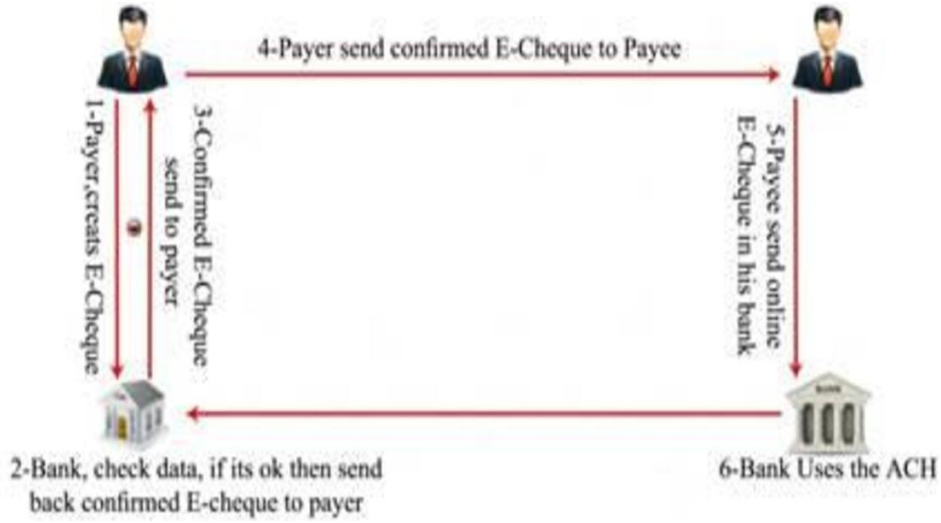
This phenomena might relate to the fact that additional fee is incur as processing charges by banks to merchant and consumer. These additional charges are non-issue in conventional payment system but can mounting to a huge sum in E-cash implementation. Other issue of E-cash is money monitoring by the government. With the conventional coins and paper notes, government can monitor money flow to stabilized economy, but with E-cash, there is no foreseeable way for the government to control the flow of E-cash in and out of a country. Even more mind-boggling is how a government can calculates or collects taxation from untraceable E-cash asset.

### 4.2.10 E-Cheques:

Electronic cheques are designed to accommodate the many individuals and entities that might prefer to pay on credit or through some mechanism other than cash. Electronic cheques are modelled on paper cheques, except that they are initiated electronically, use digital signatures for signing and endorsing, and require the use of digital certificates to authenticate the payer, the payer's bank, and bank account. The security/authentication aspects of digital cheques are supported via digital signatures using public-key cryptography. Ideally, electronic cheques will facilitate new online services by: allowing new payment flows (the payee can verify funds availability at the payer's bank); enhancing security at each step of the transaction through automatic validation of the electronic signature by each party (payee and banks); and facilitating payment integration with widely used EDI-based electronic ordering and billing processes.

Electronic cheques are delivered either by direct transmission using telephone lines, or by public networks such as the Internet. Electronic cheques payments (deposits) are gathered by banks and cleared through existing banking channels, such as automated clearing houses (ACH) networks.

Electronic cheques address the electronic needs of millions of businesses, which today exchange traditional paper cheques with the other vendors, consumers and government.




**Source: https://www.semanticscholar.org/paper/Trust-in-E-Cheque-in-Electronic-Payments-Shahbahrami-Nobakht/41cd963100de3bb1aa3d375055141f7754e128e4**

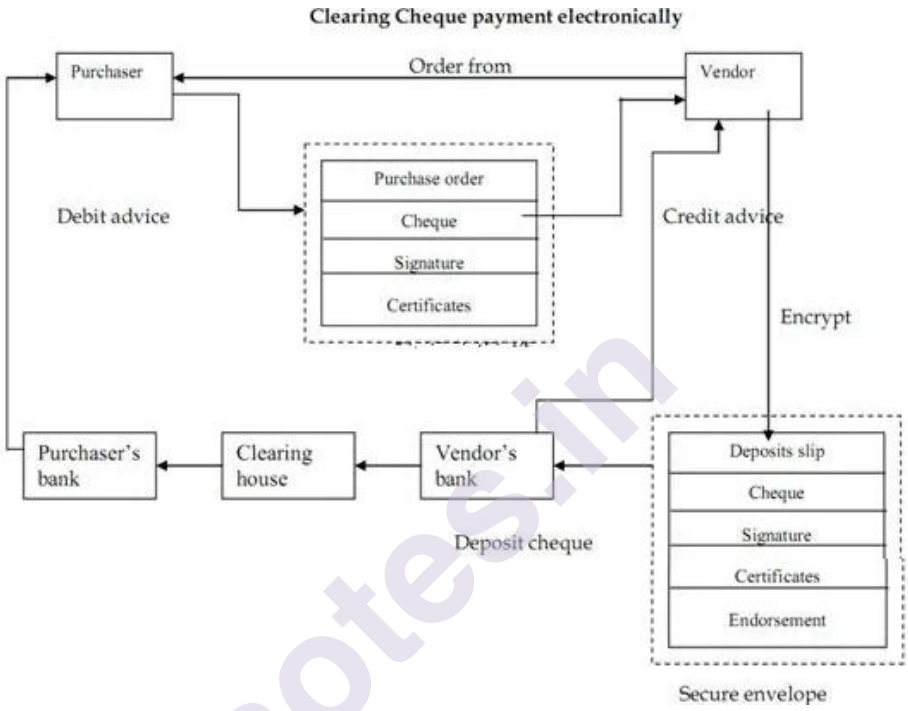
Electronic cheque system has many advantages:

1. They do not require consumers to reveal account information to other individuals when setting an auction.
2. They do not require consumers to continually send sensitive financial information over the web.
3. They are less expensive than credit cards and
4. They are much faster than paper based traditional cheque.

But, this system of payment also has several disadvantages. The disadvantage of electronic cheque system includes their relatively high fixed costs, their limited use only in virtual world and the fact that they can protect the users €Ÿ anonymity. Therefore, it is not very suitable for the retail transactions by consumers, although useful for the government and B2B operations because the latter transactions do not require anonymity, and the amount of transactions is generally large enough to cover fixed processing cost. The process of electronic chequing system can be described using the following steps:

- **Step 1:** a purchaser fills a purchase order form, attaches a payment advice (electronic cheque), signs it with his private key (using his signature hardware), attaches his public key certificate, encrypts it using his private key and sends it to the vendor.
- **Step 2:** the vendor decrypts the information using his private key, checks the purchaser's certificates, signature and cheque, attaches his deposit slip, and endorses the deposit attaching his public key certificates. This is encrypted and sent to his bank.

- **Step 3:** the vendor's bank checks the signatures and certificates and sends the cheque for clearance. The banks and clearing houses normally have a private secure data network.
- **Step 4:** when the cheque is cleared, the amount is credited to the vendor's Account and a credit advice are sent to him.
- **Step 5:** the purchaser gets a consolidated debit advice periodically.




E-cheque provide a security rich Internet payment option for businesses and offer an easy entry into electronic commerce without a significant investment in new technologies or legal systems.

### 4.2.11. Credit cards:

**Credit Card:**

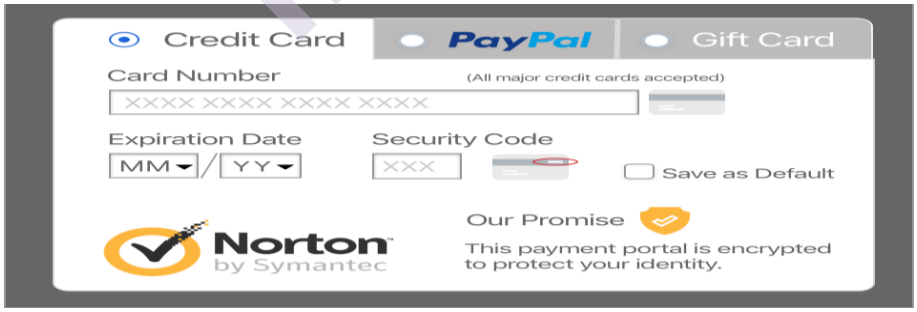
Payment using credit card is one of most common mode of electronic payment. Credit card is small plastic card with a unique number attached with an account. It has also a magnetic strip embedded in it which is used to read credit card via card readers. When a customer purchases a product via credit card, credit card issuer bank pays on behalf of the customer and customer has a certain time period after which he/she can pay the credit card bill. It is usually credit card monthly payment cycle. Following are the actors in the credit card system.

- **The card holder** – Customer
- **The merchant** – seller of product who can accept credit card payments.
- **The card issuer bank** – card holder's bank

- **The acquirer bank** – the merchant's bank
- **The card brand** − for example, visa or Mastercard.

**Credit Card Payment Process:**

| Step | Description |
|---|---|
| Step 1 | Bank issues and activates a credit card to the customer on his/her request. |
| Step 2 | The customer presents the credit card information to the merchant site or to the merchant from whom he/she wants to purchase a product/service. |
| Step 3 | Merchant validates the customer's identity by asking for approval from the card brand company. |
| Step 4 | Card brand company authenticates the credit card and pays the transaction by credit. Merchant keeps the sales slip. |
| Step 5 | Merchant submits the sales slip to acquirer banks and gets the service charges paid to him/her. |
| Step 6 | Acquirer bank requests the card brand company to clear the credit amount and gets the payment. |
| Step 7 | Now the card brand company asks to clear the amount from the issuer bank and the amount gets transferred to the card brand company. |




**Source: https://shannonlangan.medium.com/anatomy-of-e-commerce-credit-card-input-3c6288bef623**

### 4.2.12 Debit Card:

Debit card, like credit card, is a small plastic card with a unique number mapped with the bank account number. It is required to have a bank account before getting a debit card from the bank. The major difference between a debit card and a credit card is that in case of payment through

debit card, the amount gets deducted from the card's bank account immediately and there should be sufficient balance in the bank account for the transaction to get completed; whereas in case of a credit card transaction, there is no such compulsion.

Debit cards free the customer to carry cash and cheques. Even merchants accept a debit card readily. Having a restriction on the amount that can be withdrawn in a day using a debit card helps the customer to keep a check on his/her spending


**Source: https://www.shutterstock.com/image-vector/debit-card-sign-online-shopping-ecommerce-1490900183**

## Difference between Credit Cards And Debit Cards:

### 4.2.13 Smart Card:

Smart card is again similar to a credit card or a debit card in appearance, but it has a small microprocessor chip embedded in it. It has the capacity to store a customer's work-related and/or personal information. Smart cards are also used to store money and the amount gets deducted after every transaction.

Smart cards can only be accessed using a PIN that every customer is assigned with. Smart cards are secure, as they store information in encrypted format and are less expensive/provides faster processing. Mondex and Visa Cash cards are examples of smart cards.

**How Smart Cards are made:**

Construction of smart cards include four major steps

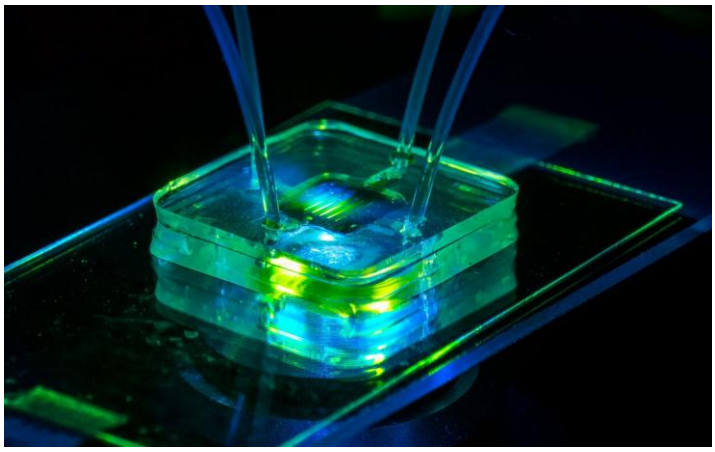
**1) Designing:**

**Source: https://www.schoolsmartcards.com/blog/smart-cards/**

This is the foremost step that requires a programmer or a designer to set the clock speed, the memory size of the chip, volatile memory types, operating system, etc.

