SATHYABAMA
INSTITUTE OF SCIENCE AND TECHNOLOGY
(DEEMED TO BE UNIVERSITY)
Accredited "A" Grade by NAAC | 12B Status by UGC | Approved by AICTE
www.sathyabama.ac.in

SCHOOL OF MANAGEMENT STUDIES

UNIT – I ECOMMERCE AND ITS TECHNOLOGICAL CONCEPTS– SBAA3008

UNIT-1

E-COMMERCE AND ITS TECHNOLOGICAL ASPECTS

Overview of developments in Information Technology and Defining E-Commerce: The scope of E commerce, Electronic Market, Electronic Data Interchange, Internet Commerce, Benefits and limitations of E-Commerce, Produce a generic framework for E-Commerce, Architectural framework of Electronic Commerce, Web based E Commerce Architecture.

Electronic Commerce:\

- Electronic commerce, commonly known as E-commerce is trading in products or services using computer networks, such as the Internet.
- Electronic commerce draws on technologies such as mobile commerce, electronic funds transfer, supply chain management, Internet marketing, online transaction processing, electronic data interchange (EDI), inventory management systems, and automated data collection systems.
- Modern electronic commerce typically uses the World Wide Web for at least one part of the transaction's life cycle, although it may also use other technologies such as e-mail.

Definition of E-commerce

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

Advantages of E-commerce

- Buying/selling a variety of goods and services from one's home or business
- Anywhere, anytime transaction
- Can look for lowest cost for specific goods or service
- Businesses can reach out to worldwide clients - can establish business partnerships
- Order processing cost reduced
- Electronic funds transfer faster
- Supply chain management is simpler, faster, and cheaper using ecommerce
    - Can order from several vendors and monitor supplies.
    - Production schedule and inventory of an organization can be inspected by

cooperating supplier who can in-turn schedule their work

Disadvantages of E-commerce:

- Electronic data interchange using EDI is expensive for small businesses
- Security of internet is not very good - viruses, hacker attacks can paralise e-commerce
- Privacy of e-transactions is not guaranteed
- E-commerce de-personalises shopping

Features of E-Commerce:

- **Ubiquity**

  Internet/Web technology is The marketplace is extended beyond traditional available everywhere: at work, at home, and boundaries and is removed from a temporal and elsewhere via mobile devices, anytime. geographic location. –Marketspacel is created; shopping can take place anywhere. Customer convenience is enhanced, and shopping costs are reduced.

- **Global reach**

  The technology reaches Commerce is enabled across cultural and across national boundaries, around the earth. national boundaries seamlessly and without modification. –Marketspacel includes potentially billions of consumers and millions of businesses worldwide.

- **Universal standards**

  There is one set of There is one set of technical media standards technology standards, namely Internet across the globe.

- **Richness**

  Video, audio, and text messages Video, audio, and text marketing messages are are possible. integrated into a single marketing message and consuming experience.

- **Interactivity**

  The technology works Consumers are engaged in a dialog that through interaction with the user. dynamically adjusts the experience to the individual, and makes the consumer a co-participant in the process of delivering goods to the market.

- **Information density**

  The technology Information processing, storage, and reduces information costs and raises quality. communication costs drop dramatically, while currency, accuracy, and timeliness improve greatly. Information becomes plentiful, cheap, and accurate.

- **Personalization/Customization**

  The Personalization of marketing messages and technology allows personalized messages to customization of products and services are be delivered to individuals as well as groups. based on individual characteristics.

Threats of E-commerce:

- Hackers attempting to steal customer information or disrupt the site
- A server containing customer information is stolen.
- Imposters can mirror your ecommerce site to steal customer money
- Authorised administrators/users of an ecommerce website downloading hidden active content that attacks the ecommerce system.
- A disaffected employee disrupting the ecommerce system.
- It is also worth considering where potential threats to your ecommerce site might come from, as identifying potential threats will help you to protect your site. Consider:
- Who may want to access your ecommerce site to cause disruption or steal data; for example competitors, ex-employees, etc.
- What level of expertise a potential hacker may possess; if you are a small company that would not be likely to be considered a target for hackers then expensive, complex security may not be needed.

E-Commerce Categories

1. Electronic Markets

Present a range of offerings available in a market segment so that the purchaser can compare the prices of the offerings and make a purchase decision.

Example: Airline Booking System

What does an electronic marketplace do?

An online marketplace is an e-commerce site that connects sellers with buyers. It's often known as an electronic marketplace and all transactions are managed by the website owner. Companies use online marketplaces to reach customers who want to purchase their products and services. Examples of online marketplaces include Amazon, eBay, and Craigslist.

What's the history of electronic marketplaces?

Online marketplaces have been around since 1995, when eBay and Craigslist were founded. eBay launched and became a place that brought sellers and buyers together in an auction setup. Nowadays, there are countless online marketplaces from sites like Amazon, Etsy,

Alibaba, and bol.com.

What are the benefits of an online marketplace?

The biggest advantages of an online marketplace and the reasons many businesses sell via online marketplaces is that:

- It is an additional source of revenue.
- It cuts marketing costs.
- It allows companies to internationalize its business.
- It creates transparency in availability, stock levels, and prices.
- It is a great way for customers to compare prices.
- It allows your company to function 24/7.
- It generates trust between your brand and customers.
- Customers are more likely to purchase from an online marketplace with a wide range of options.
- Businesses need to pay a fee/percentage of sales to the online marketplace platform.
- Selling via your own e-commerce site vs. via a marketplace.

What does the future of online marketplaces look like?

Today, marketplaces are growing at a very fast pace. Analysts predicted that worldwide marketplaces would account for 40% of the global online retail market in 2020. 75% of U.S. marketing experts say that by placing your business where your customers want to buy from will benefit your company's revenue from selling via online marketplaces. The future of your business' success on online marketplaces is to focus on your niche and giving all customers that come via online marketplaces superb customer experiences.

2. Electronic Data Interchange (EDI)

• It provides a standardized system

• Coding trade transactions

• Communicated from one computer to another without the need for printed orders and invoices & delays & errors in paper handling

• It is used by organizations that a make a large no. of regular transactions

Example: EDI is used in the large market chains for transactions with their suppliers

Electronic Data Interchange (EDI): Electronic Data Interchange (EDI) - interposes communication of business information in standardized electronic form.

Prior to EDI, business depended on postal and phone systems that restricted communication to those few hours of the workday that overlap between time zones.

Why EDI?

• Reduction in transaction costs

• Foster closer relationships between trading partners

EDI and Electronic Commerce

• Electronic commerce includes EDI & much more

• EDI forges boundary less relationships by improving interchange of information between trading partners, suppliers, & customers.

Applications of EDI:

1. **Role of EDI in international trade:**

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

2. **Interbank Electronic Funds Transfer (EFT)**

• EFTS is credit transfers between banks where funds flow directly from the payer‘s bank to the payee‘s bank.

• The two biggest funds transfer services in the United States are the Federal Reserve‘s system, Fed wire, & the Clearing House Interbank Payments System (CHIPS) of the New York clearing house

3. **Health care EDI for insurance EDI**

• Providing good & affordable health care is a universal problem

• EDI is becoming a permanent fixture in both insurance & health care industries as medical

provider, patients, & payers

- Electronic claim processing is quick & reduces the administrative costs of health care.
- Using EDI software, service providers prepare the forms & submit claims via communication lines to the value-added network service provider
- The company then edits sorts & distributes forms to the payer. If necessary, the insurance company can electronically route transactions to a third-party for price evaluation
- Claims submission also receives reports regarding claim status & request for additional Information

4. Manufacturing & retail procurement using EDI

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

EDI semantic layer:

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

Standards translation:

- Specifies business form structure so that information can be exchanged
- Two competing standards
  - American National Standards Institute(ANSI)X12

– EDIFACT developed by UN/ECE, Working Party for the Facilitation of International Trade Procedures

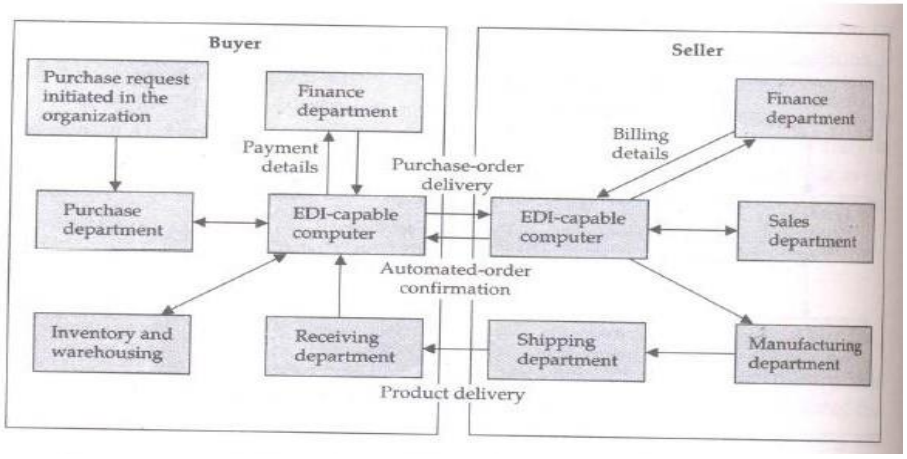
EDI transport layer

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

Physical network infrastructure layer

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

Information flow with EDI:



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

9. Buyer sends payment to seller

Internet Commerce

- It is use to advertise & make sales of wide range of goods & services.
- This application is for both business to business & business to consumer transactions.
- Example: The purchase of goods that are then delivered by post or the booking of tickets that can be picked up by the clients when they arrive at the event.
- The full sales and marketing cycle - for example, by analyzing online feedback to ascertain customer's needs
- Identifying new markets - through exposure to a global audience through the World Wide Web
- Developing ongoing customer relationships - achieving loyalty through ongoing email interaction
- Assisting potential customers with their purchasing decision - for example by guiding them through product choices in an intelligent way
- Providing round-the-clock points of sale - making it easy for buyers to order online, irrespective of location
- Supply Chain Management - supporting those in the supply chain, such as dealers and distributors, through online interaction
- Ongoing Customer Support - providing extensive after-sales support to customers by online methods; thus increasing satisfaction, deepening the customer relationship and closing the selling loop through repeat and onging purchases.
-

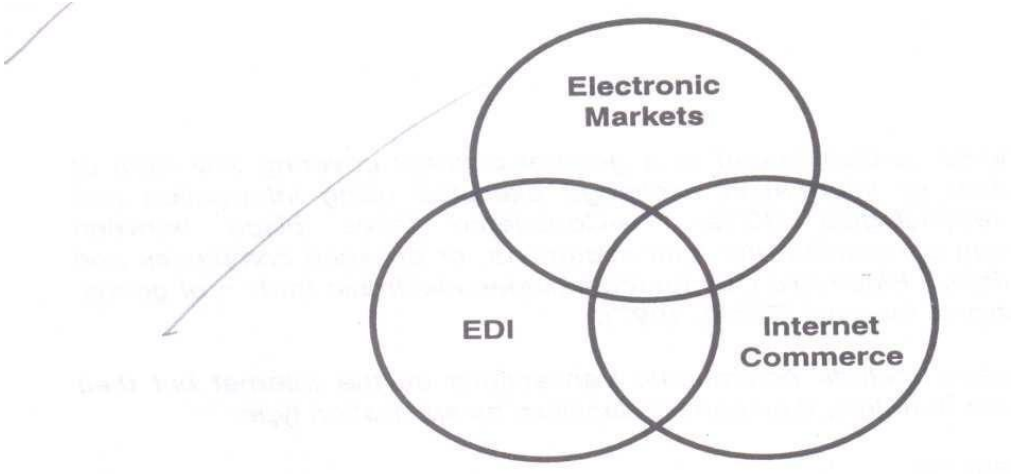


Fig. 1.1 The three categories of e-Commerce.

Overview of developments in Information Technology

- Progress in the field of technology, computers, and telecommunications supports the development of internet technology. With the internet business people no longer have difficulty in obtaining any information, to support their business activities, even now tend to be able to obtain various kinds of information, so information must be filtered to get the right and relevant information. The use of the internet has experienced tremendous developments in the business sector, especially in large scale companies. Since the discovery of internet technology in the 1990s its use has expanded because it is seen as providing enormous benefits for the smooth running of the business or business activities. Motivation and benefits of e-commerce in improving service to customers as well as increasing the competitiveness of companies in this case become the point of view of the author which is used as an object in this study. The application of e-commerce technology is one of the important factors to support the success of a product from a company. To accelerate and increase sales quickly, by looking at the rapid development of information technology, we can utilize an on-line service in the form of ecommerce. So far, the sales system of customers used by companies is only in writing and manual, which often tends to be misleading. With the existence of e-commerce services that can be quickly enjoyed by customers and companies themselves, all services desired by customers can be immediately followed up as quickly as possible, so that the company will be able to provide the best and fastest service for customers. E-commerce, is the use of communication networks and computers to carry out business processes. Mostly e-commerce, occurs between businesses, and not between business and consumers. The development of the use of technology through electronic networks in daily life has covered various aspects, including trade activities. Since ancient times humans have been familiar with cross-country trading activities, which are carried out by exploring continents around the world with simple vehicles or transportation. Technology development very helpful to humans and make human life easier
- E-commerce, on the other hand, is an abbreviation of electronic commerce ,it is a is a big part of e-businesses where enterprises are completely dependent on conducting business online or electronically .it refers to the field of marketing, buying, selling, distributing and servicing different products and/or services over electronic systems such as internet, and e-mail. It aims at using electronic business applications for the purpose of commercial transactions. E-commerce was originally identified with the development of Electronic Data

Interchange (EDI) and Electronic Funds Transfer (EFT) in the late 1970s, where businesses were allowed to send and receive commercial documents like purchase orders or invoices electronically. E-Commerce is believed to have started off in 1994 when the first ever banner appeared on the internet but electric commerce not using the internet must have originated as far back as the 1970s when technologies such as Electronic Funds Transfer and Electric Data Interchange were being used.

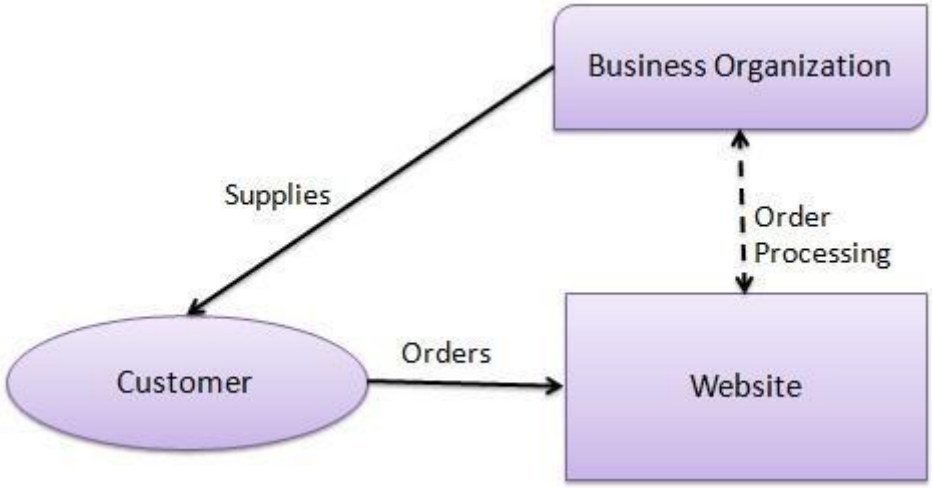
- The development of the World Wide Web in the 1990, gave E-commerce a brand new identity, making it faster and easier for companies to reach their consumers. In today's generation, almost every business conducts some sort of e-commerce, whether it means taking credit cards or accepting online orders. Just like normal commerce, e-commerce can be B2B (business to business) or B2C (business to customers).
- Popular examples of B2C business is Amazon and EBay. If you have a laptop or a desktop then you can easily shop online. It has become very popular in these modern days. Not only can it help you do transactions online, it is also very convenient with all the swipe machines where you can swipe your credit card for payment. People can do a business-to-business transaction via e-commerce called B2B. It can also do a company to consumer transaction called B2C. This is where your orders will be received via shipments and deliveries. You can use credit cards when doing these transactions. One of the best examples for this is when amazon.com do business with their clients. Another popular online shopping site is eBay.