The programmer should create an application software for the card based on the card type. He/she should also add the required features

**2) Fabrication of the chip:**



**Source: https://www.schoolsmartcards.com/blog/smart-cards/**

During this second stage, the silicon chip is being fixed into it. This silicon chip is connected to wires by bounding or soldering them together. Then, the chip on board substrate is being sealed with epoxy resin and glued to the substrate of the card. The substrate is often made of any synthetic plastic or using PVC.

**3) Coding:**

By using the special commands, codes are being entered into the chip memory. This is an integral and vital part of card making.

**4) Loading Data:**

Personal details of the users are being entered in this final stage.

**Smart Card working process:**

- **Step-1:** Smart card is inserted into the card reader which reads the information from the smart card.
- **Step-2:** After the card reader reads information from the card it passes the information to the payment system or authentication system.
- **Step-3:** There after the payment system or authentication system authenticated the user that whether the provided data matches with the database.
- **Step-4:** In last step the payment system or the authentication system does the required task.

**Types of Smart Cards:**

**1. Contact Smart Card:**

This type of smart cards are embedded with electrical contacts which are used to connect to the card reader where the card is inserted. The electrical contacts are deployed on a conductive gold plated coating on the card surface.

**2. Contact less Smart Card:**

This type of smart card establishes connection with the card reader without any physical contact. It consists of an antenna by means of which it is used to communicate using radio frequency band with the antenna on the reader. It receives power from the reader via the electromagnetic signal.

**3. Dual-interface cards:**

This type of smart card is equipped with both contact less and contact interfaces. This type of card enables secure access to the smart card's chip with either the contact less or contact smart card interfaces.

**4. Memory based smart card:**

This type of smart cards are embedded with memory circuits. It stores, reads and writes data to a particular location. It is straight memory card which is only used to store data or a protected memory card with a restricted access to the memory and which can be used to write data. It can also be a rechargeable or a disposable card which contains memory units which can be used only once.

**5. Microprocessor based smart card:**

This type of smart cards consist of microprocessor embedded onto the chip in addition to the memory blocks. It also consists of specific sections of files related with a particular function. It allows for data processing and manipulations and can be used for multi functioning.

**6. Hybrid smart card:**

Hybrid smart card embedded with both memory and microprocessor. Two different chips are used for different applications connected to a single smart card based on the different functionality as the proximity chip is used for physical access to prohibited areas while the contact smart card chip is used for sign in authentication.

**Applications of Smart Card:**

Smart Card is widely used in the following fields:

1. Telecommunications

2. E-commerce

3. Banking applications

4. Government applications

**4.2.14 Electronic purses:**

Electronic purse or e-purse is a type of smart card, with an embedded microchip, provides multiple options such as payment by debit card or credit card. It is a state-of-the-art cash on card which facilitates purchase of goods and payment for services. In other words, cash is stored electronically on a microchip. It can place cash for small payments.

**Features of e-purse:**

- It is issued by banks to their customers
- Money is transferred from the customer's account to the e-purse using a load device
- The transaction is protected by PIN
- Payment of e-purse may be online or offline

- The money in the e-purse can be used by the card holder for making payments

**Advantages:**

- Bankers can reduce cash and cheque handling cost
- Customers need not keep cash to make payments
- It provides privacy
- It is more flexible and more accessible
- It is useful than debit and credit cards

**Disadvantages:**

- The banker may charge for using e-purse
- Merchants do not favour this form of payments
- Technical limitations
- It may be misused

## 4.3 OPERATIONAL, CREDIT AND LEGAL RISKS OF E-PAYMENT

**Operational Risk:**

Operational risk Operational risk arises from the potential for loss due to significant deficiencies in system reliability or integrity. Security considerations are paramount, as banks may be subject to external or internal attacks on their systems or products. Operational risk can also arise from customer misuse, and from inadequately designed or implemented electronic banking and electronic money systems. Many of the specific possible manifestations of these risks apply to both electronic banking and electronic money.

**Security risks:**

Operational risk arises with respect to the controls over access to a bank's critical accounting and risk management systems, information that it communicates with other parties and, in the case of electronic money, measures the bank uses to deter and detect counterfeiting. Controlling access to bank systems has become increasingly complex due to expanded computer capabilities, geographical dispersal of access points, and the use of various communications paths, including public networks such as the Internet. It is important to note that with electronic money, a breach of security could result in fraudulently created liabilities of the bank. For other forms of electronic banking, unauthorized access could lead to direct losses, added liabilities to customers or other problems.

A variety of specific access and authentication problems could occur. For example, inadequate controls could result in a successful attack by hackers operating via the Internet, who could access, retrieve, and use confidential customer information. In the absence of adequate controls, an outside third party could access a bank's computer system and inject a virus into it. In addition to external attacks on electronic money and electronic banking systems, banks are exposed to operational risk with respect to employee fraud: employees could surreptitiously acquire authentication data in order to access customer accounts, or steal stored value cards. Inadvertent errors by employees may also compromise a bank's systems. Of direct concern to supervisory authorities is the risk of criminals counterfeiting electronic money, which is heightened if banks fail to incorporate adequate measures to detect and deter counterfeiting.

A bank faces operational risk from counterfeiting, as it may be liable for the amount of the falsified electronic money balance. In addition, there may be costs associated with repairing a compromised system.

**Systems design, implementation, and maintenance:**

A bank faces the risk that the systems it chooses are not well designed or implemented. For example, a bank is exposed to the risk of an interruption or slow-down of its existing systems if the electronic banking or electronic money system it chooses is not compatible with user requirements.

Many banks are likely to rely on outside service providers and external experts to implement, operate, and support portions of their electronic money and electronic banking activities. Such reliance may be desirable because it allows a bank to outsource aspects of the provision of electronic banking and electronic money activities that it cannot provide economically itself.

However, reliance on outsourcing exposes a bank to operational risks. Service providers may not have the requisite expertise to deliver services expected by the bank, or may fail to update their technology in a timely manner. A service provider's operations could be interrupted due to system breakdowns or financial difficulties, jeopardizing a bank's ability to deliver products or services.

The rapid pace of change that characterizes information technology presents banks with the risk of systems obsolescence. For example, computer software that facilitates the use of electronic banking and electronic money products by customers will require updating, but channels for distributing software updates pose risks for banks in that criminal or malicious individuals could intercept and modify the software.

In addition, rapid technological change can mean that staff may fail to understand fully the nature of new technology employed by the bank. This could result in operational problems with new or updated systems.

**Customer misuse of products and services:**

As with traditional banking services, customer misuse, both intentional and inadvertent, is another source of operational risk. Risk may be heightened where a bank does not adequately educate its customers about security precautions. In addition, in the absence of adequate measures to verify transactions, customers may be able to repudiate transactions they previously authorized, inflicting financial losses on the bank.

Customers using personal information (e.g., authentication information, credit card numbers or bank account numbers) in a non-secure electronic transmission could allow criminals to gain access to customer. Subsequently, the bank may incur financial losses because of transactions customers did not authorize.

**Legal risk:**

Legal risk arises from violations of, or non-conformance with laws, rules, regulations, or prescribed practices, or when the legal rights and obligations of parties to a transaction are not well established. Given the relatively new nature of many retail electronic banking and electronic money activities, rights and obligations of parties to such transactions are, in some cases, uncertain.

For example, application of some consumer protection rules to electronic banking and electronic money activities in some countries may not be clear.

In addition, legal risk may arise from uncertainty about the validity of some agreements formed via electronic media. Electronic money schemes may be attractive to money launderers if the systems offer liberal balance and transaction limits, and provide for limited auditability of transactions.

Application of money laundering rules may be inappropriate for some forms of electronic payments. Because electronic banking can be conducted remotely, banks may face increased difficulties in applying traditional methods to prevent and detect criminal activity. Banks engaging in electronic banking and electronic money activities can face legal risks with respect to customer disclosures and privacy protection.

Customers who have not been adequately informed about their rights and obligations may bring suit against a bank. Failure to provide adequate privacy protection may also subject a bank to regulatory sanctions in some countries. Banks choosing to enhance customer service by linking their Internet sites to other sites also can face legal risks.

A hacker may use the linked site to defraud a bank customer, and the bank could face litigation from the customer. As electronic commerce expands, banks may seek to play a role in electronic authentication systems, such as those using digital certificates.

The role of a certification authority may expose a bank to legal risk.

For example, a bank acting as a certification authority may be liable for financial losses incurred by parties relying on the certificate. In addition, legal risk could arise if banks participate in new authentication systems and rights and obligations are not clearly specified in contractual agreements.

**Other risks:**

Traditional banking risks such as credit risk, liquidity risk, interest rate risk, and market risk may also arise from electronic banking and electronic money activities, though their practical consequences may be of a different magnitude for banks and supervisors than operational, reputational, and legal risks. This may be particularly true for banks that engage in a variety of banking activities, as compared to banks or bank subsidiaries that specialize in electronic banking and electronic money activities.

**Credit risk:**

This is the risk that a counterparty will not settle an obligation for full value, either when due or at any time thereafter. Banks engaging in electronic banking activities may extend credit via non-traditional channels, and expand their market beyond traditional geographic boundaries. Inadequate procedures to determine the creditworthiness of borrowers applying for credit via remote banking procedures could heighten credit risk for banks. Banks engaged in electronic bill payment programs may face credit risk if a third party intermediary fails to carry out its obligations with respect to payment. Banks that purchase electronic money from an issuer in order to resell it to customers are also exposed to credit risk in the event the issuer defaults on its obligations to redeem the electronic money.

**Liquidity risk** is the risk arising from a bank's inability to meet its obligations when they come due, without incurring unacceptable losses, although the bank may ultimately be able to meet its obligations. Liquidity risk may be significant for banks that specialize in electronic money activities if they are unable to ensure that funds are adequate to cover redemption and settlement demands at any particular time. In addition, failure to meet redemption demands in a timely manner could result in legal action against the institution, and lead to reputational damage.

**Interest rate** risk refers to the exposure of a bank's financial condition to adverse movements in interest rates. Banks specializing in the provision of electronic money may face significant interest rate risk to the extent adverse movements in interest rates decrease the value of assets relative to electronic money liabilities outstanding. 2.4.4 Market risk is the risk of losses in on- and off-balance sheet positions arising from movements in market prices, including foreign exchange rates. Banks accepting foreign currencies in payment for electronic money are subject to this type of risk.

**VARIOUS TYPES OF RISKS IN ELECTRONIC PAYMENT SYSTEM**

**Credit risk**: There is risk to a transaction if a party cannot provide the necessary funds for a settlement to take place. This can occur if an originator goes bankrupt or returns come in after settlement. Weaknesses such as a lack of appropriate exposure thresholds or limits, and inadequate originator credit analysis, elevate the potential for credit risk.

**Fraud risk**: There is the potential that a new transaction will be added to the processing stream for illicit reasons, or an existing transaction will be intentionally altered in an attempt to misdirect or misappropriate funds, NCUA wrote. Inadequate internal controls over physical security, data security, change controls and operational controls increase the potential for fraud and possible losses to a credit union.

**Compliance risk**: There is the possibility a credit union will fail to comply with regulatory requirements, including—but not limited to—the Electronic Funds Transfer Act, the Bank Secrecy Act, and requirements of the Office of Foreign Assets Control.

**Liquidity risk:** There is a possibility a credit union will be unable to settle an obligation for full value when it is due, cautioned the agency. This can occur when the credit union chooses not to warehouse ACH items (making funds available prior to effective date of the transaction), there are ineffective controls over overdrafts or management lacks a risk assessment on high-risk activities.

**Systemic risk:** There is the potential one or more participants in the clearing and settlement network will be unable or unwilling to settle its commitments. This could cause other participants to be unable to settle their commitments on one or more other payment networks.

**Operational and transaction risk**: There is a possibility that a credit union will have inadequate or failed internal processes, people and systems, stated NCUA. The potential for a non-posting or erroneous posting to a member account is something a credit union's management must be prepared for. Many financial institutions process payments across different retail and wholesale payment systems. The industry has identified this additional complexity as "cross-channel risk." In cross-channel risk, fraud can take place across multiple channels or access points a member does business through, such as the branch, call center, debit card, ATM, voice response unit or mobile banking site or application.