Architectural framework of Electronic Commerce

There are mainly 4 types of business models based on transaction party.

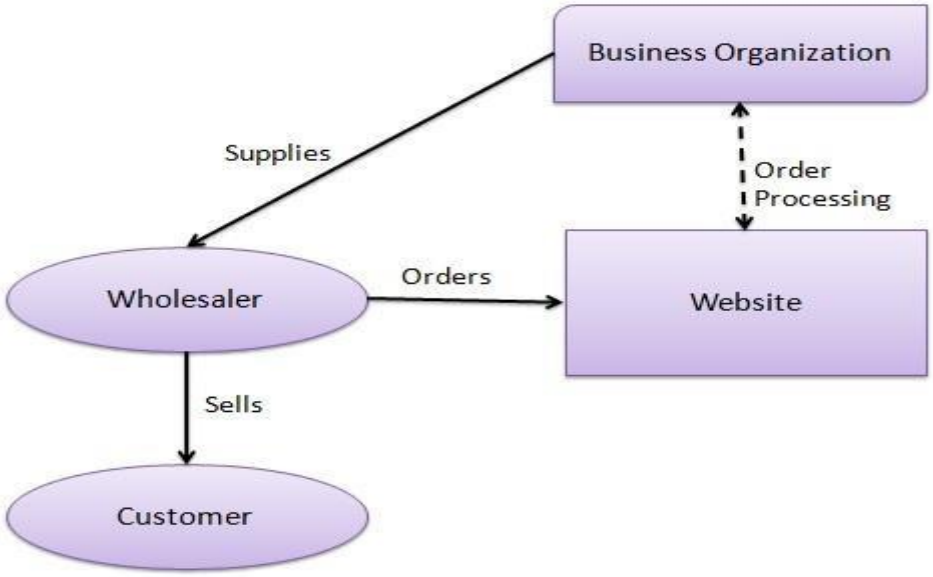
Business-to-Consumer (B2C)

In a Business-to-Consumer E-commerce environment, companies sell their online goods to consumers who are the end users of their products or services. Usually, B2C E-commerce web shops have an open access for any visitor, meaning that there is no need for a person to login in order to make any product related inquiry.


Business Organization
Supplies
Order
Processing
Customer
Orders
Website

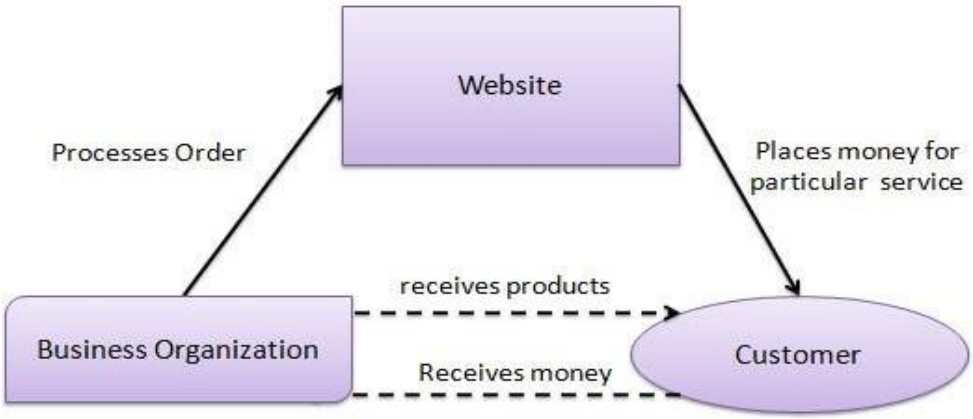
Business-to-Business (B2B)

In a Business-to-Business E-commerce environment, companies sell their online goods to other companies without being engaged in sales to consumers. In most B2B E-commerce environments entering the web shop will require a log in. B2B web shop usually contains customer-specific pricing, customer-specific assortments and customer-specific discounts.



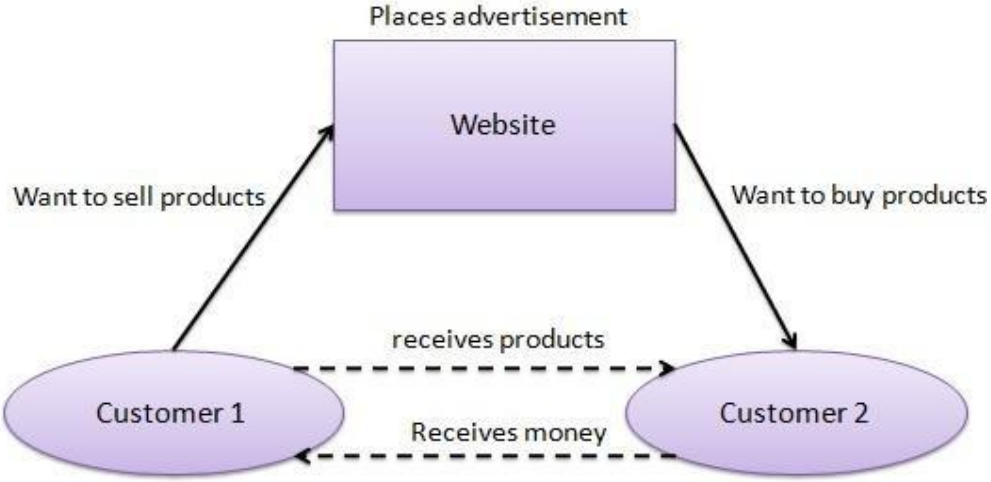
Consumer-to-Business (C2B)

In a Consumer-to-Business E-commerce environment, consumers usually post their products or services online on which companies can post their bids. A consumer reviews the bids and selects the company that meets his price expectations.



Consumer-to-Consumer (C2C)

In a Consumer-to-Consumer E-commerce environment consumers sell their online goods to other consumers. A well-known example is eBay.



E-Governance:

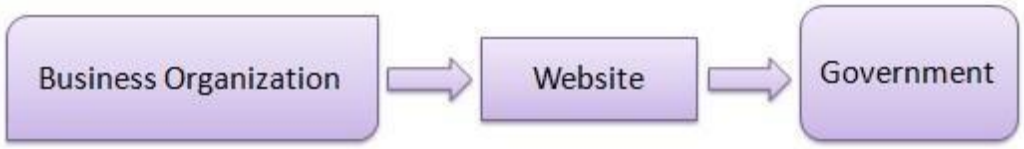
E-governance is the application of information and communication technology (ICT) for delivering government services, exchange of information communication transactions, integration of various stand-alone systems and services between government-to-customer (G2C), government-to-business (G2B), government-to-government (G2G) as well as back office processes and interactions within the entire government framework.

Through e-governance, government services will be made available to citizens in a convenient, efficient and transparent manner. The three main target groups that can be distinguished in

governance concepts are government, citizens and businesses/interest groups. In e-governance there are no distinct boundaries.

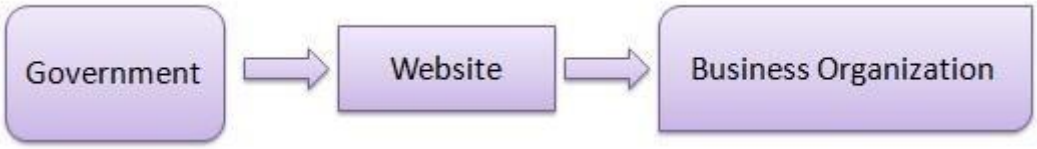
Business - to - Government (B2G)

B2G model is a variant of B2B model. Such websites are used by government to trade and exchange information with various business organizations. Such websites are accredited by the government and provide a medium to businesses to submit application forms to the government.



Government - to - Business (G2B)

Government uses B2G model website to approach business organizations. Such websites support auctions, tenders and application submission functionalities.



Government - to - Citizen (G2C)

Government uses G2C model website to approach citizen in general. Such websites support auctions of vehicles, machinery or any other material. Such website also provides services like registration for birth, marriage or death certificates. Main objectives of G2C website are to reduce average time for fulfilling people requests for various government services.

Architecture of e-commerce applications

1. **Two-tier Architecture (client server)**

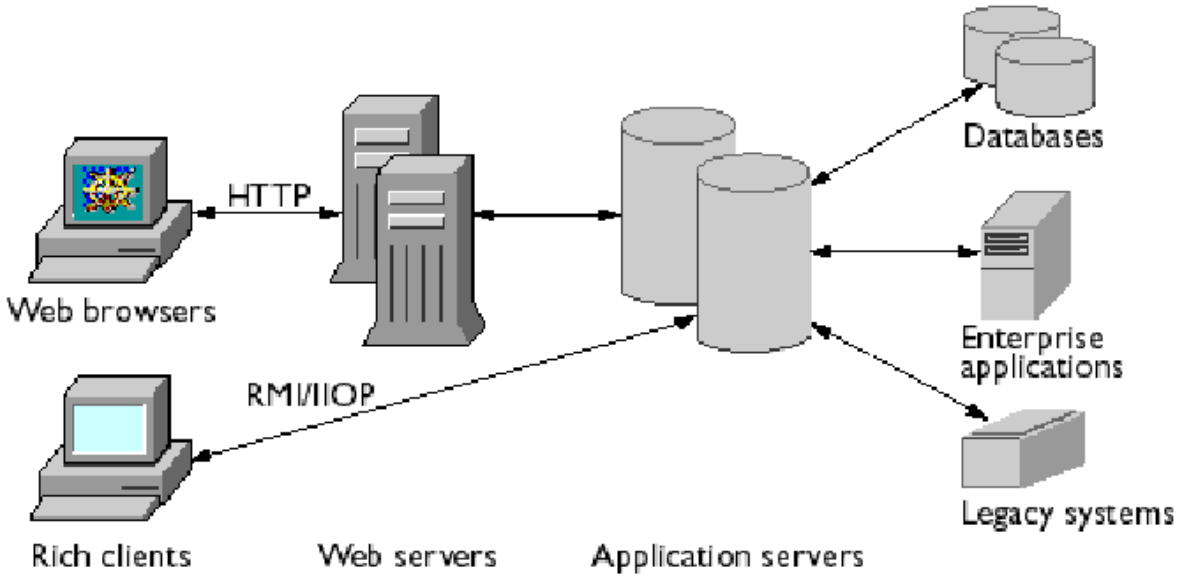
Here, data reside on a server. Business logic and user interfaces reside on clients

Drawbacks:

- Clients sustain the main load and consequently result to be monolithic and heavyweight
- Excessive overhead
- Simple but unsuitable for e-commerce applications

2. **Three-tier architecture**

- It separates the business logic of the application from user interfaces and from data access. Middle tier can be further be divided
- In this case it's called**multi-tier architecture**: it is Easier to modify one component and has lower cost to deploy and maintain.



Application server

- Software that runs on the middle tier of a three-tier environment. In multi-tier environments it is often a distributed and complex software
- Commercial implementations exist:
- Microsoft Commerce Server 2000
- Sun I Planet

- IBM Web Sphere Application Server

Web-based E-commerce is one of the fastest-growing segments of the technology that defines the business strategy. Web-based E-commerce provides easy and better communication between geographically separated buyers and sellers. E-commerce is a way of doing business by enabling better interaction among customers, business partners and business relationship managers using electronic tools. The Web provides an array of electronics tools such as e-mail and Web pages for E-commerce and its related processes. Web-based E-commerce continues to improve convenience and versatility using increased processing power and expanded cellular capabilities and makes it more reachable to the customers.

To design Web-based E-commerce architecture, the following steps are performed:

1. Planning for Web-based E-commerce architecture.
2. Understanding the roles of buyers and sellers.
3. Analyzing the requirements of buyers and sellers.
4. Resolving the issues in Web-based E-commerce.

Planning for Web-based E-commerce architecture:

- The basic idea of designing and building of any architecture is not only to describe the computational steps but also the description of task. To design the architecture of a Web-based system, the following points must be kept in mind
- Understanding the various roles and the kinds of users to ensure that the maximum users can get the maximum advantages of the system to accomplish their aim Understanding the functions of the different modules of the system and their interfaces, i.e. how the different functions perform a special task by exchanging information and how the functions are related to each other in a single unit
- Recording the links of the transaction details of the business in a database. The transaction details contain information such as transition type, purchased item information, i.e. price, item identification and stock information.

- Specifying the trust model for the system: Every system must have at least an implicit trust model that helps maintain the security of the system by providing the details of the relationships between the components.

Understanding the role of a buyer and a seller

As a Web-based E-commerce system is used by different users for different purposes, the roles of the buyers and the sellers need to be considered. The roles consideration helps you to recognize the various operations in designing and analyzing the architecture of-a Web-based Ecommerce system that satisfies all the requirements of the business.

Roles of a buyer:

In Web-based E-commerce, customers have different roles with respect to the services they require or the action they perform. A buyer plays the roles of a Specifier, an approver and a recipient. A specifier selects' the hem to be "purchased, an approver is the person who agrees for purchase and a recipient is the person who gets the delivered items and services.

Buyers' roles are also distinguished according to the relation with the seller such as anonymous buyers and member buyer. An anonymous buyer is a walk-in buyer who uses the system to deal with the seller only once for a simple purchase. A member buyer establishes a membership with the seller by repeatedly purchasing

Roles of a seller:

On the other side of Web-based E-commerce, the sellers also have many roles on the basis of the responsibility assigned to the person in the company

The most important business roles are as follows:

- **Business manager:** They are responsible for all the business approaches such as deciding on-line products and services, determining pricing and establishing business relationships. The success of online business mostly depends on this role

- **Internet commerce architect and the systems analyst:** They create and manage the contents of the transaction process, the technical needs of the buyer and all the outer business requirements into a system design.

• **Content designer:** They are concerned about the look and feel of the Web-based E-commerce system such as graphic designs, page layout and user experience.

- **Content author:** They work within the design of the content designer by creating and adapting the product information to a form.

• **Implementer:** An implementer implements the software and the program, which are used to work with the Web-based E-commerce system.

• **Database administrator:** They are responsible for maintaining the correctness, consistency and integrity of data stored in t database.

• **Sales and marketing team:** They focus on all the efforts to promote Inter-net-based E-commerce.

• **Buyer service representative:** Buyer service representatives handle all the buyer dealings.