**Strategic risk:** There is the potential for risk when a credit union grows its payment services without adequate planning or offers new payment services without proper vendor due diligence.

**Reputation risk:** There is a possibility that a credit union will be unable to meet customer expectations with the delivery of retail payment services. Accounting for and mitigating these potential risks can be

difficult for even the most seasoned of managers, NCUA explained. Those who are considering providing one or all of these services to their members for the first time face even greater challenges.

## 4.4 RISK MANAGEMENT OPTIONS FOR E PAYMENT SYSTEMS

Risks from electronic banking and electronic money activities should also be evaluated in the context of other risks the bank faces. Even though electronic banking and electronic money activities may represent a relatively small portion of the overall activities of banks currently, supervisors may still require senior management's assurance that critical systems are not threatened by the risk exposures banks take.

The rapid pace of technological innovation is likely to change the nature and scope of risks banks face in electronic money and electronic banking. Supervisors expect banks to have processes that enable bank management to respond to current risks, and to adjust to new risks.

A risk management process that includes the three basic elements of assessing risks, controlling risk exposure, and monitoring risks will help banks and supervisors attain these goals. Banks may employ such a process when committing to new electronic banking and electronic money activities, and as they evaluate existing commitments to these activities. It is essential that banks have a comprehensive risk management process in place that is subject to appropriate oversight by the board of directors and senior management.

As new risks in electronic banking and electronic money activities are identified and assessed, the board and senior management must be kept informed of these changes. Prior to any new activity being commenced, a comprehensive review should be conducted so that senior management can ensure that the risk management process is adequate to assess, control and monitor any risks arising from the proposed new activity

Listed below are fifteen concrete steps that merchants operating in a card-not-present environment should incorporate into their e-commerce risk management systems. If implemented correctly and consistently, these suggestions will help you process card-not-present transactions securely and will substantially reduce customer disputes and fraud-related chargebacks.

**Educate and train your staff on e-commerce risk.** The extent of your risk exposure largely depends on your business policies, operational practices, the fraud detection and prevention tools you have implemented, security controls, and the types of products and services that you provide. Everyone in your organization should understand the risks associated with online transactions and be able to follow your established risk management procedures.

1. **Find the right payment processor:** The right credit card processing company will provide effective risk management support and help you understand the specific e-commerce fraud risk and liability. Adequate customer data protection capabilities are also something you will want to consider when making your selection.

2. **Create essential website content:** Your website must include and prominently display your privacy, shipping, return and refund policies. It must be reliable and to provide customers with easy and simple navigation. Placing links to these policies in the footer of your website will make them present on every page.

3. **Focus on risk reduction:** A well designed sales order process will help you address a number of risk concerns. You should indicate or highlight required transaction fields in your online payment acceptance form and verify card and cardholder information that you receive from your customers over the internet.

4. **Develop internal fraud prevention structure:** The profitability of your e-commerce organization depends on your internal strategies and controls for minimizing fraud. A risk management structure, combined with adequate transaction controls, will help you avoid fraud-related losses.

5. **Use fraud prevention tools:** There are a number of fraud prevention tools to help reduce your risk exposure. The most widely used among them are the Address Verification Service (AVS), the Card Security Codes (CVV2, CVC 2 and CID), Verified by Visa and MasterCard Secure Code.

6. **Build a fraud screening process:** When adequately implemented, the screening of online card transactions can help you minimize fraud for large-ticket items and for high-risk transactions.

7. **Protect your merchant account from intrusion:** Implementing proactive measures can minimize the risk of criminals gaining access to your shopping cart or payment gateway and making fraudulent fund deposits.

8. **Participate in Verified by Visa and MasterCard Secure Code:** The two fraud prevention tools enhance security by requiring cardholders to authenticate themselves by entering a password during the checkout. The password is verified by the card issuer and, if correct, the transaction is allowed to be completed. Implementing Verified by Visa and MasterCard Secure Code protects merchants from fraud-related chargebacks.

9. **Secure the process of routing your authorizations:** You must ensure that your authorization requests are submitted in a secure and efficient manner, before you can start accepting card payments over the internet.

10. **Establish a process for handling transaction post-authorizations:** You need to set up an effective process for dealing with approved and declined authorizations before fulfilling an order.

11. **Ensure PCI compliance:** The Payment Card Industry (PCI) Data Security Standards (DSS) provide web-based merchants with standards, procedures and tools for protecting sensitive account information. You will need reliable encryption capabilities for data transmission and effective internal controls for protecting stored card and cardholder information. You will also need to review your security measures on a regular basis.

12. **Minimize unnecessary chargebacks:** Chargebacks result in extra processing time and costs, while hurting your profits and may result in a loss of revenue. By carefully tracking and managing chargebacks, you will be able to set up concrete procedures for avoiding future chargebacks. You will also need to know your re-presentment rights.

13. **Monitor chargebacks:** Effective chargeback monitoring mechanisms will help you detect excessive chargeback activity, identify the causes, and apply corrective measures to bring chargeback levels down. You can develop your own monitoring process or implement a third-party solution.

14. **Use collection efforts to minimize losses:** You can utilize a third-party collection service or build your own to help recover unwarranted chargeback losses.

## 4.5 ORDER FULFILMENT FOR E COMMERCE

E-commerce in India has evolved tremendously over the past few years. From selling to a small group of people actively using the internet, e-Commerce has reached a vast consumer pool across the country. With the government taking initiatives to help online sellers, many are even beginning to sell their products abroad. People's expectations from e-Commerce businesses have also increased.

What seemed like an option to go for when you couldn't find something in the store, has now become a preference for many. So much so, that about 38% of sellers now say that they will abandon their cart if they do not receive their order within a week. But when we get to the bottom of it, what drives e-Commerce? It is not just a single process; it's a combination of different procedures and units that work in synchronization to deliver to you your desired product. Let's find out what these procedures are and how they function.

**What is Order Fulfilment?**

Order fulfilment refers to the entire process starting from the sale, up until the post-delivery experience of the customer. It covers all the essential aspects such as receiving, processing, and delivering orders.

Most e-Commerce sellers carry out order fulfilment themselves or outsource some of the operations.

Let's take a closer look at these steps to learn more about how e-Commerce fulfilment functions.

***Steps Involved in Order Fulfilment:***


**Source: https://www.shiprocket.in/blog/order-fulfillment/**

- **Inventory management:**

It is an ongoing process that runs simultaneously with storage and you can place it on the first or second position. For us, inventory management comes first because you need to have a good idea of your stock before you can begin processing any order. An updated inventory with SKUs marked for each product is non-negotiable.

Regular audits should be carried out to ensure its correct implementation. Deploy an Inventory Management System for better management of your products. Add SKUs and tally them with your products to avoid any confusion. Also, check if the items are in shape, if found defective, discard them and make arrangements to purchase new ones.

- **Inventory Storage & Warehousing:**

Inventory management also includes storing inventory. This step is one of the most crucial as it determines the speed of your fulfilment operations. If not done appropriately, you can spend time finding products that can lead to a delay in processing. Furthermore, you can also lose out on the stock if you don't store it correctly. Therefore, arrange your inventory in proper shelves and bins along with the correct labels to avoid any hassles during picking. Optimize your warehouse space to accommodate all items.

- **Receiving:**

This step runs parallel to inventory management. You can accept orders manually or integrate your cart or marketplace with software to directly fetch orders from your store. Once you have set your preferences for receiving requests, begin by sorting them by delivery dates. For example,

if a person has chosen one-day delivery, keep those orders on top priority. Send your customer an email confirming that you have received the order and estimated delivery date, if applicable. If you cannot provide a fixed delivery date, give a time frame as to when they can expect the delivery of their order.

- **Picking:**

Picking constitutes scanning through your warehouse and finding the product required by the customer. This order can include one product from one location or two products from two corners of your warehouse. Again, an uncomplicated picking is only possible with a sorted warehouse. If your business receives many orders, hire dedicated staff for warehouse logistics. This measure will help you accelerate your fulfilment process and also save costs by streamlining the procedure.

Also, one of the best order picking methods is batch picking in which multiple orders are grouped into smaller batches – typically including 10-20 orders. It increases the efficiency in the warehouse multi-folds. Invest in automation and technology to speed up the picking process.

- **Packaging:**

Packaging forms an essential part of the chain as it is a tangible representation of your brand. Therefore, you need to focus on different types of packaging and what works best for your business. You can invest in sturdy but straightforward packaging if you feel the packaging is not your primary focus or you can go for customized packaging if you can afford it. In whichever case, make sure your package is adequately packed, labelled, and matches the standards set by courier companies. The packing should be able to bear the friction caused due to transportation.

- ***Shipping:***

Without shipping, your customer cannot transform into a buyer. Therefore, it is the most vital component of your order fulfilment process. Make sure you carry out a thorough check before signing up with any courier company or aggregator. As shipping determines the final impression of your brand in your customers' mind, try to provide them with a seamless experience. Give them varied options for payment such as cash on delivery and prepaid fees. This step ensures they have variety and you do not restrict them to just one mode. Also, make sure you partner with a courier that provides you a broad reach across India and the world.

- ***Return order processing:***

Mostly, the order fulfilment chain ends at the delivery of the product. But with changing times, return orders are something added to your process. With increasing competition, return orders are unavoidable. Thus, handling them effectively is what counts. Therefore, opt for a method that can help you automate your NDR and further process return orders easily.

This way, you can also reduce your returns and save on return orders by a large margin.

***Order Fulfilment Challenges:***

**Inventory Stock Out:**

There are chances that you might run out of inventory while carrying out order fulfilment operations. Therefore, it is mandatory to have sophisticated inventory management systems in place to notify you about an approaching stock out.

**Seamless Distribution:**

If you do not have a strong distribution network, you will not be able to manage seamless delivery. Hence, look for 3PL providers that can simplify the order fulfilment process for you and provide a strong logistics distribution for hassle-free and delivery.

***How to Draft a Successful Order Fulfilment Strategy?***

It can be tricky to draft a strategy that successfully takes into account all these processes. You need to be aware of all aspects of your supply chain and then work around them to provide a superior experience to your customer.

Here are a few tips to get started for drafting an order fulfilment strategy that can help you deliver products on time and also improve customer satisfaction.

***Keep Regular Track of Inventory:***

It can be extremely disheartening for customers when they find out that the product that they ordered is out of stock. Either the customer will never shop from your store again, or lash out on social media to express their anger. Both ways, your brand will suffer. Instances like these make it imperative to streamline your fulfilment process to deliver orders quickly to your customers.

Inventory is the most critical area when it comes to order fulfilment. Your whole chain depends on it. Hence, you need to be focused on your inventory. Get into place an inventory management system that can help you get real-time cycle counts so that you're always aware when a product is out of stock or unavailable.

Without real-time inventory management, you cannot keep your warehouse organized or accurate. Integrate your inventory warehouse and water management system to stay up to date with all incoming, outgoing, and sourced orders.

***Adopt Product Kitting:***

Product Kitting can be extremely helpful for reducing processing time as well as fulfilment costs. Product kitting refers to a process where different

but related items are grouped, packaged, and supplied together as one unit.

Kitting has many advantages. You can improve productivity and reduce labour costs by storing products in separate kits. You can also reduce the inventory and improve cash flow.

***Automate your Warehouse:***

Technology has taken over every aspect of the fulfilment chain. Your warehouse should not be left behind. You must adopt a smart warehouse system and put in to use data driven technology to manage your inventory, warehouse organization, and logistics.

You can choose to automate your warehouse with technologies that include RFID identification, internet of things, or IoT for easier tracking, and barcodes.

Once you put to use a warehouse management system, you can reduce manual errors and process orders much faster.

***Maintain a Transparent Supply Chain:***

Supply Chain visibility on the major aspect of your strategies. With thorough supply Chain visibility, you can gain rich insights into your process and improve upon the areas that are not performing well. Once you begin tracking every step of the fulfilment chain. You will learn about the lacking areas and you can work on them.

For instance, if you track the picking activities in your warehouse and find out that manual picking of even lower shelved products increases time, you can move it to an automated process.

Therefore, it is a must to continuously track your supply chain and collect data.