3. **Analyzing the requirements of buyers and sellers:** The different requirements of buyers and sellers affect Web-based E-commerce applications. .Web-based E-commerce systems include a client system, a merchant system, a transaction system and a payment gateway. A client system is a computer system that is connected directly or indirectly to the Internet and always used by buyers for browsing and purchasing items. A merchant system is the computer system that contains the electronic catalogue of the sellers of online goods or products. A transaction system is the

computer system that processes an order and stores the information about the transactions. A payment gateway is the computer system that controls the financial networks—for example, authorization and settlement of credit cards used by the buyers.

4. Requirements of a buyer: The Web-based E-commerce architecture is influenced by the structure and presentation of the Website and the facilities provided by the Web browsers that are commonly used by buyers to deal with sellers. Client wallets are used for different payment methods—such as cash and E-payment—by keeping track of the transactions. These payment methods require additional processing such as cryptographic operations. This application is used by only a few buyers, so they are irrelevant for most of the Web-based E-commerce systems. Some buyers use third-party systems such as server-side wallets that are Websites used for buyer payment credential registration for the sellers without using special client software.

5. Requirements of a seller:

In a Web-based E-commerce architecture, the seller is involved in all the stages of E-commerce sales life cycle. Two things are common for every Web- based E-commerce architecture: one, creative presentation of products and two, payment service. Some of the seller requirements are stated as follows:

- Content management system is responsible for the creation and management of dynamic updated contents of the Website and the whole Web presentation.
- Transaction processing system is used to track the transaction information such as item, buyer, cost of item, type of the payment and status of the service.
- Payment processors control the money movement. For example, in the credit card payment system, the seller connects to a credit card processor for the authorization.
- Fulfillment systems are used to handle the packing and the shipping orders of the deliverable products.

UNIT – 1

PART - A

1. Progress in the field of technology, computers, and telecommunications supports the development of internet technology. Justify this statement by explaining the overview of developments in Information Technology
2. Electronic commerce, commonly known as E-commerce is trading in products or services using computer networks, such as the Internet. Justify this statement
3. Sharing business information, maintaining business relationships and conducting business transactions using computers connected to telecommunication network is called E-Commerce Point out the advantages and disadvantages of using e-commerce
4. An online marketplace is an e-commerce site that connects sellers with buyers. Justify this statement
5. Point out the advantages of an online marketplace and the reasons many businesses sell via online marketplaces
6. Electronic Data Interchange interposes communication of business information in standardized electronic form. Support this statement by explaining the applications of EDI.

PART – B

1. Technological advances have a remarkable impact on the strategy formulation in E-commerce. Elucidate
2. Analyze the Architectural framework of Electronic Commerce with respect to the business models based on transaction party.
3. Point out the evolution of EDI. What are the benefits of EDI in e- commerce? Elucidate
4. In a Consumer-to-Consumer E-commerce environment consumers sell their online goods to other consumers. Justify this statement
5. Various threats are hampering widespread use of e-commerce. Elucidate
6. In a Business-to-Business E-commerce environment, companies sell their online goods to other companies without being engaged in sales to consumers. Justify this statement

REFERENCES

1. Elias. M. Awad, " Electronic Commerce", Prentice-Hall of India Pvt Ltd.
   RaviKalakota, Andrew B. Whinston, "Electronic Commerce-A Manager's guide", Addison-Wesley.
2. Efraim Turban, Jae Lee, David King, H.Michael Chung, “Electronic Commerce–A Managerial Perspective",
3. Addison-Wesley. rd 4. Elias M Award, “Electronic Commerce from Vision to Fulfilment”, 3 Edition, PHI, Judy Strauss, Adel El-Ansary, Raymond Frost, “E-Marketing”, 3RDEdition, Pearson Education

SATHYABAMA
INSTITUTE OF SCIENCE AND TECHNOLOGY
(DEEMED TO BE UNIVERSITY)
Accredited "A" Grade by NAAC | 12B Status by UGC | Approved by AICTE
www.sathyabama.ac.in

SCHOOL OF MANAGEMENT STUDIES

UNIT – II CONSUMER ORIENNTED ECOMMERCE– SBAA3008

UNIT - 1

CONSUMER ORIENTED E COMMERCE

INTRODUCTION

E-retailing

E-retailing essentially consists of the sale of goods and services. Sometimes we refer to this as the sale of tangible and intangible goods, as shown in Figure 6.1. We can divide tangible goods into two categories: physical goods and digital goods. Examples of physical goods would be a book, a television set, a video recorder, a washing machine, etc. Examples of digital goods are software and music, which may be downloaded from the internet. The sale of intangible goods is sometimes called e-servicing. -Examples of services that may be sold are information such as the most recent stock prices, the most recent foreign exchange rate, or education. Entertainment such as games that would be played on the internet is also examples of e-services. So are the sales of services such as telecommunication services or banking services. The sale of tangible and intangible goods are all referred to as customer oriented e-commerce or e- retailing, if they are sold directly to the consumer who is the end user. Here we discuss the sale of tangible goods.

The first one considered is **size**. The important point to realize here is that no matter how large the company is your e-store presentation is still-limited to the size of the computer screen, which may be, say, 15 in. It is not necessary to look at the number of outlets in cyberspace because you probably need only one web set up. However, this web site is linked to other similar web sites and portals. therefore, it is not the number of outlets that is important but the number of links from other important sites to your web site which is far more important. When one thinks of visibility, it is all the more important in cyberspace. It is notes enough to create a web site; you have to let the world know the existence of your ‘web site and that people can purchase from you’re-store. When looking at visibility, important point to realize here is that most people find information on the Internet: trough the use of search engines. Therefore, it is very important to register the web or estore with the most common or the most widely used search engines, such LS-Lycos, Alta Vista, and Yahoo. It is also important to link your web site with other well-known web sites that have similar interests, or major portals such as Yahoo, which link back to your e-store. This can greatly increase the visibility of the web site.

When considering location, we note that the geographic boundaries no longer exist. A local e-store and a foreign e-store are both just “one click” away. **Store atmosphere** is particularly important on the web. The “look and feel” of web site should match with the company’s image as well as the market position Look it seeks to address.

Thus, if you are selling very up-market clothes such as Gucci and Armani, your web site for these stores should

have a sophisticated look and feel rout it. On the other hand, if you are selling other kinds of goods, you could choose to have a slightly jazzier image on your web site. The front page or the homepage of your e-store is particularly important. It may be the only chance that you get of. Wring a potential customer into your e-store. In some ways it plays a similar role fur the e-store that the window display plays for the traditional store. What is also important is in going through this store. The layout of the store has to be such that it facilitates the customer's interests. The **advantage of using store layouts** in the e-store is that the layout can actually be made dynamic and be determined by the customer's interests. The customer's interests could be obtained from data mining his previous purchases at the e-store. This is the major difference between a traditional store and an e-store.

Price is very important in cyberspace because the customer can easily carry out comparison pricing between your e-store and other e-stores not just in your immediate neighborhood but all around the world. Also some e-brokers provide agents or services that carry out comparison pricing; therefore, the customer can easily find me cheapest price. For this reason, it is important that in e- retailing one sets up a competitive pricing structure. Next, when one looks at the variety of goods, one here needs to consider very carefully whether you are setting up a specialized e-store or an e-department store. If you are setting up a specialized e-store, then you need to gain access to the specific target group of customers you are interested in because they can travel so easily in cyberspace to reach you. When one looks at profit margin and turnover, generally profit margins per item tend to be lower with e-retailing, and so turnover must be higher.

Lastly, if one examines profitability one finds that this is still important with the e-stores, but in recent times the share price of the e-store appears. to have assumed more importance in the eyes of investors. However, in the long run, profitability will assume more importance. An on-line customer salesperson, "who" can help customers to navigate through the site.

An order status checking facility, which is a useful feature before submission.

The use of Forums (collaborative purchasing circles) to create a customer community and thus increase "stickiness."

DIFFERENCE BETWEEN TRADITIONAL RETAILING AND E- RETAILING

Traditional Retailing

Traditional Commerce or Commerce is a part of business, which encompasses all those activities that facilitate exchange. Two kinds of activities are included in commerce, i.e. trade and auxiliaries to trade. The term trade refers to the buying and selling of goods and services for cash or kind and auxiliaries to trade, implies all those

activities like banking, insurance, transportation, advertisement, insurance, packaging, and so on, that helps in the successful completion of exchange between parties.

In finer terms, commerce encompasses all those activities that simplify the exchange of goods and services, from manufacturer to the final consumer. When the goods are produced, it does not reach to the customer directly rather it has to pass from various activities, which are included under commerce. Its main function is to satisfy the wants of consumers by making goods available to them, at the right time and place.

E-Retailing

The internet has allowed a new kind of specialization to emerge. Instead of specializing just in a special product line, they allow specialization in particular classes of customers and sellers. Thus, we see lastminute.com, which allows last minute purchases of travel tickets, gift, and entertainment to be matched against last minute sellers of the same items. Here, we see specialization not in a product line but in a class of purchasers and a class of sellers. This kind of specialization would not have been possible before we had the internet. In addition to these specialized stores, we also get generalized e- stores where a store sells several product lines under a single.

Key Success Factors for Traditional Retailing

There are a number of key success factors which have been identified for traditional retailing. Two of these are the **size and the number of outlets**. The larger the retailer, the greater the buying muscle and therefore the lower the price for procurement. The number of outlets also allows the retailer to spread the purchase costs over a larger inventory. In addition, the number of outlets provides for better visibility. The retailer is now visible to the customer at many geographical locations rather than just one. Location is, of course, an extremely important success factor in traditional retailing. The retailer may choose to be sited in the central business district, in a regional area, in a shopping complex, or in a street of shops. This may relate to the category of customers and the costs associated with the site. Other factors that are very important in traditional retailing are **store atmosphere and store layout** Store atmosphere evokes a particular look and feel about the retailer and is therefore important to the positioning in the market. Store layout is important in creating an atmosphere but is also important in ensuring that one groups different sets of products together, so that the purchase of one product will frequently lead to the purchase of another, thus allowing for cross selling. **Price** is important and here it is probably have lower inventories. Thus, while Amazon.com lists over a few million titles, it keeps an inventory of a few thousand best selling not necessarily the cheapest price, but the price which is consonant with what the customer expects to pay for the goods. The variety of goods in the case of a large store, particularly of a department store, is also important because a customer would come in looking for one set of goods and then choose to purchase

others. Profit margins are important in traditional retailing, and last but not least is the level of turnover.

To summarize; the key success factors for traditional retailing are

- size
- number of outlets .
- visibility
- location
- store atmosphere
- store layout
- price
- variety of goods
- profit margins
- turnover

BENEFITS OF E-RETAILING

To the customer

Customers enjoy a number of benefits from e-retailing. The first of these is **convenience**. It is convenient for the customer as he does not have to move from shop to shop physically in order to examine goods. He is able to sit in front of a terminal and search the net and examine the information on goods. The second aspect of convenience he gets is in terms of time. Normally, the traditional shop has an opening time and a closing time and the customer can only visit the shop within these periods. On the net, the customer can choose at any time to visit a site to examine the goods that are available and actually carry out his purchasing at one's own convenient time. The third type of convenience that the customer gets is that he has access to a search engine, which will actually locate the products that he describes' and also the site where they may be available, or perhaps even locate the sites where they may be available at the best price

The second type of benefit to customers is better information. The Internet and the World Wide Web are essentially communication media that allow retailers to put on quite extensive information related to their products, which is available to the customers. Furthermore, since the customer can look at several sites, he will be able to obtain different pieces of information from each site to build a far better picture for himself about the products that he is interested in. In some sites, there are customer reviews of different products as well as reviews by the business itself. An example of this can be found on Amazon.com. Examples of these generalized stores include JC penny and Walmart.

WEBSERVICES

- A web service is any piece of software that makes itself available over the internet and uses a standardized XML messaging system. XML is used to encode all communications to a web service. For example, a client invokes a web service by sending an XML message, then waits for a corresponding XML response. As all communication is in XML, web services are not tied to any one operating system or programming language—Java can talk with Perl; Windows applications can talk with Unix applications.
- Web services are self-contained, modular, distributed, dynamic applications that can be described, published, located, or invoked over the network to create products, processes, and supply chains. These applications can be local, distributed, or web-based. Web services are built on top of open standards such as TCP/IP, HTTP, Java, HTML, and XML.
- Web services are XML-based information exchange systems that use the Internet for direct application-to-application interaction. These systems can include programs, objects, messages, or documents.
- A web service is a collection of open protocols and standards used for exchanging data between applications or systems. Software applications written in various programming languages and running on various platforms can use web services to exchange data over computer networks like the Internet in a manner similar to inter-process communication on a single computer. This interoperability (e.g., between Java and Python, or Windows and Linux applications) is due to the use of open standards.

To summarize, a complete web service is, therefore, any service that −

- Is available over the Internet or private (intranet) networks
- Uses a standardized XML messaging system
- Is not tied to any one operating system or programming language
- Is self-describing via a common XML grammar
- Is discoverable via a simple find mechanism

E Commerce for Service Industry

The E commerce for service Industry are explained below

E-Services

The delivery of services via the internet to consumers or other businesses can be referred to by the generic term of e-services. There is a wide range of e-services currently offered through the internet and these include banking, loans, stock trading, jobs and career sites, travel, education, consultancy advice, insurance, real estate,

broker services, on-line publishing, and on-line delivery of media content such as videos, computer games, etc. This list is by no means exhaustive and it is growing all the time. In this lecture, we will give an overview of eservices. In order to bring some order to discuss of these wide variety of e-services, we organize them into the following categories, namely. Web-enabling services, which were previously provided by humans in office agencies and/or their branches. The primary purpose here is that these services help to save time and effort for the user; bring convenience, and improve the quality of life. In many cases, it can result in a reduced cost for the consumer.

E-services that fall into this category include

1. Banking
2. Stock trading
3. Education

In some cases, this may bring a new dimension to the original service, enhancing and altering it. E-education is an example of this. It may also bring into the catchments new groups of consumers of the service to whom it might not have been previously accessible.

Matchmaking services. These take a need from an individual or business customer and provide mechanisms (from providers) for matching that need.

E-services that fall into this category include

- Jobs and employment sites
- Travel
- Insurance
- Loans including mortgage loans
- Real estate sales
- Brokers

The advantage of this kind of matchmaking through the internet is that the ability to search electronically over a wider area to satisfy the customer need and to more precisely meet the customer need is greatly facilitated by both computerization and communication over the internet.

Information-selling on the web. This group essentially sells information content of one sort or another and includes ecommerce sites that provide on-line publishing such as web-based newspapers consultancy advice specialized financial or other information

Entertainment services. These provide internet-based access to videos, movies, electronic games, or theme sites. This E-entertainment sector is expected to grow rapidly in the next few years, with a convergence of TV

and internet-based technologies.

Specialized services such as auctions. Many different auction sites have appeared and these are discussed further in this lecture. It is not possible to discuss all the different eservices in this lecture and so we will briefly sample only a few examples for each category.

Web-Enabled Services - Web-enabled services include personal banking, stock trading, and education.

E-banking

Security First Network Bank (SFNB;)was the first internet bank. It provides most of the banking services on the web. Therefore, you can do your banking with your fingers instead of your feet. Looking at e-banking, we can distinguish between twp distinct models:

Pure cyber banks

Traditional banks that provide e-banking to complement their retail banking SFNB. is a pure cyber bank, while the homepage of Bank of America illustrates the second model. While not all banks offer the full range of services on the internet, banks in both the mentioned groups offer a varied range of services including personal banking commercial banking for both small businesses and large corporations financial services loan application services international trade including settlement instruments, foreign exchange transactions, etc.