It is essential that your order fulfilment process runs smoothly in order to deliver products hassle-free to your customers. Keep in mind the steps and formulate a strategy that works well for your business. Remember, it must keep your business edgy and you must always innovate to match the trends.

## 4.6 SUMMARY

The emergence of e-commerce has created new financial needs that in many cases cannot be effectively fulfilled by the traditional payment systems. The advent of the Electronic commerce has prompted the invention of several payment tools to facilitate the completion of business transactions over the Internet. There are different methods to pay electronically. Recognizing this, virtually all interested parties are exploring various types of electronic payment system and issues surrounding electronic payment system and digital currency. Broadly electronic payment systems can be classified into four categories: Online

Credit Card Payment System, Online Electronic Cash System, Electronic Cheque System and Smart Cards based Electronic Payment System. Each payment system has its advantages and disadvantages for the customers and merchants.

## 4.7 EXERCISES

1. In credit card

   i. No immediate payment is required

   ii. EMI is applicable

   iii. Customers spend unnecessarily

   iv. Payment can be made on emergencies only with the money available in the account

a. i, ii b. i, ii, iii c. iii, iv d. all of these

2. Advantages of smart card is/are…….

   i. Huge storage of information

   ii. Proper identification

   iii. Comes with cash back rewards

   iv. All of these

a. i, ii b. iv c. ii, iii d. i, iii

3. E-money system is/are……

   i. Faster

   ii. Convenient

   iii. Involvement of middle men

   iv. User friendly

a. i, ii, iii b. i, ii, iii, iv c. i, ii, iv d. ii, iv

4. E-wallet is/are……..

   i. Secured with password

   ii. Authenticates the holder's credentials

   iii. Stores personal information

   iv. Allows price comparison shopping

a. i, ii, iii, iv b. i, ii c. iii, iv d. i, ii, iii

5. Example of Electronic Fund Transfer (EFT) are……

   i. Various bill payments

   ii. Wire transfer

   iii. Direct deposit

   iv. automated ledger posting

a. i, ii, iii, iv b. i, ii, iii c. i, iii, iv d. ii, iv

6. The feature of digital signature are…….

   i. Authentication

   ii. Confidentiality

   iii. Repudiation

   iv. Integrity

a. i, ii, iii, iv b. i, ii, iv c. i, ii, iii d. none of these

7. Debit card is……

   i. Store value card

   ii. Prepaid card

   iii. An alternative cash or cheque

   iv. E-money

a. i, ii, iii b. i, iii c. all of these d. none of these

8. The advantages of smart card is/are…..

   i. Biometric security

   ii. Proper identification

   iii. Fairly cheap and re-useable

   iv. Come with cashback rewards

a. i, ii, iii b. i, ii, iii, iv c. i, iii d. none of these

9. E-money……

   i. Acts as a prepaid bearer instrument

   ii. Regulated by the RBI

   iii. Transfer of money necessarily involve bank account

   iv. No involvement of middlemen

a. i, ii, iv b. i, ii c. i, ii, iii d. all of these

10. Areas where ACH systems are used…….

    i. Payment of electronic bills, insurance premiums, rents etc., through direct debit from bank

    ii. Transfer funds at deferred date between payer and payee

    iii. Credit transfers includes direct deposit

    iv. Automated ledger posting

a. i, ii, iii b. i, ii c. iii, iv d. all of these

11. Section ……of IT act, 2000 equates electronic signature as traditional hand writing signatures.

a. 5 b. 15 c. 2 d. 3

12. Section …..of IT act, 2000 provide certain provision for secure digital signature.

a. 5 b. 15 c. 2 d. 3

13. Mismanagement or inadequate strategic decision taken by senior management for developing a strategy to provide information on how to use the services to the customer by using internet leads to…..

    a. Operational risk c. credit risk

    b. Strategic risk d. reputation risk

14. Lack of proper management of funding and investment-related risk of the bank leads to…..

a. Liquidity risk b. Strategic risk c. reputation risk
d. none of these

**ANSWERS:**

1.B 2.A 3.C 4.A 5.B 6.B 7.A 8.A 9.A 10.A 11.A[5]
12. B[15] 13.B[STRATEGIC RISK] 14.A[LIQUIDITY RISK]

**Short Notes:**

1. Write short note e payment system.
2. Short note on operational risk of e-payment system.
3. Write in short about smart card.
4. Short note on Digicash.
5. Short note on order fulfilment.

**Answer in brief:**

1. Explain at least 4 types of e-payment system in brief.
2. Write in brief about order fulfilment process.
3. What are various risks associated with electronic payment system? Explain in brief.
4. Differentiate between credit card and debit card payment system.
5. Define smart card and its working process. Write in short about various smart card system.

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# 5

# SECURITY ISSUES IN E-COMMERCE

**Unit Structure**

5.1 Introduction
5.2 Security Risks Of E-Commerce
5.3 Protecting Electronic Commerce Assets And Intellectual Property
5.4 Firewalls
5.5 Other E-Commerce Security Tools
5.6 Management Of It Risk
5.7 Salient Provisions For Security And Privacy
5.8 Legal And Regulatory Environment For E-Commerce
5.9 Cyber laws In India
5.10 Summary
5.11 Questions

## 5.1 INTRODUCTION

Businesses today are open to ample opportunities to generate revenue with the digitalization of businesses. The internet offers ample opportunities along with tremendous savings on cost with increased productivity. However, as it opens door for opportunities it also makes it vulnerable for the business to cyber-attacks or vulnerable to loss of valuable data or information that can be lost or stolen or corrupted or hacked by competitors or misused.

The availability of information on the internet with and available networked computers make thousands of private networks vulnerable to threats from anyone in the public network. Thus, safeguarding oneself from these threats is one of the most important aspect in the virtual world. In any form of physical crime, evidence could me mapped using footprints, fingerprints or any physical or electronic evidence, however it is difficult to map the evidence in case of a cybercrime until and unless one has a very strong security tools used. Thus safeguarding your system and network from any kind of malware, threats, ransom ware is utmost important for each organization, especially e-business as it is difficult to track the source of a cybercrime. Such website attacks in e-business can not only lead to network disruption but also can lead to loss of assets.

The other very important aspect to have strong security network in any e-commerce business is maintain strong and healthy customer relationships.

Several internet buyers today fear loss of personal information when they buy products and services and have to share their personal and bank details. It is still a cause of concern for many and if this customer perceived risks is not addressed with company measures for secured networks than it would have a manifold impact on the company's sales, brand and image. This customer perception can be a real cause of concern and can become a threat, challenging the existence of the company's e-business going forward.

Any business cannot have a perfect security network that can be obtained for its website or online business portal. But they can definitely plan to have a secured system to protect its assets and revenue streams, customer privacy and its brand image by having an adequate system security in place. Each organization has a different need for security networks, i.e. the security payment gateway of an online business is more critical section to be concentrated by e-business portals while a bank would have to have an entire online banking secured through stronger system in place. The need and type of security systems to be placed should be defined by the type of business and the vulnerability of processes to threats.

A number of top companies like Amazon, eBay, NASA, FBI, CNN and Baba Atomic Research Center (BARC) have all witnessed cyber-attacks at one point of time and safeguarding business and transaction information is of utmost importance. Thus internet based business need to address security at three levels:

1. **Site security:** This is also known as security of host computer. This security action or application is implemented to ensure website data is not exposed to cyber intruders.

2. **Services security:** The same is also known as security of information distribution services that support businesses to disseminate the product content to different channels. HTTPS servers, SMTPS servers and FTPS servers are examples of safe information distribution services available.

3. **Transaction security:** This is the most crucial security as it provides the customer privacy while performing buy sell transactions and safeguards the client-server network from attacks and breakdowns.

Each business type needs to understand their requirement and decide what all they intend to secure in order to understand the resource cost. Higher the security required higher will be the resource cost due to the requirement for a larger and more secured tools. An organization can map this requirement by doing a risk analysis audit for its assets and track the ones which require maximum protection, like the network, traffic volumes, number of transactions, in order to safeguard the most vulnerable processes under attack.

## 5.2 SECURITY RISKS OF E-COMMERCE

E-Commerce involves purchase and sales of product and services through on online mode. These commercial transactions can be conducted through use of mobile applications, Internet push advertisements or social media handles requiring use of online transaction processing or electronic funds transfer. These sites would further have their supply chain management, electronic data interchange (EDI), inventory management systems, enterprise resource planning systems (ERP) and automated data collection systems linked with the main e- business portal.

Security threat in e-commerce exists as one uses internet for purposefully doing an unfair activity with the intention of stealing, fraud and security breach. There are various types of e-commerce threats, some accidental, some purposeful, and some of them are due to human error. The dynamic environment and insecure infrastructure network protocols have make internet attacks quick, easy, inexpensive and difficult to track the source.

As technology is changing constantly, new tools and techniques are developed to target attacks and since most of the data on the internet is not encrypted, confidentiality and integrity is difficult to achieve. Thus security is compromised as attack on one site can impact breach on another, as an intruder may collect information about other domains. The emergence of new products with an increase in use of internet is thus making security risks common today.

**Types of Security Threats:**

Several security threats are prevalent with the most common ones listed as under:

**1. Malware:**

Malware is malicious software intentionally designed to cause disruption to a computer, server, client or computer network. The types of malwares are adware -serves unwanted advertisements, spyware – collects user activity data, ransom ware – disables users access to data, viruses – disguises itself as desirable code and worms – spreads through network. In case any internet user clicks on a malicious link or attachment, it leads to installation of a software which is nothing but a malware. Emotet, is one of the most costly and dangerous malware, which is a banking Trojan that spreads through spam emails.

**2. Probe:**

Probe is a program or device which is used to gain access in a network for monitoring or collecting information about the system activity. Sending a blank message or log in to an unused account are examples of a probe, which is done to check if it reaches the desired destination. Probe is a serious security lapse as they are associated with curiosity or confusion.

**3. Account compromise:**

An account compromise is an unauthorized access to a user account or computer by someone other than the account owner, which may led to data theft, data loss or theft of services. This theft is conducted without involving a system or root level access thereby ensuring a damage that can be contained, however a user access can open opportunities for greater access to the entire system.

**4. Root compromise:**

A root compromise is broader than an account compromise as the intruder can have access to the entire system and have special privileges to all rights and permissions on the server. It is a security breach at the system admin (root) level. Since the intruder has all the special rights, they may run their own programs and try to even change how the entire system works.

**5. Denial of Service (DoS):**

This is a cyber-attack where the legitimate users face flood attack on computer or network and are unable to respond to requests. A denial of service is disruption of the "handshake" process in order to attack the network and even launch other attacks. Some cyber attackers may even disrupt the physical components of the network or tamper even the encrypted data in transit. Botnet, also known as zombie systems, is one such example of a distributed DoS where a hacker can infect as well as control millions of systems with malware. These botnets could be from different geographic locations and are very difficult to trace the source and the level of infection.

**6. Phishing:**

Phishing is a cyber-attacks where the user computer is attacked with fake communication, sent via an email, instigating an action from the receiver. The very moment the receiver of the email opens the email and follows the instructions sent in the email, like sharing of KYC information, credit card number of inserting pin in the mentioned link, malware is installed in the users system and sensitive data is misused for committing cheating and fraud.

**7. Man in the Middle (MITM):**

This is a cyber-attack where intruders enter themselves between two-party transactions by interrupting the traffic. The man in the middle attackers attack the users is logged in on the unsecured public wi-fi- network, to filter and steal personal and sensitive data. These cyber attackers place themselves between the user and the network, and install malware software for using the visitor personal data maliciously.

**8. Password Attacks:**

These are attacks where the intruder if cracks the right password then can have access to huge volume of information and misuse the same for his benefit. Such attacks include at times using human interaction to trick people for cracking the password or gaining access to password database or outright guessing. Brute Force Attacks is one the example of password attack, where a program builds a connection to company/user website and uses possible combinations to break through the password.

**9. Structured Query Language (SQL) Injections:**

A SQL injection is a cyber-attack planned through a SQL code inserted into a server, with an intention to manipulate the backend database to gain access to non-displayed information. The attack if successful, gives the intruder access to sensitive information, like company data, user lists or customers private details.