There are significant advantages for both the individual or corporation as well as the bank in using e-banking. An individual doing personal banking on the internet can, amongst other things, pay bills, do account transfers, make queries on account balances, obtain statements, in some cases view images of checks, etc., and import transactions directly into home account management software. Furthermore, one can make such transactions 24 hours a day from any place with internet access around the world. In addition to these, a number of banks offer personal financial services including making personal loan applications on the internet. All these represent a large increase in convenience and time saving for the bank customer, saving him trips to the bank branch, queuing, etc.

The advantages to the banking institutions themselves include reduction in the number of retail banking branches, saving rentals or ownership of the related properties. Reduction in staffing because of the reduction in paper processing as well as face-to face bank teller contact. bringing about increase in the time the bank hangs on to the money before making the required transfers, leading to increase in interest received by the banks. These advantages are so significant that some banks offer customers a number of incentives to -switch to internet banking, such as free checks, reduced fees, increased deposit rates, etc.

E-stock trading and e-investing - Several companies such as E-Trade .Datek.on-line, American Express Financial Services, etc. allow you to trade stocks, bonds, mutual funds, etc. on the internet. These companies offer you to trade at a very small cost compared to discount brokers or full-service brokers. This has resulted in these on-line trading companies grabbing an increasing market share. In response to this, discount brokers

including Charles Schwab and full-service brokers have also moved to introduce internet trading of stocks.

The steps involved essentially are the following:

- place a request to trade, say buy a stock
- the system responds with current "on the web site" prices
- the internet trader has to confirm this trade or cancel it Several companies allow one to create a simulated portfolio, which one watches over time without actually buying or selling the stocks in reality. An example of this can be found on the Smart Money site .

The major advantages to the person doing the trading are

- the reduced cost;
- the convenience of being able to trade anywhere in the world with internet access, e.g. while travelling; and
- access to a wide variety of information on a number of sites.

In addition to actually allowing you to trade, these sites provide a considerable amount of information. The reduction in margins available to stockbrokers as a result of internet trading is beginning to have an effect on other more traditional forms of brokers. This has led to some traditional brokers also providing internet trading of stocks.

E-education

A number of e-universities are being spawned around the world. Again, three models can be seen:

Pure cyber universities, such as Jones International University

Traditional universities setting up new cyber vehicles for providing university education perhaps with other business partners. An example of this the Hong Kong CyberU .which was set by the Hong Kong Polytechnic University and Pacific Century Cyber Works. Traditional universities offering courses themselves on the internet. There are a number of web-based technology tools for this purpose. An example is Web CT. A number of so called "open universities" that previously provided distance learning have moved into providing an internet-based version of their courses. These traditional universities have a number of advantages. They can now reach a client base that is outside their catchment. They also expect to be able to deliver these courses at a reduced cost; however, the jury is still out on this. Another advantage a traditional university has on the internet over a new pure cyber university is that it has an established brand name. There are a variety of issues that need to be explored carefully when preparing to deliver educational material on the internet and these include the following

Does one use a distance learning model where the student uses a PULL model to acquire the material?

Does one use a traditional lecture model using video streaming? This is a PUSH model whereby a teacher "pushes" the materials to the students.

The use of the 'internet for education opens up many possibilities, namely use of quizzes, tests to provide the student with instant feedback on his/her mastery of the materials, use of graphics and animation to explain concepts, particularly those that have a dynamic character to them. It is anticipated that the internet will not only lead to cyber universities of one kind or another but will also have a marked effect on teaching and learning in traditional universities. One among some of the innovations that are being explored is the joint teaching by two universities on different continents in order to enhance the learning experience.

Matchmaking Services

This has perhaps been the area in which there has been the greatest growth in eservices. Essentially, in most of these applications, the customer who could be an individual or business specifies his requirements in relation to the service. The e-commerce site then does a search over its own databases or over the internet using mobile agents, or over other databases or web sites to look for one or more matches to these requirements. The information is then returned to the e-service provider site to give the customer the required service.

Travel Services

Before the internet, one might have gone along to a travel agent in order to book one's travel requirements such as air tickets, train tickets, car hire, hotel, tours, etc. The travel agent would try his best to meet these requirements by providing information regarding schedules, pricing, promotions, as well as suggestions on changes to de itinerary. These bookings could be for individuals or corporations involving corporate rates, etc. A large number of e-commerce sites have appeared, which address this precise market segment. These include trip.com travelweb.com, and priceline.com. These web sites work in exactly the same way. When a customer provides requirements, these sites do a search of their own databases or send agents our _ explore other web sites and respond to the consumer. Amongst the requirement that the customer could specify is an acceptable price. A number of sites, such as priceline.com, require that provided the price specified is met, the customer cannot refuse the offer found. These ecommerce sites are beginning to grab an increasing part of the travel market. They are attractive to consumers because of the convenience, the ability to meet requirements such as specified prices, and in some cases like lastminute.com, a special customer need (i.e" booking at the last minute). These travel sites often also have a lot of information on promotions, suggestions, etc., which are useful for customers. These ecommerce sites are having a strong "disintermediation" effect. Disintermediation refers to the removal of intermediaries such as travel agents from the process involved in the purchase of the service.

A recent increasing trend has also seen the primary provider of a service such as an airline introducing internet **based booking at reduced prices, further emphasizing the disintermediation effect.**

E-employment and e-jobs

There are several different kinds of services provided here, namely sites where you can get advice on developing your resumes and can post your resumes on the web recruiters who use the web site to post available jobs, such as Hot jobs or Job direct employers who list available jobs on the web sites matchmaking facilities that search the internet for jobs for jobseekers based on a specification, such as matchmaking facilities to search the internet for resumes that best fit a job description given by a prospective employer use of agents to do the search These approaches of using the internet for e-employment or e jobs avoid many of the costs and difficulties associated with traditional approaches to advertising, such as high cost, limited duration, and minimal information.

Others

In some areas, such as real estates e.g., the visualization '(3D' facilities provided on the web allow one to either show visualizations of buildings at the drawing board stage, or low people distant from the physical site of building to actually visualize it This area of matchmaking and brokering services is expected to grow greatly in the near future with e-commerce sites exploiting new market niches. This is also an area with the greatest likelihood of disinter mediation, and traditional agents or brokers will have to build new dimensions to their services in order to survive.

E-Entertainment

This is expected to be a growing area of e-commerce in the future. A number of companies are gaining access to or have purchased large inventories of movies or other entertainment material with the view of allowing people to download this on the web. Sites here vary from theme sites that use a small amount of interactive entertainment to promote their products, such as Disney, to others that provide games either for a fee or are free coupled together with advertising that pays for the site. An important issue here is that the payments involved are relatively small for each transaction, and hence the use of micro payment techniques is likely to be of considerable importance here.

Electronic Commerce and Banking

“Banking is vital to a healthy economy. Banking as a business can be subdivided into five broad types: retail, domestic wholesale, international wholesale, investment, and trust. Of all these types, retail and investment banking are most affected by online technological innovations and are the ones that stand to profit most from electronic commerce. The role of electronic commerce in banking is multifaceted impacted by changes in technology, rapid deregulation of many parts of finance, the emergence of new banking institutions, and basic economic restructuring. Given these environmental changes, banks are reassessing their cost and profit structures. Many banks feel that in order to be profitable they need to reduce operating expenses and maintain strict cost control. This philosophy is evident in the many mergers and acquisitions occurring in the banking industry. The challenge behind bank restructuring lies in adequately operational zing the notion of cost control.

Technology is the predominant solution for controlling costs. Banks are Increasingly help to reduce operating costs and still provide adequate customer service. Innovation and technology are becoming the key differentiators in the financial services business. Advance in networking, processing, and decision analytics have allowed institutions to lower service costs. Technology has also accelerated the pace of product innovation. For example, sophisticated arbitrage instruments like derivatives are changing the nature of investment banking.

The Securities and Exchange Commission’s decision to allow Spring Street Brewery to trade its stock online may also fundamentally change investment banking by disinter mediating the traditional role of underwriting. Technology is enabling the development of new products and services. For example, technology is capable of replacing or expediting tedious financial exercises like check writing, filing taxes, and transferring funds. Although large businesses have automated these tasks, many small businesses and most households still do them manually. This is not surprising; large businesses have been undergoing computerization for more than thirty years, whereas PCs have been entering households in significant numbers only in the last few years. Technology is changing the interaction between banks and consumers. In particular, technological innovations have enabled the following capabilities: online delivery of bank brochures and marketing information; electronic access to bank statements; ability to request the transfer of funds between accounts; electronic bill payment and presentment; ability to use multiple financial software products with “memory” (thus eliminating the need to re-enter the same data); online payments—encrypted credit cards for transferring payment instructions between merchant, bank, customer; and finally, micro payments (or nickel-and-dime transactions using electronic cash and electronic checks). These online capabilities increase the facility and speed of retail banking. However, new technology is a double-edged sword. While it enables banks to be more competitive through huge investments, it also enables new competition from fast-moving, non banking firms. This trend can be seen in the area of online payments, where recent innovations have provided an opportunity for non banks to break into the banking business, threatening the banking stronghold on one of the last key services provided by banks. The present nature of online payments is a clear indication that if the banking industry fails to meet the demand for new products, there are many industries that are both willing and able to fill the void.

Technology also creates problems in the product development lifecycle. In the past, banks had the luxury of long roll-out periods because successful investment in retail banking required a large monetary commitment for product development. This financial requirement pre-vented new participants from entering the market and was a key determinant of success. This is no longer the case. Instead of a single institution doing everything, technology allows the creation of a "virtual financial institution" made up of firms, each contributing the best-of-breed software or products to the overall product. In this new "virtual model," banks compete with the twelve-to-eighteen-month product development times of companies like Intuit or Netscape, which have product life-cycle times of only six to nine months.

Changing Dynamics In Banking Industry

In recent years, there has been a major change in the way banks strive for increased profitability. In the past, the banking industry was chiefly concerned with asset quality and capitalization; if the bank was performing well along these two dimensions, then the bank would likely be profitable. Today, performing well on asset quality and capitalization is not enough. Banks need to find new ways to increase revenues in a "mature market" for most traditional banking services, particularly consumer credit. A thorough understanding of this competitive environment is needed before banks can determine their online strategy. Five distinct factors contribute to the new competitive environment:

- Changing consumer needs driven by online commerce
- Optimization of branch networks in order to reduce costs,
- Changing demographic trends and potential new consumer markets
- Cross-industry competition caused by deregulation, and
- New online financial products.
- Changing Consumer Needs

Consumer requirements have changed substantially in the last decade. Customers want to access account-related information, download account data for use with personal finance software products, transfer funds between accounts, and pay bills electronically. Of course, along with these services, banks must be able to supply/guarantee the privacy and confidentiality that customer's demand, which is not a trivial matter to implement on the part of the banks. Many consumer requirements are based on a simple premise: customers and

financial institutions both seek closer and more multifaceted relation-ships with one another. Customers want to be able to bank at their convenience, including over the weekend or late at night. Bankers want more stable and long term relationships with their customers. From the bank's perspective, developing and maintaining this relation-ship is difficult. Although financial products are essentially information products and financial institutions are highly automated, there is a gulf between automated information and the bank's ability to reach the consumer in a unified way. This gulf is filled with established methods, such as branches, postage and mail, advertising, and people on telephones. These methods can be costly and impersonal. Electronic banking provides a method of communication that will enable the bank customer to be reached, served, and sold products and services in their homes and offices whenever it is convenient for them-twenty-four hours a day, seven days a week.

Banking Via Online Services

Although personal finance software allows people to manage their money, it only represents half of the information management equation. No matter which software package is used to manage accounts, information gets man-aged twice once by the consumer and once by the bank. If the consumer uses personal finance software, then both the consumer and the bank are responsible for maintaining systems; unfortunately, these systems do not communicate with one another, thus giving new meaning to double-entry bookkeeping. For example, a consumer enters data once into his system and transfers this information to paper in the form of a check, only to have the bank then transfer it from paper back into electronic form. Unfortunately, off-the-shelf personal finance software cannot bridge the communications gap or reduce the duplication of effort described above. But a few "home banking" systems that can help are beginning to take hold. In combination with a PC and modem, these home banking services let the bank become an electronic gateway, reducing the monthly paper chase of bills and checks

Citibank and Prodigy - To understand the more contemporary online banking services, we look at Citibank and Prodigy. Prodigy has been pro-viding home banking to consumers since 1988, and has relationships with more banks than any commercial online service. To expand the attractiveness of its online banking services, in 1996 Citibank began offering Prodigy subscribers a free and direct link to its electronic home banking service. Access to Citibank is available to Prodigy sub-scribers at no extra fee throughout the New York metropolitan area. The agreement represents the first time that Citibank has expanded access to its proprietary PC Banking service through a commercial online service. To en-courage Citi Bank customers to try online banking through Prodigy, free Prodigy software will be made available at local Citi Bank branches. CitiBanking on Prodigy offers a full

range of banking services. Customers can check their account balances, transfer money between accounts, pay bills electronically, review their Citi Bank credit card account, and buy and sell stock trough Citi Corp Investment Services. Citi Bank and Prodigy al-low customers to explore the wide array of services using an interactive, hands-on demonstration.

Banking via the Web: Security First Network Bank

With the explosive growth in Internet use, banking via the World Wide Web will undoubtedly catch on quickly. The goal of this approach to banking is to provide superior customer service and convenience in a secure electronic environment. The competitors in this segment are banks that are setting up Web sites, and firms like Intuit that can easily transport their product to the Internet. Banking on the Internet is not the same as banking via online services. Internet banking means that: Consumers do not have to purchase any additional software (the Web browser is sufficient), store any data on their computer, back up any information, or wait months for new versions and upgrades, since all transactions occur on a secure server over the Internet. Consumers can conduct banking anywhere as long as they have a com-puter (not necessarily their own computer) and a modem-whether at home, at the office, or in a place outside the United States. Banking via online services is restrictive in that the consumer has to install a soft-ware package onto her computer. This limits the customer to banking only from that computer, making a call to access a separate network, working with a separate software company, and banking during limited hours of operation. Consumers can download account information into their own choice of programs rather than following the dictates of the service provider. Internet banking allows banks to break out of the hegemony of software developers. If bank customers (end users) install personal financial management software on their PCs, these customers become direct customers of software firms. By controlling the software interface, software firms such as Intuit can control the kinds of transactions end users make and with whom these transactions occur. By maintaining a direct relationship with end users via the Web, banks can offer additional services and provide a personal feel to the interface, without seeking the cooperation of a software company. If banks choose to offer home banking via personal financial management software, they lose control over the end user interface and the relationship they have with customers. This loss of control has tremendous long-term implications. The software industry history offers com-pelling proof of the importance of organizations having a direct relationship with consumers. In the early 1980s, IBM decided that operating systems were not central to IBM business strategy. As a result, IBM licensed DOS from a small software company called Microsoft. IBM called this operating system PC-DOS and allowed Microsoft to market this same operating system to competing computer manufacturers under the name of MSDOS. IBM’s seal of approval made DOS an industry standard. However, IBM was unable to move the industry to a new operating system called OS/2 in the late 1980s because Microsoft controlled the customer relationship and was able to

convert most end -users to Windows. For banks, too, losing control over the interface could have dire consequences.