**10. Cross-site scripting (XSS):**

XSS is a cyber-attack that involves malicious scripting into some web applications. The XSS attacks are enabled by intruders by injecting the JavaScript into another users browsers. A cross-site scripting has the hackers target the users by sending HTML, JavaScript, VBScript, ActiveX, Flash links of the pages which look like the legitimate website, by infecting the original webpages with malign code. XSS attacks can also gain access to information through account hijack, theft of cookies, misaligning the user settings, or false advertising.

**Sources of Cyber Threats:**

The explosive growth of internet has led to a dire need of understanding the security issues and vulnerability of the system o technical failures. Following are some of classifications which throw light on the reason for success in intrusion and cyber-attacks in the current scenario –

**a. Flaws in Software or Protocol Designs:**

Protocols are the rules and conventions used by for communication by computers through a network. A design flaw in a protocol is highly vulnerable to exploitation, even if the same was implemented thoroughly. In most of the cases, when the system design specifications were made they did not have security steps mentioned initially and the same were only added in the end of the as an additional integration to components. Since these factors are usually overlooked, intruders target such software's and cause vulnerabilities. Network File System (NFS) is one such protocol which is used for file sharing and the same is vulnerable to intrudes due to lack of security tools. NFS protocol does not ask for identity of an individual or system during file transfer or identity of a person logging in to receive files.

**b. Weakness in Implementation of Protocols and Software:**

The best of the protocols designed may malfunction or could be vulnerable to attacks by intruders if not implemented properly. The bugs in the system are usually detected only after the implementation of the software on different applications. This opens opportunities for intruders to revisit such software or systems for attacks and several vulnerabilities could be caused. To name a few weakness that can increase chance of attacks are:

- no testing for success and failure
- no testing for data content and size
- poor or no resource exhaustion adaption
- inappropriate use of system cells
- incomplete checking of operating environment
- condition in file access
- re-use of software modules than defined intend

Inappropriate implementation of Electronic mail protocol could be one such example of weak implementation of protocol in case an intruder gets permit to connect to the mail port of the machine and fool the machine into performing tasks not intended for service. The intruder may also use the 'To field' and confide confidential information about the user and password and might even get access to read protected files or run programs on the systems. They can also gain unauthorized access and weaken the entire system.

**c. Weakness in System and Network Configuration:**

The problems in protocol design or software programs can be a cause of problem for weakness in the system and network configuration. The vulnerabilities could be used due to faulty setup or the way the system is used. Mostly all the products are delivered with default settings which needs to be changes once the setup is over by administrators. However, most of the users leave the setup system with default settings and password and neglect the security issues, thereby leaving the system exposed to attack by intruders.

File Transfer Protocol (FTP) is one of the services which was highly misconfigured by most of the users leaving scope for attack. The security configuration of FTP needs the administrator to setup the password file, archives tree and ancillary software as separate files from the entire operating system, making access of operating system difficult from the staging area. It has been observed that the misconfiguration of the setup of FTP archives, had intruders gain unauthorized access to confidential information and use the same to compromise the system.

## 5.3 PROTECTING ELECTRONIC COMMERCE ASSETS AND INTELLECTUAL PROPERTY

In today global world, internet revolution has empowered both the consumers and sellers due to massive connectivity. Ecommerce is the activity that can be related to buying and selling of goods and services over the internet. Thus, protection of Intellectual Property (IP) in E-Commerce is on the most essential and valued component however the most neglected one. The businesses online are now making sincere efforts to ensure secured environment for activities for customers, one which are free from IP risks that slow down or can kill their businesses as most of them are involved in commerce activities based on IP and its licensing. Therefore, IP laws have been made to safeguard the new creation of the creator of works, else someone's hard work could be stolen and disseminated across the globe without any remuneration to the creator for his labor on the invention.

**Role of Intellectual Property in E-Commerce:**

The role of growing use of internet and technological infrastructure, has made the Intellectual Property norms to plays an important role in E-Commerce in the following ways:

**a. Safeguards the business interests and entities of a company:**

The Law governing the intellectual property protects the business and entities or an individual owner against unfair practices. Most of the times the owner may reveal the intellectual property prior of filling for protection of the property and get exposed to unfair competition.

**b. Safeguarding interest of Designers:**

E-commerce and digitalization of economy has made proprietors exposed to people across the globe. Thus the absence of IP laws and practices, could lead to infringement of anything and everything from software, design, or protocols. The original work of a designer or developer may be stolen, duplicated, or distributed without him or her receiving any remuneration for their original creation and work.

**c. Safeguarding of Components:**

The intellectual property laws also safeguard the components involved for working of E-Commerce, namely, software chips, networks, designs, routers, etc. All forms of components require IP for their protection in order to allow the functioning of business over the Internet.

**d. Safeguarding from Imitation of Business or Products:**

The E-commerce websites involve in buying and selling of products are more vulnerable to infringement of their intellectual property as some other business may use their product images and portray a same description to sell their products.

Thus, suck infringement of intellectual property can be averted through implementation of the IP laws that clearly state the following:

- who is the owner and is this his/her own creation
- whether the creator grants permission to use his creation
- the IP granted for the creation must be under the realm of public domain
- whether the IP is covered under fair use for business.

The current E-Commerce businesses are all based on licensing of the product or patent licensing. Since creation of the web-based business platform requires a variety of technology and thus most of the online businesses nowadays share the technology or outsource the development of few of the IT components using licensing agreements.

Thus, Intellectual property is considered as the most valuable asset in the E-Commerce business and so many companies are now also investing in building self-owned Patent portfolios and trademarks for business value enhancement.

**Elements granted protection in Intellectual Property:**

The following are few of the elements granted protection under the Intellectual Property Act for E-commerce business, especially vested to protect the several parts of the online business website -

**1. Patents or utility models:**

The patent or utility model of the IP law is used to safeguard the E-Commerce business systems, search engines or any other technical Internet tools which is granted protection. The business methods deployed for doing online business can also be filed for protection under the Patents Act.

**2. Copyright Act:**

The text-based HTML code of software's used for creation of websites, is protected with a safety shield under the Copyrights Act or patents law, depending upon the IP law existing in the country. The design of the website is also protected under Copyright Act. Whereas the content on the website in form of written material, pictures, images/graphics, music and videos are protected under Copyrights Act too.

**3. Sui Generis Database Laws:**

The databases of the company can also be protected through Copyright or by Sui Generis Database Laws.

**4. Trademarks Act:**

The business websites used Business name, Product names, domain names, or signs such as Logos, or any other signs, which can be safeguarded using the Trademarks Act. Any symbol or mark that portrays the name and character of the business can be registered as a trademark.

**5. Industrial Design Law:**

The Industrial Design Law provides protection to computer generated Graphic Symbols, screen displays, graphic user interfaces (GUIs) & even webpages display, and any other computer-generated graphic symbols.

**6. Trade Law Secrets:**

Trade Law Secrets can be protected using the law that covers the hidden aspect of website namely, confidential graphics, source code, object code, algorithms, algorithms, programs or other technical descriptions, data flow charts, logic flow charts, user manuals, data structures and database contents.

The Intellectual Property Rights are used to protect the website from any abusive use.

## 5.4 FIREWALLS

Steven Bellovin, a professor in computer science at Columbia University and a fellow at AT&T Labs Research, coined the term firewall to describe the process of filtering out unwanted network traffic. This name firewall was originally referred to a wall used to keep the fire from migrating from one part of a physical structure to another. While in the IT and networking industry, the term was used to insert a filter of between the safe internal network and the traffic entering or leaving home network to the wide internet.

A firewall is the first line of defence for protection built more than 30 years ago that builds a wall between one part of network and another part. It is gateway of network security device that monitors incoming and outgoing network traffic and creates a bridge to decide the amount and level of communication that takes place within the organization network and internet. Firewall would allow or block specific traffic based on a defined set of security rules. Each set of rules created for specific traffic and information, has to pass a firewall, which may have some unique characteristics and are carefully monitored through close doors which are known as gateways. However, the criteria to establish the firewall through which one could monitor which packets are allowed or disallowed or denied access through the gateways created is one of the most difficult tasks.

The thorough implementation of firewalls and their adequate and timely maintenance is one of the most effective tool for implementing network security policy in an organization. The level of security defined on the

user machine can change the level of security of a firewall implemented. While a few other considerations pre implementation of a firewall include a traditional trade-off between securities, ease of use, cost and complexity.

**Types of Firewall:**

The firewalls are used to prevent unauthorized access of home network, however the structure of the firewall and the operational method used can be quite diverse. There are three types of firewalls based on the structure, namely, software firewalls, hardware firewalls, or both. The others types mentioned below are types of firewalls defined by the type of firewall techniques deployed to set up as software or hardware.

**1. Software Firewalls:**

A software firewall is usually installed on the host device and uses a device RAM and CPU space to work. This type of firewall is also known as a Host Firewall. In case of multiple devices, one needs to install the software on individual devices. The person installing the software also must be careful that the software installed in each device is compatible with the host configuration.

The main advantage of this configuration is that the firewall can distinguish between programs while filtering incoming and outgoing traffic. This enables the software to allow access to one program while it may deny access to another. However the main disadvantage is the efforts put including the time and knowledge of the administrator to install and manage firewalls for each device.

**2. Hardware Firewalls:**

A hardware firewall is also known as Appliance Firewall, as it uses security devices to for network security. It includes installation of a separate piece of hardware device, which is placed between an internal and external network (the Internet) and acts as a firewall for network security.

Since hardware firewall is an external device it does not consume the RAM or CPU space like the software firewall. It has its own resources to work as a gateway for traffic passing in and out of the internal network.

A skilled team is needed to install and manage this hardware devices as they require technical skill and expertise. Most of the large and medium organizations use this technology as they have multiple computers attached to their system for working and all use the same network. Thus, using of hardware firewall is more preferable as it does not require installation of firewall on each device individually.

**3. Cloud/hosted firewalls:**

A cloud/hosted firewall is a cloud-based network firewall service offered by Managed security service providers (MSSPs). It is a cloud hosted service that can be configured to track both internal network activity and

third-party on-demand environments. This service is usually preferred by small businesses that have highly distributed enterprises with gaps in security resources. Since its cloud based firewall and can be entirely managed by an MSSP it is cost effective for companies having a small staff size with low level of technical expertise.

Following are name of other firewall software's defined based on the method of operation.

**4. Packet-Filtering Firewalls:**

Packet-filtering firewall is the most basic type of firewall software when it comes to understanding firewall based on the method of operation. These firewall serves as an internal checkpoint as the same is attached to the devices like router or switch. This firewall monitors the traffic flowing in the network by filtering packets transmitted in the network. They don't route the information of the packets but compare packets for the established criteria and protocols set by the internal network. In case they find anything suspicious, or troublesome, they fail to forward the same in the internal network.

For example, the data packet which is trying to enter the system is screened through its header and the data it transmits. The packet is allowed or denied access based on the information mentioned in the header. The firewall then checks, and it inspects the protocol, source and destination IP address and source and destination port. In case the packet header matches with the access control list defined by the internal network administrator, the packets are passed in the network, else they would be dropped.

Its one of the most easy, efficient and inexpensive firewall and got be easily spoofed as it does not check the payload.

**5. Circuit-level gateway:**

The circuit-level gateways are one of the fastest firewall to identify malicious content. This firewall used the session layer of the OSI model, to monitor the TCP (Transmission Control Protocol) handshakes and other network connections and protocol sessions to check if the initiated session is legit. These firewalls are used alongside with other software or packet filtering gateways and are low-cost firewall that ensure safety of the network.

This firewall does not check the packets, but the information contained in the packet about the transaction. Additionally, circuit-level gateways are practical, simple to set up, and has a minimal impact on end user experience.

**6. Application-level gateway:**

The application-level gateway is usually termed as proxy firewall as it uses a device that functions at entry point to exit point from the network.

This firewall filters packets by their number of characteristics such as the HTTP request string and not only according to the service defined for their specified destination port.

These firewall gateways are used by business to protect their enterprise resources from web- based application threats. These firewalls block access not only to harmful sites and but can also prevent and block sensitive information on webpages of the link opened. Thus this leads of delay in communications and impact the network performance, making it challenging to manage.