Management issues in Online Banking

The challenge facing the banking industry is whether management has the creativity and vision to harness the technology and provide customers with new financial products necessary to satisfy their continually changing financial needs. Banks must deliver high quality products at the customers' convenience with high-tech, high-touch personal and affordable service. In order to achieve this, management has to balance the five key values that increasingly drive customers' banking decisions: simplicity, customized ser-vice, convenience, quality, and price. Online banking will realize its full potential when the following key elements fall into place: The development of an interesting portfolio of products and services that is attractive to customers and sufficiently differentiated from competitors.

- The creation of online financial supply chains to manage the shift from banks as gatekeeper models to banks as gateways.
- The emergence of low-cost interactive access terminals for the home as well as affordable interactive home information services.
- The identification of new market segments with untapped needs such as the willingness to pay for the convenience of remote banking.
- The establishment of good customer service on the part of banks. The fact that technology increases the ease of switching from one bank to an-other means that banks that do not offer superior customer service may see low levels of customer loyalty.
- The development of effective back-office systems that can support sophisticated retail interfaces.

- Marketing Issues: Attracting Customers - The benefits of online banking are often not made clear to the potential user.

Where is the consumer gaining value?

Perhaps the answers to these questions are not clear to the bankers themselves. Regardless of how a bank chooses to answer these questions, it is clear that make a mistake trying to sell online banking services on the basis of convenience. While short term convenience is important, consumers want 19-term ability to control and organize their finances more than they want convenience. Banks must also look beyond home consumers for

online banking consumers. The rapidly growing use of personal computers by small business- provides a solid opportunity for banks to build a profitable base of small business until a broader consumer market evolves. There are mil-lions of small businesses with annual sales ranging from Rs. 250,000 to Rs. 5 million. Many of these firms have PCs and modems. New services like interactive cash management services could generate significant revenues for banks. Industry studies indicate that 20 percent of small businesses are immediate prospects for online banking and are willing to pay more than individual consumers for the service-up to $100 a "month. Thus, banks have opportunity to tap into this market segment.

Marketing Issues: Keeping Customers

Keeping customers (or customer loyalty) requires the following: Banks must switch the costs of moving from one software platform to other to keep customers from moving. Customers are increasingly familiar with using technology to access bank accounts and to handle financial affairs, and this familiarity increases interest in additional vices and increases switching costs. Banks must provide integrated services. The of cited time squeeze on consumers long commutes, heavy workload, family obligations, household management is pushing consumers toward integrated services that can speed up financial procedures. These integrated services contribute to cementing the customer relationship. Banks can realize the positive cost implications for the long-term value of building customer loyalty. In the online world, there is not a big cost difference between serving one customer and serving 100,000 customers. Clearly, marketers must also work on building a loyal customer base not only in order to maintain the existing base, but also in order to be attractive to potential customers.

ve the electronic counterpart of malls or e-malls. E- malls essentially provide a web-hosting service for your individual store much in the way that mall provide a hosting service in the sense of a physical location for your store.

Examples of these e-malls are Yahoo!Store, GEOShops, and CNET Stores:

In the future we may see the equivalent of franchise stores developing. One new class of business that is developing very quickly on the internet is the e-broker. The e-broker does not sell directly to a customer but brings the customer in touch with a particular supplier, so that a given set of criteria specified by the customer is satisfied. For example, the customer may want to buy goods at the cheapest price and so the e-broker would then do a search to find the supplier that would provide the cheapest goods. Or, a customer may want to find a particular kind of goods and the e-broker sets about determining which supplier would provide those goods. This area of e-broking is likely to grow very greatly in the near future.

In summary, we can, therefore, map traditional forms to e-retailing as follows:

Specialized stores ® specialized e-stores Generalized stores ® Generalized e-stores Malls ® E-malls

Franchise stores ® ?

New form of business: e-broker allows-the customer to finesse his requirements before actually making the purchase. It also gives different sources of information. The third type of benefit that the customer gets is **competitive pricing**. This is due to two factors.

The first is lowered costs to the retailer because he does not have to maintain a physical showroom, he does not have to hire several shop assistants, and these savings can be passed on to customers in the form of reduced prices. Secondly, competitive pricing pressure that arises from the fact that the customer is now able to look at prices at several sites. Therefore, the pressure is always there on the retailer to maintain a competitive price for his products. The third benefit is **customization**. The customer can actually specify the features of the products that he would like and thus in some cases it is possible that the retailer may allow a customized product to be delivered. An example of this is on the Dell site. The computer site allows shoppers to custom specify their own computer software and hardware configurations. Thus, the customer is able to select exactly what he wants. This ability to get the business to deliver a product that the customer specifies he wants is the essence of C2B e-commerce.

In summary, the benefits of e-retailing to the customer include

- convenience
- better information
- competitive price .
- customization
- shopping any Where, anytime

So with e-retailing, the customer can shop "anywhere around the globe without being restricted to his local vicinity. He could, for example, purchase goods over_ and have them delivered to a domestic address. He can also shop, as mentioned earlier at any time. These are very considerable benefits of e-retailing to the customer. These benefits could see larger and larger numbers of customers move more and more of their shopping on to e-retailing sites in the future.

To the Business

There are a number of benefits of e-retailing to the business itself. The first of these is **global reach**. The retailer now is no longer restricted to customers who are able to reach the store physically. They can be from anywhere around the globe. The retailer must, of course, deliver the goods of a purchase to the customer. We see later that has an impact on the types of goods that are most easily handled through e-retailing. The second benefit is better **customer service.** The use of email and the use of electronic interchange of messages between the customer and the retailer allows better communication between the customer and the retailer. These allow one

to easily inquiries and deal with complaints. These also allow a much more rapid response time than was possible in the days of faxes and postal mail. The third benefit is the **lowered capital cost to the retailer.** The retailer does not have to maintain showrooms, he can titles only. Therefore, the retailer has lower warehousing costs. He does not have to have many shop assistants who are physically answering questions and showing the customer goods.

The fourth benefit to the retailer is **mass customization**. Based on requests by the customers, the retailer is now able to carry out mass customization with reduced time to market for the customized products. The next advantage is **targeted marketing**. The retailer is now able to pick on a specific targeted group of customers and direct marketing towards these customers. The retailer is also able to provide **more value-added services** in the way of better information, add-on services to basic services, or add-on options to products that he is selling.

The last advantage to the retailer consists of **different new forms of specialized stores that he is now able to** utilize. As we have mentioned previously, now he does not have to specialize his store based just on a product line but could choose to specialize his store based on a specialized targeted group of customers. It also creates new opportunities for niche marketing. A summary of the benefits to the e-retailer are

- global reach
- better customer service
- low capital cost
- mass customization
- targeted marketing
- more value-added services
- new forms of specialized stores and niche marketing

B2B BUYER CHARACTERISTICS

- B2B e-commerce, short for business-to-business electronic commerce,
- It is the sale of goods or services between businesses via an online sales portal.

THE DIFFERENCES BETWEEN BUSINESS-TO-CONSUMER (B2C) AND BUSINESS-TO-BUSINESS (B2B)

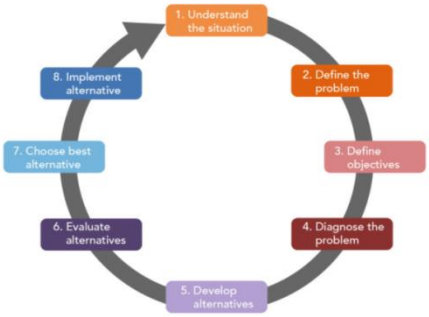
- **Buying Impulsively vs. Buying Rationally**

  Impulsive buying is the tendency of a customer to buy goods and services without planning in advance. When a customer takes such buying decisions at the spur of the moment, it is usually triggered by emotions and feelings.

- **Rational Decision Making**

  The rational decision making model assumes decisions are based on an objective, orderly, structured

information gathering and analysis. The model encourages the decision maker to understand the situation, organize and interpret the information, and then take action. There are eight steps in the rational decision making process



- Single Decision Maker vs. Multiple Decision Makers
- Short-term Customer Relationship vs. Long-term Customer Relationship

BUSINESS TO BUSINESS ELECTRONIC COMMERCE

- Set, Fixed Prices vs. Diverse Prices
- Pre-Delivery Payment vs. Post-Delivery Payment
- Deliveries focused on speed vs. Deliveries focused on punctuality

B2C	B2B
Single buyer	Multiple Decision Makers
Fixed consumer prices	Customer specific prices
Direct payments	Payment on credit sales
Stocks (for a.s.a.p shipments)	Smart shipments (i.e. truckloads)
Low frequency purchases	Reoccurring purchases
Single visits	Long lasting relationship between customer and manufacturer
Buying because you like it	Buying as part of the job
Consumer	Buyers as part of an organization with a relationship defined by a contract, terms and conditions

FIVE VALUE DELIVERY METHODS FOR ECOMMERCE INNOVATION

According to experts, value delivery method is considered to be the engine of the car called business model. This is the part where you find your edge over your competitors and establish a unique selling proposition in the marketplace. Will you be able to compete and create an ecommerce business worth being proud of, in your current state? We have listed below a few popular approaches taken by industry-leaders and market disruptors. The five value delivery methods for an ecommerce store are as follows:

1. D2C – Direct to Customer

Many new generation consumer brands have built loyal followings with rapid growth, by cutting out the middlemen. Many online retailers have set a standard for vertical disruption, but some new brands are showing us how D2C can continue to be an area for innovation and growth. When the goods are sold directly to the customer, a sense of attachment is built with the brand.

2. White Label and Private Label

Using a “white label” means applying your name and brand to a specific product purchased from a distributor or wholesaler. While using private labels, a retailer creates a unique product for them to sell exclusively either by themselves or by hiring a manufacturer. With the help of both white labeling and private labeling, you can save on your investments in design and production and look for a cutting edge in technology and marketing.

3. Wholesaling

In a wholesaling approach, the retailer offers products in bulk at a discounted price. The concept of wholesaling was traditionally B2B, but nowadays, many retailers offer it to budget-conscious customers in a B2C mode.

4. Drop Shipping

Drop shipping is one of the fastest growing and most efficient methods of ecommerce. The typical drop shippers sell items fulfilled by a third-party supplier. Drop shippers usually act as a middle man by connecting buyers to manufacturers. Easy-to-use tools allow users to integrate inventory from suppliers around the world for their storefronts.

5. Subscription Service

Even back in the early 1600s, publishing companies in England used a subscription model to deliver books to their regular customers monthly. With the help of ecommerce, businesses are going beyond just periodicals and groceries. In this technologically advanced era, each and every industry out there is offering subscription services to bring convenience and savings to its customers.

E-ENTERTAINMENT

Ecommerce is redefining the entertainment industry

Ecommerce is changing the Entertainment industry and the way we get entertained. Let me take you towards an era where first our grandparents experienced radio and then television (TV), which was the newest and craziest medium for entertainment among our parents. The television was a black and white one where only limited shows were aired. Viewers used to wait for the time when the shows would start and no wonder, everyone loved all of them. Not because they all were entertaining, but because those were something they never saw or experienced.

Then came a shift in the entertainment industry-

- Theatres showed newly released movies
- Television became colorful
- Radios were modernized and added in the mobile phones
- SD cards were added in the phones where people can store songs and get entertained whenever and wherever they want
- YouTube was launched in 2005 from where video entertainment took a hockey-stick growth
- And then came the digital entertainment era

An era of On-Demand entertainment (Digital TV, News, Sports, Movies, Web Series, Music)

Our childhood experienced analog television which is now converted to Digital TVs. They offer high-definition resolutions with a wide-screen aspect ratio. Digital TVs introduced how our television experience can be better. After digital TVs, there was the era of getting everything mobile. With better and better internet packages, it brought the world to your palm through smart phones. And now, the entire entertainment industry expects and even earns their highest revenues from Smartphone users. If

you look at the news industry, newspapers and news channels ruled the industry for decades. They are still not outdated, but you can now see companies investing in OTT (Over-the-Top) to stream news online via apps. Such apps target the users who want to know news around the world, but at their comfort. When it comes to ecommerce entertainment, music cannot be missed. You must be seeing Anil Kapoor on all the platforms and thanks to Spotify for over-promoting the app. When it comes to ecommerce entertainment, music cannot be missed. You must be seeing Anil Kapoor on all the platforms and thanks to Spotify for over-promoting the app. YouTube remained the only on-demand entertainment source until 2012. Yes, 2012 was the year when Netflix started creating their own content like films and series, followed by Amazon Prime Video, Hotstar, and more.

2. Consumption on Apps, Smart TVs and Gadgets (an increase of Screen time)

With more mediums to get entertainment, there is a sharp increase in screen time. According to a survey in 2019, US consumers have spent more time on mobile devices than watching TVs. These numbers are going to increase in 2020 and even in 2021. The direct advantage is to the businesses targeting people with higher screen time. Businesses developing on-demand apps, gaming apps, social media apps, and more will see the highest revenues in the next five years.

3. Segment-based series and movies (Adults, Kids, Entertainment, Language, Joner)

What brilliantly these ecommerce entertainment apps do is that they understand their audience so well that their segment-based user interface (UI) and user experience (UX) keeps them loyal towards them. I know that it’s the minds behind building the strategy and the apps. But, here, the point is why people stick to these apps. All because of its UI and UX. Look at Netflix, where a member can create profiles within an account. You can create different profiles as per your family members and change the settings for each of them. So, when I choose my daughter’s profile, the series or movies from kids categories come up.

HOW IS THE DEMAND INCREASING FOR ONLINE ENTERTAINMENT?

- Viral Marketing using Social Media and WOM
- Audience like personalized content
- Lack of time (binge-watching) – millennial are helping
- Openness to consume global content
- Online entertainment apps influence consumers using traditional media and giving free packs with telecom operators

UNIT – II

PART - A

1. Traditional Commerce or Commerce is a part of business, which encompasses all those activities that facilitate exchange. Justify this statement
2. Point out the key success factors which have been identified for traditional retailing
3. A web service is any piece of software that makes itself available over the internet and uses a standardized XML messaging system. Analyze this statement
4. Justify “Price is very important in cyberspace because the customer can easily carry out comparison pricing between your e-store and other e-stores not just in your immediate neighborhood but all around the world.”
5. The delivery of services via the internet to consumers or other businesses can be referred to by the generic term of e-services. Point out the categories of e-commerce
6. Customers enjoy a number of benefits from e-retailing. Point out the benefits from e-retailing.

PART – B

1. EDI costs too much; how can I justify the cost when the other guy gets all the benefits?
2. Won't EDI destroy my relationship with my buyer/seller? Justify this statement.
3. At its core, electronic commerce or e-commerce is simply the buying and selling of goods and services using the internet, when shopping online? Validate this statement
4. Assess this statement “B2B e-Commerce is short for business-to- business e-Commerce, which is defined as the sales of goods or services between businesses via online channels.”
5. Let me take you towards an era where first our grandparents experienced radio and then television (TV) which was the newest and craziest medium for entertainment among our parents and e- commerce is changing the Entertainment industry and the way we get entertained. Evaluate this statement
6. Analyze the statement “The advantage of this kind of matchmaking through the internet is that the ability to search electronically over a wider area to satisfy the customer need.”