**7. Stateful inspection firewall:**

This firewall uses state-aware device to examine the state of connection of whether the packet entering in the network to create a connection through an established TCP or other network session. This firewall is comparatively effective and add additional security when compared to either packet filtering or circuit monitoring firewall performance.

The stateful inspection firewall builds a state table (database) of the data establishing a connection and requesting data and stores the connection information. Information about the source IP, source port, destination IP, and destination port for each connection is saved in the state table.

A seven-layer Open Systems Interconnection (OSI) model is a new form of stateful multi-layer inspection firewall that considers the flow of transactions in process across multiple protocol layers. This firewall devices are highly effective for most of the businesses and they have benefitted as the same has helped them defending against particular attacks, such as DoS.

**8. Proxy Firewalls:**

A proxy firewall is an intermediate device used for web applications to secure the server from malicious users. This firewall acts as a bridge between internal and external systems communicating over the Internet masking it as its own and serves as a substitute to the original application. This is used by businesses to ensure network anonymity and for bypassing online restrictions.

This firewall sends messages to the web server pretending to be the client, through the proxy server installed, which gets intersected as soon as the client sends a request to access a web page. This action further ensures privacy of the client's identification and geolocation, safeguarding the network server from any potential attacks and restrictions. Post this the client receives the information requested by them through the web server after the same is received from the proxy server.

**9. Next-Generation Firewalls (NGFW):**

A NGFW combines several functions of the other firewalls. The next-generation firewall inspects the payload of the packet with stateful inspection and includes some variety of deep packet inspection (DPI), as

well as other network security systems, such as an IDS/IPS, malware filtering and antivirus.

The NGFW is one of the essential software security firewalls in heavily regulated industries like banking and healthcare and thus adequate security software is required to safeguard the network from malware attacks, external threats, and intrusion. As these devices are multifunctional and are quite flexible, they become preferred choice among such industry participants. However, implementation of these firewall needs a very high level of expertise and involves a huge cost as it might also require additional configuration to integrate with existing security management.

## 5.5 OTHER E-COMMERCE SECURITY TOOLS

**Security** is of vital importance is the ecommerce business and any breach of data would make the company loose customer and business. Thus, security of the website and network cannot be compromised. Although firewalls play a vital role is safeguarding the system from intruders, there are a few other security tools which could also be deployed by the company-

**1. Public key Infrastructure:**

A public key infrastructure (PKI) is a set of roles, policies, hardware, software, and procedures laid down to support distribution and identification of public-key, for both the user and the website to exchange information. The PKI uses the data over the internet network to manages encryption and verify the identity of the user or third party. The same is managed through digital certificates and facilitates electronic transfer of information for a range of network activities such as internet banking, e-commerce and confidential email.

**2. Encryption Software:**

Encryption is a generic term that refers to encoding the data to prevent the unauthorized access to digital information. Encryption software is used to protect data with use of cryptography on the user's computer and on software installed on other computers over the internet. This software encrypts and decrypts data in form of packets or in form of hard files over the computer network. This encryptions ensures that the original data is prevented from access to third party.

**3. Digital Certificate:**

Digital certificate use a pair of electronic encryption keys or PKI to bind one user to another a user to a machine, or a machine to another machine. The Digital ID's help to the identity the certificate owner, (one public and one private), and encrypt and sign information digitally. PKI comprises of the technology to secure ecommerce and internet transactions. The best example for this is email services where the sender digitally signs the communication, and the recipient verifies the signature. Client certificates authenticate the sender and the recipient.

**4. Digital Signature:**

Digital Signatures are technique used to verify and validate the authenticity and integrity of the technical message, software or digital document. As in physical setup, we have handwritten signatures to bind signatory, in the digital world these signatures offer inherent security to the document. This signature binds an individual/firm to the digital data and thus have become an integral part of the ecommerce industry. Each business needs to ensure that the digital signature setup is unforgeable with the support of different encryption techniques.

## 5.6 MANAGEMENT OF IT RISK

**Introduction:**

The IT Risk management is the domain where in risks associate with the IT infrastructure can be managed through application of risk management tools. This risk can be defined broadly as risk related to the entire enterprise resource system as it includes managing risk associated with 'use, ownership, operation, involvement, influence and adoption of IT within an enterprise or organization'. The management of potential IT risks would ensure minimum negative impact on an organization.

**Disaster Recovery Plans:**

A disaster recovery (DR) plan is the plan or process that comprises of set of policies, tools and procedure deployed for detailed testing to ensure recovery of all data, or restoration of business-critical applications and technology affected due to a serious natural or human- induced interruption. It is an integral part of IT infrastructure and business continuity plan as it ensures sufficient IT recovery and the prevention of data loss.

**Risk Management Paradigm:**

**1. Identify the Risk:**

Risk Assessment is a systematic process where one could measure and evaluate the inherent risks in the project activity or infrastructure. The following are few steps to IT Risk Management for vulnerabilities inherent in any business, namely risk associated with the use, ownership, operation and adoption of IT -

Use the IT risk management template to identify potential risks to your best knowledge and ability that may arise in the organization. It is always better to be proactive and alert for uncovering and recognizing any risks, then detailing them later by explaining how they might impact the project and outcomes.

**2. Analyze the Risk:**

Post identification of risk, do a thorough analysis of the same and group each risk into big, small or minimal based on its impact. List down the

impacts that can be seen and study the influence of each risk on the project in all the ways. Ensure you add these findings to your risk assessment.

**3. Evaluate and Rank the Risk:**

Post analysis of each risk; further evaluate the likelihood of occurrence of the risks and the magnitude of its impact on the project. Try to rank each risks-based on the impact and prioritize them, you can begin to develop strategies to control them too. Remember each risk must be addressed and none should be ignored to ensure smooth working of the overall project. Again, add these rankings to your risk assessment.

**4. Respond to the Risk:**

Even after taking all the necessary precautions in case any of the risks becomes an actual issue, then take timely action. This is also known as risk response planning as the assessor identify the potential high risks in IT infrastructure and decide how to treat them or modify them to safeguard systems and make them low priority risks. Preventive and contingency planning are the key to risk mitigation strategies that are applied in such situations and are reported too in the risk assessment report.

**5. Monitor & Review the Risk:**

Once action is taken, go back reflect and review the progress on mitigating the risk. The risk assessment report prepared should be used to track and monitor the team efforts to deal with identified risks and ensure all risks get covered in the report.

**Strategies for IT Risk Management:**

An IT team may use the below risk management strategies to provide a structured approach for identify, access, and manage risks in IT. They should also regularly update and review the risk assessment report for understanding the impact and future plan of action.

The list of the strategies for IT Risk Management is as under:

**1. Apply Safeguards:**

It is an avoidance strategy, followed by companies that plan to avoid risk at all costs and try to focus their maximum resources to deal with the same. If the business achieves to avoid the risk, then it is does not pose any threat to the project going forward. However, one needs to remember that though we avoid risks we might not be able to avoid the potential of its return in future and hence this decision cannot be taken lightly.

**2. Transfer the Risk:**

This is of the simplest strategy as the company uses transference strategy, to shift the risks to another entity. The redistribution of the risks can be

onto the company members by the IT firm, or shift the risk to some outsource entity or buy a risk cover (insurance policy).

**3. Reduce the Impact:**

This strategy also known as mitigation strategy, is deployed by companies especially for high impact risks. This strategy helps in reducing the impact of the critical risk through application of methods, resources available or team brainstorming. This may even involve smaller changes in the IT setup or infrastructure but needs to come by process and a plan.

**4. Accept the Risk:**

When you know there is a risk, accept the same and find out ways to deal with it and mitigate it. This strategy of agreeing to risk is known as an acceptance strategy and is useful to all in future as people are aware what action can be taken in case the risks arouse. These risks are usually once that cannot be avoided but can be managed if we follow the project risk assessment template prepared by us.

## 5.7 SALIENT PROVISIONS FOR SECURITY AND PRIVACY

**Right to Privacy and Data Protection:**

With the growing usage of internet and dearth of data in the open space, there's has been concerns raised on the protection of one privacy, i.e. personal data and information. The right to privacy consists specific right of an individual to control the collection, use and disclosure of personal information, namely, personal email id, telephone number including mobile number, family educational and medical records and any financial records, etc. The advent of artificial intelligence and analytics have further made personal data easily accessible and communicable.

The Universal Declaration of Human Rights, 1948, is the milestone document that stresses on the basic right to protect an individual's privacy as follows: "Article 12: No one shall be subjected to arbitrary interference with his privacy, family, home or correspondence, nor to attacks upon his honour and reputation. Everyone has the right to the protection of the law against such interference or attacks."

The Constitution of India ("Constitution") adopted the right to privacy as a fundamental right. This decision was upheld in August 2017, by the nine-judge constitutional bench of the Supreme Court. Mukul Rohatgi in 2015, upheld this case in the Supreme Court stating that the constitution does not guarantee right to privacy. The mentioned bench of the Supreme court found that the constitution does guarantee a right to privacy. The landmark case of Kharak Singh v. State of U.P, the Supreme court in 2017 passed a judgement stating that the privacy falls within the scope of Article 21 of the Constitution. Thus, any individual or state having an unauthorized intrusion in to a person's home and causing any disturbance is in violation of personal liberty of the individual.

The Supreme Court judgement, has the Right to Privacy been read into two articles of the Constitution of India:

1. Article 21 (Right to life and liberty), and
2. Part III (Chapter on Fundamental Rights) of the Constitution.

## 5.8 LEGAL AND REGULATORY ENVIRONMENT FOR E-COMMERCE

**The Information Technology Act, 2000:**

The Information Technology Act, 2000 ("ITA") is the act which was enacted in the year 2000 to provide a comprehensive regulatory environment for e-commerce activities in India. The Act covers legal provisions governing exchange and interchange of any data over the electronic mode of communication and storage of information online. The Act also includes use of the electronic mode as an alternative to a paper-based method of communication and information storage with the Government agencies. The formation of this Act led to amendments in the Indian Penal Code 1860, the Indian Evidence Act 1872, the Bankers' Books Evidence Act 1891, and the Reserve Bank of India Act 1934

**The Act emphasis that:**

- all transactions done via the electronic mode i.e. electronic transfer, exchange of information or e-commerce should receive the legal recognition like the paper-based transactions
- the digital signatures used for any information or matters requiring legal authentication should receive legal recognition
- the electronic filing of document with Government agencies and departments to be accepted as authentic and legal document
- support the storage and safety of data shared electronically
- all banking and financial transactions done via electronic mode to receive legal sanction
- allow banks and financial institutions to maintain books of accounts in the electronic mode and grant legal recognition to these under the Evidence Act, 1891 and the Reserve Bank of India Act, 1934.

Applicability and Non-Applicability of the Act Applicability:

**The IT Act 2000 is applicable:**

To the entire country, including Jammu & Kashmir as per Section 1 (2). The Act has used section 253 of the Constitution of India to include the state of Jammu and Kashmir. The Act also does not only apply to people who hold citizenship in the country but to all and thus provides extra-territorial jurisdiction.

The Section 1 (2) along with Section 75, further states that the Act applies to any offense or contravention conducted outside the India territory too. The person who is found to be guilty through his conduct in the said Act irrespective of his/her nationality, is punishable under the Act if he has a computer or a computerized system or network located in India.

However, though the Act is strict on people from other nationality, it suffers from limitations due to lack of international cooperation from other countries.

**Non-Applicability:**

The Section 1 (4) of the IT Act, 2000 discusses the non-applicability of the Act as discussed below.

- The Act does not permit execution of Negotiable Instrument under Negotiable Instruments Act, 1881, except cheques and execution of Power of Attorney under the Powers of Attorney Act, 1882.
- No one is permitted under the IT Act to create Trust as laid down under the Indian Trust Act, 1882.
- The Act is not applicable for execution of a Will under the Indian Succession Act, 1925.
- It does not permit entry in any contract for the sale of conveyance of immovable property or any interest in such property.
- It does not include any such class of documents or transactions as may be notified by the Central Government in the Gazette.

## 5.9 CYBERLAWS IN INDIA

Cyber Laws are laws that govern unlawful activity or any wrongdoing with the usage of computers. These laws are contained in the IT Act 2000 which came into force on 17 October 2000, to grant legal recognition to ecommerce and supporting the maintenance of electronic records with the Government authorities and bodies. The advent of the technological arena and the abuse of computers has given birth to several criminal activities, such as such as theft, fraud, forgery, defamation and mischief that are addressed by the IT Act, 2000.