REFERENCES

1. Elias. M. Awad, " Electronic Commerce", Prentice-Hall of India Pvt Ltd.
   RaviKalakota, Andrew B. Whinston, "Electronic Commerce-A Manager's guide", Addison-Wesley.
2. Efraim Turban, Jae Lee, David King, H.Michael Chung, “Electronic Commerce–A Managerial Perspective",
3. Addison-Wesley. rd 4. Elias M Award, “Electronic Commerce from Vision to Fulfilment”, 3 Edition, PHI, Judy Strauss, Adel El-Ansary, Raymond Frost, “E-Marketing”, 3RDEdition, Pearson Education

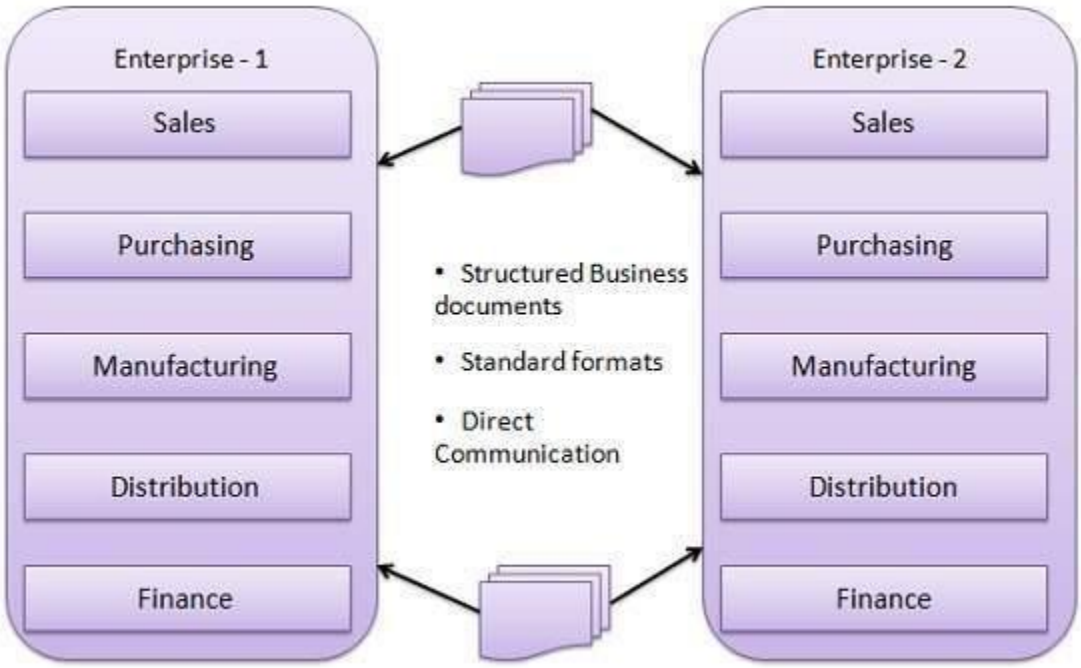
SATHYABAMA
INSTITUTE OF SCIENCE AND TECHNOLOGY
(DEEMED TO BE UNIVERSITY)
Accredited "A" Grade by NAAC | 12B Status by UGC | Approved by AICTE
www.sathyabama.ac.in

SCHOOL OF MANAGEMENT STUDIES

UNIT – III ELECTRONIC DATA INTERCHANGE– SBAA3008

Electronic Data Interchange EDI – is the exchange of business documents between any two trading partners in a standard or structured, machine readable form. EDI is used to electronically transfer documents such as purchase orders, invoice, shipping bills, and communicate with one another. A Specified format is set by both the parties to facilitate transmission of information. Traders use Electronic Data Interchange EDI to exchange financial information in electronic form. Electronic Fund Transfer facility provided by banks is an example of Electronic Data Interchange EDI. EDI helps to eliminate paper based
system, reduces data entry task and improves business cycle.

EDI stands for Electronic Data Interchange. EDI is an electronic way of transferring business documents in an organization internally, between its various departments or externally with suppliers, customers, or any subsidiaries. In EDI, paper documents are replaced with electronic documents such as word documents, spreadsheets, etc.



EDI Documents

Following are the few important documents used in EDI –

→ Invoices
→ Purchase orders
→ Shipping Requests
→ Acknowledgement
→ Business Correspondence letters
→ Financial information letters

Steps in an EDI System

Following are the steps in an EDI System.

→ A program generates a file that contains the processed document.
→ The document is converted into an agreed standard format.
→ The file containing the document is sent electronically on the network.
→ The trading partner receives the file.
→ An acknowledgement document is generated and sent to the originating organization.

Components of Electronic Data Interchange EDI

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

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

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

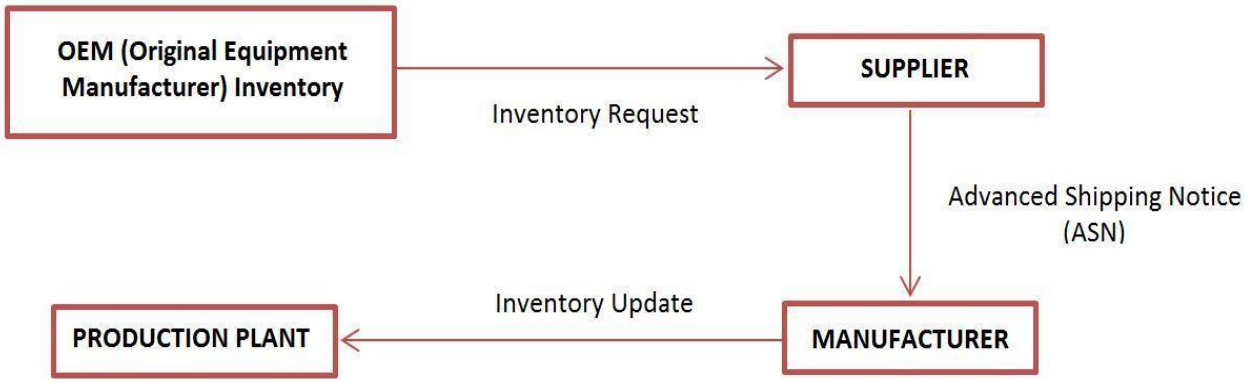
→ **Communication Network –** A communication network provides a direct link between trading partners who are will to exchange business documents through Electronic Data Interchange EDI.

- ***Modem*** – It is a hardware device that transmits data from one computer to another.
- ***VAN*** – A network that connect the computer system of one organization to another.
- ***Point to Point link*** – A direct communication link between two computers.

Applications of Electronic Data Interchange EDI

EDI in RETAIL INDUSTRY

→ **Retail Sector –** In the retail sector profit margins usually depend upon efficient inventory management. EDI provides a structured way to maintain and replenish goods stocked at a retail outlet. Retailers use a common model stock for each shop location and the point of sale stock position is updated continuously and data in fed via EDI enabled SCM (supply chain management) network. The EDI software monitors all the logistics and makes updates in the original stock.



EDI in MANUFACTURING INDUSTRY

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

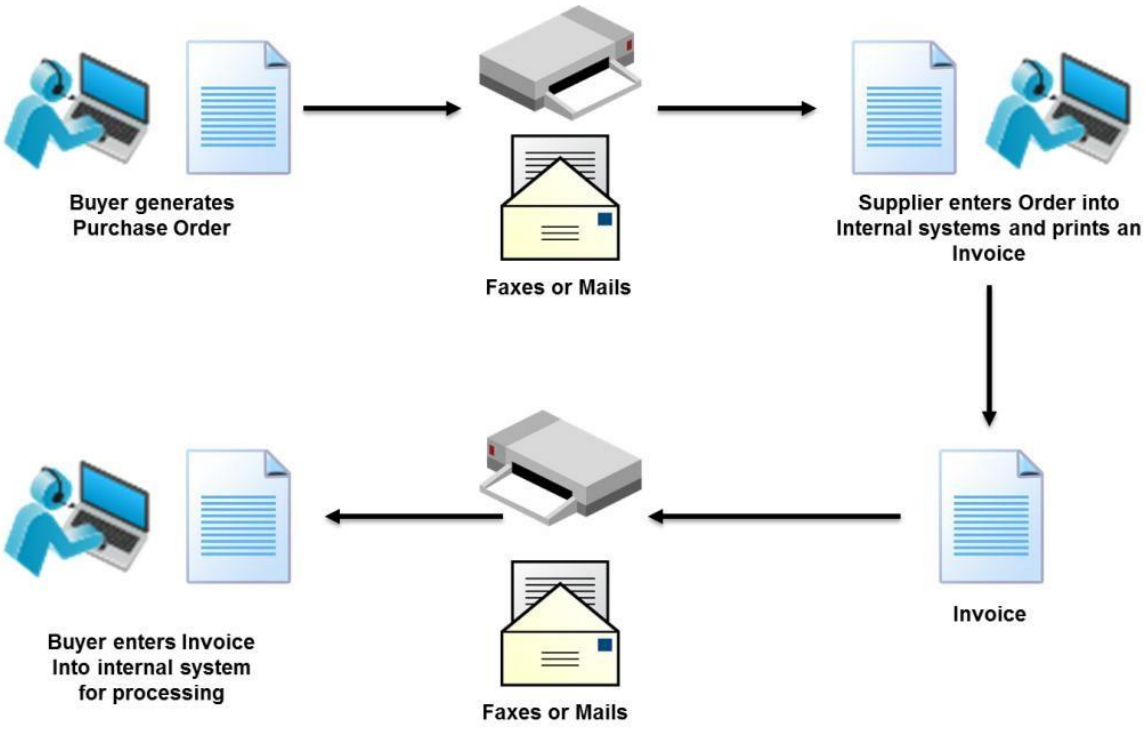
as soon as the shipment is delivered at the production plant the inventory is updated again.

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

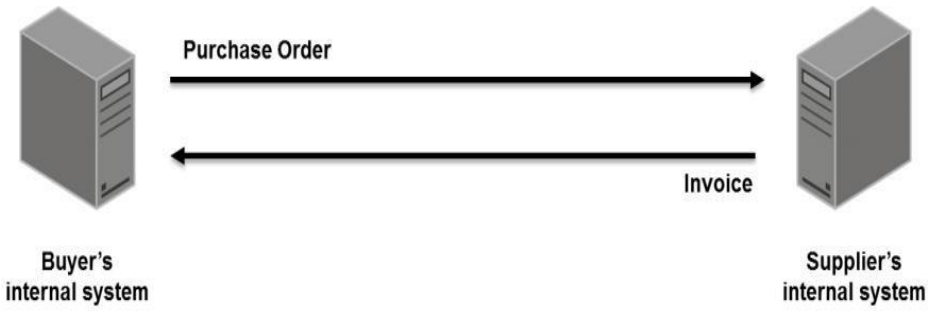
→ **Financial Sector –** In the financial sector EDI replaces the labour intensive activities of collecting, processing and dispersing payments with an electronic system. It facilitates the flow of payment between the bank accounts of trading partners without requiring any human intervention. A payee`s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

→ **Computer-to-computer**– EDI replaces postal mail, fax and email. While email is also an electronic approach, the documents exchanged via email must still be handled by people rather than computers. Having people involved slows down the processing of the documents and also introduces errors.

Instead, EDI documents can straight through to the appropriate application on the receiver's computer (e.g., the Order Management System) and processing can begin immediately. A typical manual process looks like this, with lots of paper and people involvement:



The EDI process looks like this — no paper, no people involved:



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

→ **Standard format**– Because EDI documents must be processed by computers rather than humans, a standard format must be used so that the computer will be able to read and understand the documents. A standard format describes what each piece of information is and in what format (e.g., integer, decimal, mmddyy). Without a standard format, each company would send documents using its company-specific format and, much as an English-speaking person probably doesn't understand Japanese, the receiver's computer system doesn't understand the company-specific format of the sender's format.

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

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

Features of EDI

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

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

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

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

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

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

→ **Single-vendor product support**
You want an EDI software solution that is developed, maintained and supported end-to-end by the same vendor. In particular, many EDI companies own only the EDI translator software and rely on systems integrators for their ERP integrations. A third party might also support the VAN you're using. This can result in support problems and an increased risk of product obsolescence.

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

Advantages of an EDI System

Following are the advantages of having an EDI system.

→ **Reduction in data entry errors.** - Chances of errors are much less while using a computer for data entry.

→ **Shorter processing life cycle** - Orders can be processed as soon as they are entered into the system. It reduces the processing time of the transfer documents.

→ **Electronic form of data** - It is quite easy to transfer or share the data, as it is present in electronic format.

→ **Reduction in paperwork** - As a lot of paper documents are replaced with electronic documents, there is a huge reduction in paperwork.

→ **Cost Effective** - As time is saved and orders are processed very effectively, EDI proves to be highly cost effective.

→ **Standard Means of communication** - EDI enforces standards on the content of data and its format which leads to clearer communication.

→ **Expedite transmission** -Information is transmitted from one organization to another organization efficiently and swiftly.

→ **Automated Data entry**-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.

→ **Receipt verification**-Receipt verification can easily be done with help of EDI software. No human intervention is involved so there are minimal chances of error or delay.

→ **Data Validation**-Data validation is automatically done.

→ **Availability of free software**-Free software's are available depending upon the EDI format chosen. For example- In TRADACOMS EDI format, Price Information file and order files are available for free.

→ **Low cost**-Lower administrative, resource and maintenance cost.
→ **Faster processing**-With the help of EDI, business processes can be executed at a much faster rate as compared to the traditional method sending information.
→ **Building long-term relationships**-EDI helps in building long term relationships with trading partners and hence helps in business growth.
→ **Reduction in error**-EDI has discarded manual data entry and paperwork. So there are minimal chances of error.

Drawbacks of EDI

→ **Expensive**-Setup and maintenance of some of the formats of EDI is expensive.
→ **Initial setup is time consuming**-Initial cost to setup EDI is time consuming.
→ **EDI standard changes**-The business process depends on EDI standard format. If any of the standard format changes then the business process has to be changed accordingly.
→ **System electronic protection**-An EDI enabled system needs electronic protection from viruses, hacking, malware and other frauds.
→ **Staff training cost**-Staff needs training in order to run EDI enabled software. Investment has to be done in training.
→ **Proper backup**-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.
→ **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.

IMPLEMENTING EDI

It has defined six steps to successfully implement EDI technology in an organization:

→ **Complete understanding of EDI**: The depth of knowledge a company acquires on EDI depends on the internal efforts spent. If no external consultants are hired then the level of knowledge should be high. One method to gain knowledge is to join one of the groups developing standards. (e.g. EDI Council of Australia)

→ **Agreed on standards with business partners**: After finding a suitable business partner, agreements should be made concerning standards, transactions to be exchanged, message syntax, file transfer protocol etc.

→ **Modifying existing systems:** The host computer applications should be modified so that EDI information is incorporated or integrated directly into the applications. Good EDI software should provide an application interface to many different applications.

→ **Translate data**: Various translation modules are required to translate transactions into EDI messages according to the EDI standard being used. The translation is required of the data into the EDI format as well as translation of data from an EDI package into a format compatible with the in-house application.

→ **Prepare communications**: A network connection to various trading partners is required via either a Value Added Network (VAN) or direct connection.

→ **Management and audit of the whole process**: Consistent management and auditing of the entire process must be established and maintained. The tasks include archiving transactions, inspecting error logs and ensuring security of the system.

Benefits of Implementing EDI

The benefits available by using EDI are being realized by a large number of companies, many of which transmit a substantial percentage of their transaction volume via EDI. For companies using I/CEDI, UCS or VICSEDI on a volume basis, the realization of available benefits can result in a definite competitive advantage.

Users report benefits in the following major areas.

→ **Reduced Lead Time/Quick Response**: EDI can provide a direct reduction in the ordering/shipping time cycle. This benefits both customer and supplier.

→ **Warehouse Efficiencies:** In addition to the benefits cited above relating to warehouse operations, the following benefits are also being realized in this traditionally high-cost area:

→ **Transaction Handling/Processing Accuracy**: The automated procedures associated with EDI result in a reduction in transaction errors and resulting corrective action, including the following:

→ **Administrative and Clerical Costs**: One of the major goals in creating EDI was to reduce the great volume of business paperwork and many of the clerical tasks involved in handling the processing of paper documents. Many users have realized substantial productivity improvements and/or direct cost savings in their office operations by reducing or eliminating the costs.

TYPES OF EDI COMMUNICATION

EDI Com is simply a contraction of EDI communications and is often used when discussing the means of exchanging EDI data with your trading partners. When a business implements EDI the focus is always on the transactions, but eventually the means of exchanging these transactions must be discussed. This is where EDI com comes into play. There are a number of means of implementing EDI com ranging from traditional EDI com strategies based on EDI VANs to more modern, direct EDI com methodologies like AS2 communications. Regardless of how you implement EDI com your business will need to ensure that the EDI com methodology you select is compatible with the VAN or trading partners you do business with. There are a number of EDI com strategies that your business can implement.

IMPLEMENTATION OF EDI COMMUNICATION WITH TCP/IP PROTOCOLS

There are two kinds of communication reconciliation in the case of EDI implementation through a service provider.

- *One is between the company and the provider and involves the company's own file formats.*
- *The other between the service provider and the company's partner, according to the Communication Datasheet described above.*

During the use of EDI communication protocols with often unknown names pop up frequently. All of them primarily serve data transmission, but this function can be complemented by further identification and security functions.

- ***Applicability Statement (AS2):*** *uses the same signing, encryption, and MDN conventions used in the original AS1 protocol.*
  - → AS2 messages are usually sent across the internet using the HTTP or HTTPS protocol.
  - → AS2 has been widely deployed as a point to point connectivity method.
  - → AS2 offers many advantages over standard HTTP, including increased verification, and security achieved through the use of receipts and digital signatures.
  - → AS2 transactions and acknowledgements also occur in real-time, increasing the efficiency of document exchanges.
  - → The U.S Company Wal-Mart was one of the first companies to help drive the adoption of AS2 across the retail sector.

- ***Odette File Transfer Protocol (OFTP):*** *was developed to offer a standard communication platform for the European automotive industry and has been in use since the mid-1980s.*
  - → OFTP has also seen adoption across the retail, white goods, manufacturing, government, transport, insurance and banking industries to name but a few.
  - → The OFTP protocol is very simple to use, consisting of only fourteen commands.
  - → The protocol is extremely efficient, allowing large transmission windows to be utilised whilst incorporating file restart, data compression and security.
  - → OFTP has been designed to allow companies to communicate easily via point to point connections.
- ***Odette File Transfer Protocol version 2.0(OFTP 2.0)***: *is the latest version of the OFTP standard and has been designed from the outset to be used across the internet.*
  - → OFTP2 offers a number of benefits over OFTP including data compression, exchange of digital certificates (to improve security of transmissions) between trading partners.
  - → It allows the handling of very large files (over 500 GB) and offers support for additional character sets such as Chinese and Japanese.
  - → To date, OFTP has mainly been used in Europe however as OFTP2 has been designed to operate across the internet it can help trading partners connect to one another all over the world.
  - → Many automotive manufacturers in Europe have been running OFTP2 pilot projects since 2008 and it is expected to be widely deployed across production projects during 2010.
- ***File Transfer Protocol (FTP)***: *is a standard network protocol used to exchange and manipulate files over a TCP/IP based network such as the internet.*
  - → FTP is built on client-server architecture and utilises separate control and data connections between the client and server applications.
  - → FTP is also often used as an application component to automatically transfer files for internal functions within programs.
  - → FTP can be used with user-based password authentication or with anonymous user access.
- ***File Transfer Secure Protocol (FTSP):*** *is an extension of FTP which adds support for the Transport Layer Security (TLS) and the Secure Sockets Layer (SSL) cryptographic protocols.*
  - → FTPS should not be confused with SFTP, an incompatible secure file transfer subsystem for the Secure Shell (SSH) protocol.

→ It is also different from Secure FTP, the practice of tunnelling FTP through an SSH connection

- ***Secure File Transfer Protocol (SFTP)***: *is a network protocol that provides file access, file transfer and file management functionality over any reliable data stream.*
  - → It was designed as an extension to the Secure Shell protocol (SSH) version 2.0 to provide secure file transfer capability, but it is also intended to be usable with other protocols as well.
  - → SFTP can be used in a number of different applications such as secure transfer over Transport Layer Security (TLS) and transfer of management information within VPN applications.
  - → This protocol assumes that it is run over a secure channel, such as SSH, that the server has already authenticated the client and that the identity of the client user is available to the protocol.
- ***Hyper Text Transfer Protocol (HTTP)***: *is used to request and transmit files, especially web pages and web page components, over the internet or other computer networks.*
  - → In HTTP, web browsers typically act as clients, while an application running on the computer hosting the web site acts as a server.
  - → HTTP is typically implemented across TCP/IP however it can be implemented on top of any other protocol on the internet, or on other networks.
- ***Hyper Text Transfer Protocol Secure (HTTPS)***: *is a combination of the Hyper Text Transfer Protocol with the SSL/TLS protocol to provide encryption and secure identification of the server.*
  - → HTTPS connections are often used for payment type transactions across the internet and for the exchange of sensitive information between corporate business systems.
- ***Eb XML Messaging Service (EBMS):*** *offers a secure and reliable SOAP/Web Services based packaging, routing and transport protocol as defined by the ebXML specifications.*
  - → The ebMS is an open standard and as such is communication protocol neutral although the most common underlying protocols are HTTP and SMTP.
  - → ebMS essentially offers a way to exchange ebXML based B2B documents between different business applications using SOAP/Web services.

Electronic Payment System, Types of Electronic Payment Systems, Smart Cards and Electronic Payment Systems, Infrastructure Issues in EPS, Electronic Fund Transfer.

E-payment system is a way of making transactions or paying for goods and services

through an electronic medium without the use of check or cash. It's also called an electronic payment system or online payment system. Read on to learn more.

The electronic payment system has grown increasingly over the last decades due to the widely spread of internet-based banking and shopping. As the world advance more on technology development, a lot of electronic payment systems and payment processing devices have been developed to increase, improve and provide secure e-payment transactions while decreasing the percentage of check and cash transaction.

Electronic payment methods

E-payment methods could be classified into two areas, which are:

1. Cash Payment System

Electronic Funds Transfer (EFT): this is an electronic system used to transfer money from one bank account to another without any cash exchange by hand.
Recommended for You

- Direct debit, that is a financial transaction in which the account holder instructs the bank to collect a specific amount of money from his account electronically for payment of goods or services.
- E-Check, a digital version of an old paper check. It's an electronic transfer of money from a bank account, usually checking account without the use of the paper check.
- Electronic billing: this is another form of electronic funds transfer used by companies or businesses to collect payments from customers over electronic method.
- Today it's easy to add payments to the website, so even a non-technical person may implement it in minutes and start processing online payments.
- Payment gateways and payment providers offer highly effective security and anti-fraud tools to make transactions reliable.

ecommerce, as well as m-commerce, is getting bigger and bigger, so having e- payment system at your online store is a must. It's simple, fast and convenient for the online shoppers to pay. Still, one of the most popular payment methods are credit and debit card payments, but people also choose some alternatives or local payment methods. If you run an online business, find out what your target audience need, and provide the most convenient and relevant e-payment system.

You may also like:

What Is an Issuing Bank?

If you're a credit or debit card owner, you probably heard about an issuing bank. Read on to see what's behind the *issuing bank* term.

Why Card Security Code Matters In Online Shopping?

Ecommerce is growing fast and credit cards are still the most popular online payment method. Read the full post and see what card security code is and why you need one to pay for the goods on the internet.

- Electronic cash (e-Cash): it is a form of an electronic payment system of which certain amount of money is stored on a client device and made accessible for internet transaction. Electronic cash is also referred to as digital cash and it make use of e-cash software installed on the user PC or electronic devices.

- Stored value card: this is another form of EFT used by stores. Stored value card is a card variety that has a certain amount of money value stored and can be used to perform the transaction in the issuer store. A typical example of stored value cards are gift cards.

2. Credit Payment System

- Credit Card: this is another form of the e-payment system which required the use of the card issued by a financial institute to the cardholder for making payments online or through an electronic device without the use of cash.

- E-Wallet: it is a form of prepaid account that stored user's financial data like debit and credit card information to make an online transaction easier.

- Smart card: this use a plastic card embedded with the microprocessor that can be loaded with funds to make transactions and instant payment of bills. It is also known as a chip card.

Benefits of using an e-payment system

eCommerce websites use an e-payment system to make it easier and more convenient to pay for their customers. It comes with many benefits, which are:

- More effective and efficient transactions. It's because these are made just in minutes (even with one-click), without wasting customer's time.

- It also lowers the whole transaction cost.

Types of Electronic Payment Systems

E-commerce sites use electronic payment, where electronic payment refers to paperless monetary transactions. Electronic payment has revolutionized the business processing by reducing the paperwork, transaction costs, and labor cost. Being user friendly and less time- consuming than manual processing, it helps business organization to expand its market reach/expansion. Listed below are some of the modes of electronic payments −

- Credit Card
- Debit Card
- Smart Card
- E-Money
- Electronic Fund Transfer (EFT)

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 Proces

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 6	Now the card brand company asks to clear the amount from the issuer bank and the amount gets transferred to the card brand company.

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.

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.

E-Money

E-Money transactions refer to situation where payment is done over the network and the amount gets transferred from one financial body to another financial body without any involvement of a middleman. E-money transactions are faster, convenient, and saves a lot of time.

Online payments done via credit cards, debit cards, or smart cards are examples of emoney transactions. Another popular example is e-cash. In case of e-cash, both customer and merchant have to sign up with the bank or company issuing e-cash.

Electronic Fund Transfer

It is a very popular electronic payment method to transfer money from one bank account to another bank account. Accounts can be in the same bank or different banks. Fund transfer can be done using ATM (Automated Teller Machine) or using a computer.

Nowadays, internet-based EFT is getting popular. In this case, a customer uses the website provided by the bank, logs in to the bank's website and registers another bank account. He/she then places a request to transfer certain amount to that account. Customer's bank transfers the amount to other account if it is in the same bank, otherwise the transfer request is forwarded to an ACH (Automated Clearing House) to transfer the amount to other account and the amount is deducted from the customer's account. Once the amount is transferred to other account, the customer is notified of the fund transfer by the bank.

Smart Cards and Electronic Payment Systems

A smart card, chip card, or integrated circuit card (ICC) is any pocket-sized card with embedded integrated circuits. Smart cards are made of plastic, generally polyvinyl chloride, but sometimes polyethylene terephthalate based polyesters, acrylonitrile butadiene styrene or polycarbonate.

Smart cards can provide identification, authentication, data storage and application processing. Smart cards may provide strong security authentication for single sign-on (SSO) within large organizations

Types of smart cards:

Contact smart cards

Contact smart cards have a contact area of approximately 1 square centimeter (0.16 sq in), comprising several gold-plated contact pads. These pads provide electrical connectivity when inserted into a reader,[8] which is used as acommunications medium between the smart card and a host (e.g., a computer, a point of saleterminal) or a mobile telephone. Cards do not contain batteries; power is supplied by the card reader

Contactless smart cards

A second card type is the contactless smart card, in which the card communicates with and is powered by the reader through RF induction technology. These cards require only proximity to an antenna to communicate. Like smart cards with contacts, contactless cards do not have an internal power source. Instead, they use an inductor 'to capture some of the incident radio-frequency interrogation signal, rectify it, and use it to power the card's electronics Example of widely used contactless smart cards are London's Oyster card, Hong Kong's Octopus card,

Smart cards are turning out to be a fundamental piece of the transformation of retailing into electronic commerce. The impressive growth of the Internet is making electronic shopping at least a real possibility, if not a habit, among computer users. However, the business model used in current electronic commerce applications still cannot enjoy the full potential of the electronic medium. Moreover, concerns about the reliability of an invisible counterpart and about the safety of the Internet for credit card information increase the wariness and thereby limit the use of the electronic shopping on the part of customers.

Of the estimated 360 billion payments that took place in the United States in 1995, approximately 300 billion could not have taken place using the existing electronic media. Such transactions involved micro-payments p; i.e. payments for less than $10 p; which are virtually outside of the electronic arena for lack of a payment method compatible with such low amounts. Credit cards or checks are simply too expensive to use for micro-

payments, and the e-cash currently being experimented on the World Wide Web does not seem to have the characteristics to appeal to shoppers. For this reason, smart cards could be a fundamental building block of widespread use of electronic commerce, since they are an instrument to pay at a low cost for transactions involving small amounts of money. Another big advantage of smart cards for electronic commerce is their use for the customization of services. It is already possible to purchase tailored services on the World Wide Web p; MyYahoo and FireFly are well known examples. However, in order for the service supplier to deliver the customized service, the user has to provide each supplier with her profile p; a boring and time consuming activity. A smart card can contain a non- encrypted profile of the bearer, so that the user can get customized services even without previous contacts with the supplier.

Finally, smart cards are a key technology enabler for financial institutions. The processing power, the portability and the interactive properties of smart cards will constitute the basis for a revolution in the relationship between consumers and banks. PC- based home banking and phone banking will give way to card banking: a phone equipped with a smart card reader will be all that is needed for any kind of transaction.

Credit Cards and Smart Cards have become the most common forms of payment for e-commerce transactions. In North America almost 90% of online B2C transactions were made with this payment type. Now a days, to decrease the risk of fraud, more security steps are being taken by the government and banks to increase the use of plastic money, such as the use of the card

verification number (CVN) which detects fraud by comparing the verification number printed on the signature strip on the back of the card with the information on file with the cardholder's issuing bank.

A Smart card is similar to a credit card a popular smart card initiative is the VISA Smart card. Using the VISA Smart card you can transfer electronic cash to your card from your bank account, and you can then use your card at various retailers and on the internet.

Online payment options:

There are more online payment options than ever before and as an online entrepreneur, you want to offer as many as you can on your site. A study by CyberSource Corp. found that websites providing four or more payment methods other than credit cards had a sales conversion rate 12 percent higher than those offering just one online payment option in addition to credit cards. In other words, the more online payment options you offer, the

more online payment processing you'll do on your site and the more money you'll make.

Here are the online payment options you could offer on your site:

1) Credit card processing

If you were only going to offer one online payment option to prospective buyers, this would be the one to choose. Credit cards are still the most popular way to pay for goods and services online.

To set up credit card processing on your website, (MasterCard, Visa, American Express, Discover), you need to get anInternet merchant account.