The use of computers, mobile devices, software, and the internet are medium and target of such crimes and thus each cyber-crime as a different punishment defined under the Indian Penal Code. A list of cyber-crimes punishable under the Act are mentioned below –

**1. Identity theft:**

In case of this theft, one individual uses personal information of another individual and portrays himself to be someone else to use their financial resources or to take a loan or credit card in their name. This theft of

personal information of an individual is a cybercrime known as Identity theft.

**2. Cyber terrorism:**

Any well-planned mischiefs and attacks planned on Government agencies and corporate computer systems by an individual or organization, group or state with a threat of extortion or any kind of harm is known as the crime of Cyber Terrorism.

**3. Cyber stalking/Cyberbullying:**

Cyber stalking means a using internet to harass an, defame, or intimate someone by an adult. Whereas, Cyberbullying is the same acts like cyber stalking done by any teenager with the use of the internet, phone, chat rooms, instant messaging or any other social network, which is considered as cybercrime.

**4. Hacking:**

Hacking is gaining unauthorized access to an individual's computer, online account and passwords with an objective of using it for a wrongful gain by the intruder. This is one of the most common forms of cybercrime.

**5. Defamation:**

In case an individual uses the internet platform to pass comments or give statements that might hurt the modesty or reputation of any individual or organization, this would be punishable under law even though each individual enjoys the fundamental right of freedom of speech. The person involved in such a cybercrime would be punishable under the Defamation Law.

**6. Copyright:**

Any individual or organization using the work of the creator without their permission or giving him/her credit or recognition for being the original creator of the content, or by not paying him or her a compensation or remuneration maybe charged as cybercrime and will be punishable under the Copyrights Act. Thus it is necessary for companies and individuals to copyright the work so that the same is not freely distributed across platform without their permission and if done so are punishable offence under the IT Act.

**7. Trade Secrets:**

The theft of software's, applications, codes, programs and tools made by internet based organization without their permission or imitating the same are punishable under the Cyber Laws as the law is developed to protect the data and trade secrets of companies.

Thus, one cannot ever expect a crime free society, as no society which is perfect exist. However, an attempt to minimize the crime rate should be

done constantly especially in today's world which has high exposure of internet and is dependent more and more on technology. Electronic law-breaking crimes are bound to increase with the advent of new technology and efforts of intruders. The law makers thus have to focus on more going forward too by making stricter Cyber Laws in order to ensure that the incidence by impostors, are managed to its minimum.

## 5.10 SUMMARY

- The incidences of phishing, identity theft, and fraud, has skyrocketed in recent years with the surge in the use of technology and so company needs to ensure safety of its digital assets using some security measure and tools.
- Different sources of cyber threats should be identified, and risk management activities should be used by the company to manage the security risks for their IT infrastructure.
- Firewalls provide a safe environment to people working and dealing with the e-commerce platforms and thus safety of customer's personal data and their privacy should be maintained by the company.
- Each organization should identity their internal and external IT risks and rank them for understanding the level of impact it may have on the overall safety of the organization and consumers. They should formulate risk management strategies and try to mitigate or minimize the level of risks.
- Technology is used for both good or bad purposes and if fallen into the wrong hands can illicit intent to exploit or misuse the same, making these acts fall under the array of cyber-crime that are punishable offences under Law.
- The Right of Privacy Act safeguards individual and organization from misuse of their personal information without their intent and acts punishable under Law.
- The Information Technology Act 2000, built a legal environment for safe and secure ecommerce activity and transfer of assets and gave authenticity to digital documents and paved way for digital filing with Government agencies and bodies.
- Indian Government made a number of laws pertaining to safeguarding all from the cybercrimes thereby mitigating the risks associated using different laws, however the changing infrastructure makes it lucid for them to broaden the scope of the cyber law to accommodate new sectors too.

## 5.11 QUESTIONS

1. What are the security risks associated with ecommerce? List down few of the risks and explain them in brief**.**

2. What is IPR? What are the elements covered under the IPR?
3. What are the security tools used by any organization to safeguard its digital assets?
4. What are security threats? What are the different types of security threats?
5. **Write short notes on:**

   a. Firewall

   b. Cyber laws in India

   c. The Information Act 2000

   d. Right to Privacy

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# 6

# MANAGEMENT CHALLENGES & OPPORTUNITIES OF E-COMMERCE

**Unit Structure**

6.0 Objectives
6.1 Introduction
6.2 Factors to Success of E-Commerce
6.3 Advantages and Challenges of E-Commerce
6.4 New Business Models of E-Commerce
6.5 Required Changes in Business Processes
6.6 Channel Conflicts
6.6.1Types of Conflicts
6.6.2Conflict Magnitude
6.6.3Causes
6.6.4Consequences
6.6.5 Management
6.7 Ethical Issues in E-Commerce
6.8 Questions

## 6.0 OBJECTIVES

After studying this unit students will be able to:

- Understand the concepts of E-Commerce and its growing impact and importance
- Know the advantages, challenges, impact
- Issues and Models representing E-Commerce

## 6.1 INTRODUCTION

E-Commerce in any business transaction is done via internet. E-Commerce sites objective is to sell products /services directly from the website .E-Markets are simply defined as websites where buyers and sellers interact with each other and conduct transactions.

With rising internet and smart phone penetration in Tier 2 and Tier 3 cities, E-commerce has witnessed strong growth in India in recent past and total size has reached to US $2.9 billion in 2013 to US $16 billion in 2015, at annual growth rate of 34 %.Whereas mobile devises are ready to drive sales via ecommerce platform with a new age of technology coming in through report “e-commerce in India”-A Game Changer for economy prepared by CII in partnership with Deloitte ,has projected the sales to

cross US $100 billion mark ,thereby increasing the strength of online shoppers

## 6.2 KEY FACTORS FOR SUCCESS OF E-COMMERCE

1) Timely and effective implementation of government's flagship programs such as Digital India, make in India, Start –up India will help overcome challenges related to ineffective rural internet entry and lack of skilled manpower.

2) Continuous innovation, digitalisation, will further add a boost to such sectors. Internet users and introduction of variety of mobile app versions will thus boost knowledge and liking for the sector.

3) Introduction of new payment solutions have further added to provide ease in electronic transactions .The launch of unifies payment interface by RBI will transform the mobile banking.

4) GST will also enhance the growth of e-commerce, as it will focus on single comprehensive indirect tax regime applicable throughout all states on supply of goods & services

## 6.3 ADVANTAGES OF E-COMMERCE

E-Commerce offers benefits to customers as well as sellers. The advantage are:

**(A) Advantages to e-Marketers:**

**1) Global Markets:** Online marketers can attract customers across the globe. E-marketers can design effective websites and get orders from buyers segmented across the World. Example: Amazon, Flip kart.

**2) Audience Sizing:** Thorough review of customers who regularly visit online websites and those who resist, can help marketers to target audience size. Moreover it can also help marketers to plan their product design, features, price accordingly

**3) Lower investments:** Investment requirement is comparatively less as compared to offline marketing. Usually offline marketers require stores, infrastructure, and so on. Whereas e-marketers need to frame effective websites, apps to reach out to masses. Example: Shopping apps like Meesho, Myntra

**4) Low operating Cost:** E-marketers need to bear limited operating cost, compared to offline (traditional) business firms. As there may be limited staff to handle e-orders, no need for insurance, which saves additional cost of marketer.

**5) Improvement in Productivity:** E-Business facilitates automated ordering and billing relating to purchases of the customers. It also facilitates availability of quality items & on time. This improves efficiency & productivity of e-business.

**Example:** For Fresh Groceries/Fruits/general items Zepto App offers free delivery in 10 min.

6) **Customer Relationship:** E-marketers can develop good relations with their customers. Frequent feedbacks, attractive deals, can help them to obtain accurate and reliable information from customers. Such information can help them to improve their sales and performance. Example: Online services from Telecom Companies like Vodafone, Jio, Airtel and so on.

**(B) <u>Advantages to Customers</u>:**

7) **Convenience in Shopping:** E-business offers comfort and convenience to customers .The customers can avail the facility of 24/7 shopping as compared to traditional business .Example: Buyers can place orders on apps like D-mart ready, Big Bazaar

8) **Anytime Shopping:** Customers can place orders any time as per convenience. They can view purchase details, place orders, anywhere and anytime.

9) **Lower Prices:** Customers can get lower prices from on line stores, as there is less number of intermediaries, no infrastructure or insurance cost spend by marketers. Also coupon code offers, cash back deals further help in lowering prices of online goods. Example: Jio Mart offers cash back offers on its goods , which are already discounted from MRP rates.

10) **Loyalty Incentives:** Online marketers offer loyalty incentives to regular online shoppers. These special discounts can be used for purchase at a later date. Example: Zepto App offers 25 % offer to regular customers and those who encourage others to buy their products.

**Challenges of E-Commerce:**

1) **Challenges of e-commerce laws in India:** Though e-commerce is a growing market in India, but it does not have specific laws in India. The sector is governed by IT Act 2000, which regulates legal obligation of online sellers and buyers. Apart from IT Act 2000, marketers need to comply with other laws like Indian Contract Act, Banking and financial laws, wherever applicable.

2) **Problem for Rural Customers:** E-Commerce is mainly dominated by urban cities .Use of internet in rural areas is quite limited, due to factors like low internet speed and internet user base , problems of power supply , which restricts the growth of internet in rural areas.

3) **Shortage of manpower:** E-Commerce sector is rapidly growing sector, which may be affected by lack of trained manpower. Also lack of specialised courses on e-commerce at Colleges/University levels may further affect the growth of manpower. Hence, Companies need to recruit and hire carefully and spend huge cost on training.

4) **Challenges of Customer loyalty:** E-Commerce offers huge discounts to attract people to make their purchases online. Also almost same prices are offered even by competitors, which may reduce customer loyalty to specific brand.

5) **Challenges of Cash on Delivery:** In India, buyers prefer to make payment on Cash on delivery basis, electronic collection of payments is risky and expensive for online sellers .Indian consumers resist online payments due to problem of hacking credit cards, Privacy issues, lack of confidence and so on.

6) **Problems of Payment Gateways:** Indian payment gateways have high failure rate as compared to other countries. Many customers fail to try again, once they face transaction failure, which reduces chances of online sales.

7) **Unsuitable to Certain products:** Online business is not suitable for all types of products. Items like jewellery, furniture, perishables might not be purchased frequently as they are difficult to inspect such products before buying.

## 6.4 NEW BUSINESS MODELS IN E-COMMERCE

There are 4 types of E-Commerce Business Models and 5 new innovative approaches in E-Commerce.

1) **Business to Consumer (B2C):** Such businesses sell to their end - user. This is the most common business model. Anything you buy in an online store as consumer like wardrobe, household supplies is done as part of B2C transaction. B2C innovators have leveraged technology like mobile apps, native ads to market directly to their customers and make their lives easy.

2) **Business to Business (B2B):** In B2B business model, a business sells its products /services to another business. Sometimes the buyer is the end user, but often the buyer resells to the consumer. Recent B2B innovators have made a place by replacing catalogues and order sheet with ecommerce storefronts in niche markets. In 2020, almost half of B2B buyers were the millennial.

3) **Consumer to Business (C2B):** C2B businesses allow individuals to sell goods & services to Companies. Under this, affiliate marketing services would also be considered. Recent innovators have creatively used this model to connect companies to social media influencers to market their products.

4) **Consumer To Consumer (C2C):** This business is also called an online market place which connects consumers to exchange goods and services and typically make their money by charging transaction or listing fees. Online businesses like Ebay, Craigslist developed this model in early days of internet.

**Further 5 Value Delivery Methods for E-Commerce innovation are listed as follows:**

1) **Direct to Customer (D2C):** By cutting out the middleman, a new generation of consumer brands have built loyal followings with rapid growth. Brands like Glossier are showing us how D2C can contribute to be an area for innovation and growth

2) **White Label & Private Label**: '**White Label**'**:** is applied to your name and brand to a generic product purchased from a distributor.

   `**In Private Labelling**, a retailer hires a manufacturer to create a unique product for them to sell exclusively .With these 2 innovations, firms can focus on investments in design & production and look for an edge in technology & marketing.

3) **Wholesaling:** Under Wholesaling, a retailer offers its products in bulk at a discount. It is traditionally a B2B activity, but many retailers have offered it to budget conscious consumers in a B2C context.

4) **Drop shipping:** One of the fastest growing methods of e-commerce is drop shipping. Usually, drop shippers market & sell items fulfilled by a third party supplier like Ali Express, Printful. Drop shippers act as a middleman by connecting the buyers to manufacturers.

5) **Subscription Service:** Early in 1600's publishing Companies used a subscription model to deliver books monthly to their loyal customers. With e-commerce businesses are going beyond periodicals & fruits of month clubs. Today, virtually every industry has seen the arrival of subscription services to bring convenience & savings to customers.

## 6.5 REQUIRED CHANGES IN BUSINESS PROCESS

Business managers and employees must be capable of pursuing new opportunities that benefit & ultimately change a business. It's important that a company's people, processes & systems contribute to business change in a positive way. Following changes must be observed while designing business processes:

1) **Present a Vision:** The vision for business change must contribute to company's overall objectives and goals. During this phase, its good idea to interview business leaders to receive their inputs & concerns on business change being considered.

2) **Analyze Key Stakeholders:** Communicate with key departments or employees on the business change planned. Gain an understanding of what these different stakeholder's needs are and what they are willing to participate in.

3) **Align Business Leaders:** When business managers support & agree with the need for change, project success increases and certain steps may even be skipped. Maintain frequent communication with business leaders on ongoing developments and the project's status.

4) **Create a plan for Change:** Devise a plan with timeline that includes activities, mile stones and deliverables that implement the desired business change and move the company into a new enhanced end state.

5) **Communicate Value Change:** The analysis of key stakeholders determines what departments and employees need to know and the best way is to communicate with them. Communications should keep stakeholders informed of the value being created by the business change.

6) **Identify Early Change Adopters:** Early adopters tend to be the first employees to understand and adopt the business change & can also provide training to other stakeholders. Early adopters can assist in maintaining communication channels open and obtaining stakeholder's support as the change is underway.

7) **Create Support System:** Support system needs to be present to implement the change and train employees on new systems and processes. The different stakeholders must have their needs met in ways that are relevant to them. Example: Administrative employees can be trained through an online webinar, while production workers may need a more hands on approach.

8) **Establish Rules:** Rules and standards governing the business change help ensure that quality standards are met and the business change plan put into place is accomplishing its objectives .Rules should define how decisions are made and stakeholder's roles and responsibilities during the implementation.

9) **Increase Business Alignment:** To fully realize a business change, the entire business should support and contribute to its value. People, processes, technology and systems should reflect and carry out the business new strategies and priorities.

10) **Evaluate Risk:** Diagnose the risk involved in the business change and determine how to manage it. Conduct stakeholder surveys to identify key risks and possible solutions that can be implemented and accepted by stakeholders.

## 6.6 CHANNEL CONFLICTS

E-Commerce Channel Conflict occurs when sales channels or partners in a sales channel oppose each other. This conflict usually happens when a brand sells directly to its customers online or via retail outlets to capture additional sales.

### 6.6.1 Types of Channel Conflicts:

The Channel conflict can be classified majorly into 4 categories depending upon its flow and the parties involved:


1) **Vertical Level Conflict:** In this the channel partner belonging to a higher level enters into a dispute with the channel member of a lower level or vice-versa.

   **Example:** A channel conflict between dealers & retailers or wholesaler & retailers.

2) **Horizontal Level Conflict:** The conflict among the channel partners belonging to the same level, i.e., issues between two or more stockists or retailers of different territories, on the grounds of pricing or manufacturer's biases, is termed as horizontal level conflict.

3) **Inter-type Channel Conflict:** These type of conflicts commonly arise in scrambled merchandising, where the large retailers go out of their way to enter a product line different from their usual product range, to challenge the small and concentrated retailers.

4) **Multi-channel Level Conflict:** When the manufacturer uses multiple channels for selling the products, it may face multi-channel level conflict where the channel partners involved in a particular distribution channel encounters an issue with the other channel.

### 6.6.2 Conflict Magnitude:

The level to which the conflict is considered critical or needs the attention of the channel leader, i.e., manufacturer, is known as its magnitude.

The magnitude of conflict can be determined through the proper analysis of the change in market share and the company's sales volume in a particular area or region.

### 6.6.3 Causes of Channel Conflicts:

Channel Conflicts arise due to several causes, such as:

1) **Role Ambiguity:** The uncertain act of an intermediary in a multi-channel arrangement may lead to disturbance in the channel of distribution and cause conflict among the intermediaries.

2) **Incompatible Goals:** When the manufacturer and the intermediaries do not share the same objectives, both work in different directions to meet their ends, this results in channel conflict.

3) **Marketing or Strategic Mis-Alignment:** Sometimes, two-channel partners promote the manufacturer's product in a different manner, which created two different images of the same product in the consumers' mindset, which creates conflicting brand perception.

4) **Difference in Market Perception:** The manufacturer's understanding of the potential market and penetration into a specific region or territory, may vary from the perception of the intermediaries, which can create conflict and reduce the intermediary's interest in capturing that particular market.

5) **Change Resistant:** When the channel leader plans to modify the distribution channel, the intermediaries may or may not accept this change. Thus, it may result in a condition of discord or non-cooperation.

6) **Improper Geographic or Demographic Distribution:** If the sales territory has a narrow consumer base, and the channel leader allows many selling partners, they tend to lose interest soon because of low profit and limited sales.

### 6.6.4 Consequences of Channel Conflict:

Given below are some of these outcomes/consequences of channel conflicts:


1) **Price Wars:** Due to channel conflict, the partners compete with each other on the grounds of price, and therefore, the consumer may defer the purchase searching for the best deal.

2) **Customer Dissatisfaction:** If there exists a channel conflict, then the distributors or retailers may show much interest in the company's products and resist to assist the consumers, which results into their resentment towards the brand.

3) **Sales Deterioration:** Conflicts can adversely affect the sales of the products due to the decline in distributors' interest and an increasing number of consumers shifting to competitors' products.

4) **Distributors Exit:** For the manufacturers, it is essential to retain the distributors or partners to increase product sales. When there is a channel conflict, the chances of various distributors leaving the channel increases.

5) **Poor Public Relations:** The unsatisfied distributors may negatively publicize the brand and its products as a result of manufacturer's unhealthy public relations with them.

### 6.6.5 Channel Conflict Management:

It is a universal fact that the conflicts cannot be eliminated, though these can be handled smartly to reduce its negative impact on business.

Following are some of the ways to manage the channel conflicts:


1) **Mediation, Arbitration and Diplomacy:** To resolve a dispute, the manufacturer can adopt the strategy of intervention where a third person intervenes to create harmony. The other option is arbitration, where an arbitrator listens to the argument of the parties involved in a conflict and declares a decision.

   Or, the parties can resort to diplomacy where the representatives of both the parties communicate and find a solution.

2) **Co-Optation:** The manufacturer should hire an expert who has already gained experience in managing the channel conflicts in other organizations, as a member of the grievance redressal committee or board of directors, for addressing such conflicts.

3) **Dealer Councils and Trade Associations:** To handle the horizontal or vertical conflicts, the manufacturer forms a dealer council where

the dealers can unanimously put up their problems and grievances in front of the channel leader. To bring in unity among the channel partners or intermediaries, they can be added as members in trade association which safeguards their interest.

4) **Superior Goals:** Establishing a supreme goal of the organization and aligning it with the individual goals or objectives of the channel partners, may reduce the channel conflicts.

5) **Regular Communication:** The channel leader should take regular feedback from the channel partners through formal and informal meetings to know about market trends and dynamics. Also, the channel partner's issues and conflicts can be addressed through frequent interactions.

6) **Legal Procedure:** When the conflict is critical and uncontrollable by the channel leader, the aggrieved party can seek legal action, by filing a lawsuit against the accused party.

7) **Fair Pricing:** Most of the channel conflicts are a result of the price war, and therefore, these can be resolved by ensuring that products are equally priced in all the territories and a fair margin is provided to the channel partners.

## 6.7 ETHICAL ISSUES IN E-COMMERCE

E-Commerce has several benefits, but also involves several ethical & legal issues which cannot be ignored. Some of these are as follows:

1) **Web Spoofing:** Web Spoofing is an electronic deception that relates to the Internet. It occurs when the attacker sets up a fake website which almost totally same with the original website in order to fool consumers to give their credit card number or other personal information.

   **Example:** The attacker may setup a site called www.micros0ft.com using the number zero in place of the letter O, which many users sometimes type by mistake. Users might find themselves in a situation that they do not notice they are using a bogus web-site and give their credit card details or other information.

2) **Cyber-Squatting:** Cyber-squatting is an activity which a person or firm register, purchase and uses the existing domain name belong to the well-known organization for the purpose of infringing its trademarks. This type of person or firm, called cyber-squatters usually infringed the trademarks to extort the payment from original trademark's owner. The extortion of payment occur when they offers the prices far greater than they had purchased the organization's domain name upon. Some cyber-squatters put up derogatory remarks about the person or company which the domain is meant to represent (Example: www.walmartsucks.com), in an effort to encourage the subject to re-buy their domain from them.

3) **Privacy Invasion:** This issue is related to consumer. The privacy invasion occur when the personal details belonging to consumers are exposed to the unauthorized party. It may occur in THREE ways.

i) Electronic commerce businesses buy information about individuals such as their personal details, shopping habits and web page visitation listings. This can be done with or without the individual's knowledge by using different computing technologies. A large number of web sites, which require users to create a member name, also ask for personal details. These details are then often sold on to companies to aid in the marketing and selling of their products.

ii) The personal information of consumers being transmitted may be intercepted by anyone other than the person whom it is intended. Protecting the privacy of communication is a great challenge, due to the very nature of the online medium, an open network of digital telecommunications. It is technically and economically impossible to patch all the holes through which unauthorized intruders may gain access.

iii) Malicious programs delivered quietly via web pages could reveal credit card numbers, usernames, and passwords that are frequently stored in special files called cookies. Because the internet is stateless and cannot remember a response from one web page view to another, cookies help solve the problem of remembering customer order information or usernames or passwords.

4) **Online Piracy:** The online piracy can be defined as unauthorized copyright of electronic intellectual property such as e-books, music or videos. This unethical activity occurs when the Internet users use the software and hardware technology in an illicit manner to transfer the electronic intellectual property over the Internet.

5) **Email Spamming:** E-mail spamming, also known as unsolicited commercial e-mail (UCE) involves using e-mail to send or broadcast unwanted advertisement or correspondence over the Internet. The individual who spam their e-mail usually called spammer. Many spammers broadcast their e-mail for the purpose of trying to get people's financial information such as credit card or account bank numbers in order to defraud them. The example of fraud using e-mail is spammers will lure consumers to enter their personal information on fake website using e-mail, forged to look like it is from authorized organization such as bank. The content of e-mail often directs the consumers to the fake website in order to lead them to fill their personal information such as credit card or bank account's details. This technique is called phishing.

6) **Intellectual Property Theft and Copyright Trolls:** The basic cut-and-paste allows anyone with Internet access to directly copy the original works of another. Text, photos, music, artwork and ideas routinely move from the creators to the copiers, with no permission for use granted or sought. The victim of this theft only has recourse if

he's registered a copyright and then wants to spend the time and trouble to write demand letters and threaten lawsuits. At the other end of the ethical spectrum, "copyright trolls" buy the rights to movies, books and music, threaten mass lawsuits against thousands of people found to be downloading the material and demand a quick settlement from each of them.

## 6.8 QUESTIONS

1) Write a note on Challenges & Opportunities faced by managers in E-Commerce Sector?

2) List out in detail the New business Models developed?

3) What are Channel Conflicts? Explain different types?

4) Write a note on Causes of Channel Conflicts?

5) Describe the remedial measure to solve Channel Conflict?

6) Explain in detail the various ethical issues in E- Commerce?

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