You can get an Internet merchant account through your local banks. Notice I say banks; to get credit card processing of all the major credit cards on your website you may need to get Internet merchant accounts with two separate banks as many banks only deal with some of the credit cards involved.

You can also get an Internet merchant account through a third party merchant account provider, such as Beanstream, Moneris, PSiGate or InternetSecure.

The advantages of getting an Internet merchant account through a third party merchant account provider are that most don't require any security deposits (unlike banks), are quickly set up, and often can be bundled with ecommerce service packages that include the Internet gateway you need for online credit card processing (Web point-of-sale) and a shopping cart. The disadvantage is higher fees. Discount fees in particular tend to be higher than if you had set up your Internet merchant accounts through the banks.

Wherever you get your Internet merchant account, you will have to also purchase an Internet gateway service. The gateway verifies information, transfers requests and authorizes credit cards in real time. All four of the companies I've mentioned above offer these credit card processing services as well, but there are many others that do too – including PayPal.

2) PayPal

PayPal is now also an all-in-one online payment solution. Their Website Payments Standard program lets you accept Visa, MasterCard, Discover, and American Express credit card payments as well as bank transfers and offer PayPal as well – with no monthly fees, setup or cancellation fees. PayPal charges you a fee of 1.9 to 2.9 percent of transaction plus 30 cents per order, depending on your company's sales volume.

PayPal also offers an upgraded version of Website Payments Standard called Website Payments Pro, where customers check out right on your site rather than on PayPal's (currently available only in the U.S.).

They also offer a PayFlow Gateway and PayPal Express Checkout for businesses that already have Internet merchant accounts.

3) Debit Cards

The debit card is the preferred method of payment for one out of two Canadians and there are more than 35 million debit cards in circulation in Canada, according to the Interac Association. In 2006, Canadians made more than three billion Interac Direct Payment transactions worth $148 billion and the number of debit card payments grows about five per cent every year in Canada.

With numbers like that, this is an online payment option you definitely want to offer your customers if you're selling online.

Interac Online is one option that allows your customers to pay for goods and services online directly from their bank accounts. It's convenient and secure for customers because they don't have to share any of their card numbers or financial details when making a purchase; payment is completed through their own financial institutions.

To start offering Interac Online on your website, you have to go through one of their certified acquirers or online payment service providers, such as Beanstream, Moneris, Internet Secure, iCongo or PsiGate. Here's their current list of online payment service providers.

UseMyBank is another Canadian company that provides online debit payment services. Like Interac Online, buyers use their existing Online Banking bill payment service with their own bank to pay for your goods or services online and the payment is directly debited to the selected bank account.

UseMyBank fees "will be assessed upon activation of account" according to their website. A discount rate of 1.5% to 5% and a minimum $1.50 fee per transaction are posted. There is also an account fee. To get started using UseMyBank on your website, apply directly through the UseMyBank website.

4) Give Them Offline Payment Options Too

Some of your potential customers are people who just aren't comfortable with any of the online options outlined above or people who want to talk to a live person. If you want to fully monetize your website and make all the sales that you can, it's important that you give these people ways to pay too. Include a toll-free number and an order form that customers can fill

Infrastructure Issues in EPS

NFRASTRUCTURE ISSUES IN EPS

Infrastructure is necessary for the successful implementation of electronic payments. Proper Infrastructure for electronic payments is a challenge.

1. For electronic payments to be successful, there is the need to have reliable and cost effective infrastructure that can be accessed by majority of the population.
2. Electronic payments communication infrastructure includes computer network. such as the internet and mobile network used for mobile phone.
3. In addition, banking activities and operations need to be automated. A network that links banks and other financial institutions for clearing and payment confirmation is a pre-requisite for electronic payment systems. mobile network and Internet are readily available in the developed world and users usually do not have problems with communication infrastructure.
4. In developing countries, many of the rural areas are unbanked and lack access to critical infrastructure that drives electronic payments.
5. Some of the debit cards technologies like Automated Teller Machines (ATMs) are still seen by many as unreliable for financial transactions as stories told by people suggested that they could lose their money through fraudulent deductions, debits and other lapses for which the technology had been associated with by many over the last few years.
6. Telecommunication and electricity are not available throughout the country, which negatively affect the development of e-payments. The development of information and communication technology is a major challenge for e-payments development. Since ICT is in its infant stages in Nepal, the country faces difficulty promoting e- payment development.

Electronic Funds Transfer (EFT)

Electronic Funds Transfer (EFT) is a system of transferring money from one bank account directly to another without any paper money changing hands. One of the most widely-used EFT programs is Direct Deposit, in which payroll is deposited straight into an employee's bank account, although EFT refers to any transfer of funds initiated through an electronic terminal, including credit card, ATM, Fedwire and point-of-sale (POS) transactions. It is used for both credit transfers, such as payroll payments, and for debit transfers, such as mortgage payments.

Transactions are processed by the bank through the Automated Clearing House (ACH) network, the secure transfer system that connects all U.S. financial institutions. For payments, funds are transferred electronically from one bank account to the billing company's bank, usually less than a day after the scheduled payment date.

The growing popularity of EFT for online bill payment is paving the way for a paperless universe where checks, stamps, envelopes, and paper bills are obsolete. The benefits of EFT include reduced administrative costs, increased efficiency, simplified bookkeeping, and greater security. However, the number of companies who send and receive bills through the Internet is still relatively small.

The U.S. Government monitors EFT compliance through Regulation E of the Federal Reserve Board, which implements the Electronic Funds Transfer Act (EFTA). Regulation E governs financial transactions with electronic payment services, specifically with regard to disclosure of information, consumer liability, error resolution, record retention, and receipts at electronic terminals.

UNIT – III

PART - A

1. Evaluate the statement An e-payment system is a way of making transactions or paying for goods and services through an electronic medium, without the use of checks or cash.
2. The most targeted marketing strategies are built around meeting each customer's unique requirements. Explain marketing segmentation to justify this statement.
3. Electronic Data Interchange interposes communication of business information in standardized electronic form. Support this statement by explaining the applications of EDI.
4. EDI which stands for electronic data interchange, is the intercompany communication of business documents in a standard format. Justify this statement
5. Most small e-businesses rely on established Internet transaction providers for their payment and security systems. Support this statement by pointing out the two common e-commerce security protocols
6. Justify "While Electronic Data Interchange (EDI) has been in use since the late 1960s, there are still many organizations that use their existing legacy systems for processing B2B transactions."

PART – B

1. Analyze the statement "For a lot of businesses who accept just cash and paper checks, adding an electronic payment system into the mix is a big step, and a decision not hastily made."
2. Predict the statement "EDI standards include controls designed to protect against errors in message and the corruption of message during the interchange."
3. Infer the statement "EDI agreement is the abbreviation of Electronic Data Interchange agreement. It is an agreement that regulates through computer the transfer or exchange of data, such as purchase order between parties."
4. Support this statement SET is a system which ensures security and integrity of electronic transactions done using credit cards in a scenario.
5. Interpret the statement "Digital payments are much easier and safer than cash payments. They are much more convenient than cash payments as well. How are digital payments better than cash
6. Elucidate the statement "A mobile wallet is a type of virtual wallet service that can be used by downloading an app. The digital or mobile wallet stores bank account or

debit/credit card information or bank account information in an encoded format to allow secure payments."

7.

REFERENCES

1. Elias. M. Awad, " Electronic Commerce", Prentice-Hall of India Pvt Ltd.
   RaviKalakota, Andrew B. Whinston, "Electronic Commerce-A Manager's guide", Addison-Wesley.
2. Efraim Turban, Jae Lee, David King, H.Michael Chung, “Electronic Commerce–A Managerial Perspective",
3. Addison-Wesley. rd 4. Elias M Award, “Electronic Commerce from Vision to Fulfilment”, 3 Edition, PHI, Judy Strauss, Adel El-Ansary, Raymond Frost, “E-Marketing”, 3RDEdition, Pearson Education

SATHYABAMA
INSTITUTE OF SCIENCE AND TECHNOLOGY
(DEEMED TO BE UNIVERSITY)
Accredited "A" Grade by NAAC | 12B Status by UGC | Approved by AICTE
www.sathyabama.ac.in

SCHOOL OF MANAGEMENT STUDIES

UNIT – IV SECURITY IN ECOMMERCE– SBAA3008

UNIT – 3 - NEED FOR COMPUTER SECURITY

Computer Security: It is a process of presenting and detecting unauthorized use of your computer. Prevention is measures help you stop unauthorized users (hackers) System often they want to gain control of your computer so they can use it to launch attack on other computer systems.

Need for computer security

- Threats & Count measures
- Introduction to Cryptography
- Authentication and integrity
- Key Management
- Security in Practice – secure email & SMTP
- User Identification
- Trusted Computer System
- CMW
- SECMAN standards.

The Importance of computer security:

A computer security its very important, primarily to keep your information protected. Its also important for your computer overall health, helping to prevent various and malware and allowing program to run more smoothly.

Computer Security – Why?

- Information is a strategic resource.
- A Significant portion of organizational budget is spent on managing information.
- Have several security related objectives.
- Threats to information security.

The Security addressed here to general areas:

- Secure file / information transfers, including secure transactions.
- Security of information's as stored on Internet – connected hosts.
- Secure enterprise networks, when used to support web commerce.

Protecting Resources:

- The term computer and network security refers in a board sense to confidence that information and services available on a network cannot be accessed by unauthorized users.
- Security implies safety, including assurance to data integrity, freedom from unauthorized access, freedom snooping or wiretapping and freedom from distribution of service.

Reasons for information security

The requirements of information's security in an organization have undergone two major changes in the last several decades.

Types of Risks

As the number of peoples utilizing the internet increases, the risks of security violations increases, with it. One can compare the internet to a large department to stored with a lot of entrances, a lot of customers and so security guards to discourage shoplifting.

- Security Threats
- Passive Threats
- Active Threats

Security Threats

Some of the threats that stimulated the upsurge of interest in security.

Passive Threats

Passive threats involve monitoring the transmission data of an organization. The goal of a attackers is to obtain information that in being transmitted.

Active Threats

This involve some modification of the data stream or the creation of a false stream.

3.2 Specific Intruder Approaches

The advantage of such an approach is that it could be made vendor independent and ported to a variety of system.

Bulletin boards

These internet services provider a clearing for information and correspondence about a large variety of subject. Many commercial organizations especially technologies houses, use then to provide customer services. Bulletin boards have been notorious hangouts for hackers and other antisocial types.

Electronic mail

E-Mail is the one of the most commonly used services and is all some origination use. Email poses fewer security problems then over forms of Internet Communication but subject to interception if it is unencrypted.

File Transfer

Using FTP and HTTP users can request and send a variety of bulk data including data bases, files in all formats, documents, software images and voice.

While useful and convincement, file transfer can be insure both in terms of confidentially and virus threats.

IP Spoofing

IP spoofing is a techniques that can load to root access on a system. It is the tool that intruders often use to take over open terminal an login connections after the get root access.

The Intruders create packets with spoofed or impersonated source IP address. The attackers involving forging the source address of packets.

Password guessing

Most host administration have improved their password controls, but group accounts still abound and password dictionary & password cracking programs can easily crack at least 10% of the pass words users these.

The different is enforcement of good passwords.

Password sniffing

CERT estimates that in 1994, thoursands of system were the victims of password sniffers. On LANs internal machine on the network can see the traffic for every machine

on that network. Sniffer programs exploit this characteristic, monitoring all IP traffic and capturing the first 128 bytes or so of every encrypted FTP (or) Telnet session.

Telnet:

Telnet enables users to log on to remote computers. Telnet does little to detect and protect against unauthorized access.

Fortunately, Telnet is generally supported either by using an application gateway or by configuration router to permit outgoing connection using something such as the established screening rules.

Viruses:

A virus is a program that can infect other programs by modifying them to include a copy of itself.

It is possible that any program that comes in contact with virus will become infected with the virus.

Similarly to how virus attacks, humans computer virus can grow, replicate, travel adapts and learn. Attack and defend camouflage themselves and consume resource. The following lists various computer virus information's.

- Alter data in files
- Change disk assignments
- Create bad sectors
- Decrease free space on disk
- Destroy FAT(File Allocation Table)
- Erase specific tracks or entire disk
- Format Specific Tracks or Entire disk
- Hang the System
- Overwrite disk directory
- Suppress Execution of RAM resident programs

Write a volume label on the disk

SATAN (Security Administrator Tool for Analyzing Networks)

SATAN is a powerful tool that can through scan systems and entire networks of systems far a number of common critical security holes.

SATAN can be used by administrator to check their own networks: unfortunately, it is also used by hackers trying to break into a host.

A SATAN is a program available via the Internet.

The primary components are included:

HTTP server that acts at the dedicated SATAN web server.

Policy engine that defines which hosts are allowed to be probed and to what degree.

Inference engine that is driven by a set of rules bases and input from data acquisition.

Report and analysis, based on its findings.

More general information about SATAN and obtaining SATAN is available for anonymous FTP.

3.3 Security strategies:

There are basic security strategies that can be utilized to combat the threats discussed for access control, integrity, confidentiality and authentication.

However, before defenses can be deploy, a security policy must be developed by an organization.

Policy Issue:

Although the need for a policy is obvious, many organizations attempts to make their network secure without first defining what security means.

Before the organization can enforce security, the organization must access risks and develop and unambiguous policy regarding information access and protection.

Policy Guidelines:

A System administrator sets security policies, he or she developing a plan for how to deal with computer security.

One way to approach this task is to do the following.

Look at what it is you are trying to protect.

Look at what you need to protect their data/resource from.

Determine how likely the threats are implement measures which will protect your assets in a cost effective manner.

Review the process continuously and improve process when a weekness is found.

Inadequate management:

Related to the topic of policy is the topic of rational resource management.

Solid procedures and good management of computer system as related to software are critically important.

Mechanisms for Internet Security

Mechanism that help make internet based communication secure can be divided into broad categories.

The First focus is the problems of authorization, authentication and integrity;

The Second focus on the problem of privacy.

Finally the 3rd focus on the problems of availability by controlling access.

First Focus of problems: Authentication and integrity mechanisms:

Authentication mechanisms address the problems of identification of individuals and entities requesting services or access.

Example Configured to reject a request unless the request originates from an authorized client. When a client makes contact the server must various that the client is to undertake the specific task before granting service.

There are three types of authentication:

User to Host : A Host identifies a user before providing services.

Host to Host : Host validate the identity of their hosts.

User to User : User validate that data is beginning transmitted by the true sender and not an importer posing as the sender.

User to Host:

A Host identifies a user before providing services for which uses are authorized and deny those services for which they are not authorized.

Host to Host : Host to host authentication is concerned with the verification of the identity of computer system.

This method is employed by host on the internet.

User to User : This authentication establish proof of one uses identity to another user. This can be employed as a form of digital signature with electronic mail.

Second Focus Problems:

Privacy mechanism:

Confidentiality is the assurance of privacy, option achieved on the internet through the use of encryption as previously discussed in the context of integrity.

The 3rd Focus of problems: Controlling Access

The purpose of access control is to ensure that only authorized user have access to a particular system and / or specific resources, that access to end modification of a particular portion of data is limited authorized individuals and programs.

i. **User oriented access control**

User access control on a time sharing system is the user logon, which requires both a user identifier (ID) and password.

ii. **Data oriented access control**

Following successful logon, the user is generated access to a host or set of hosts and applications.

This generally not sufficient for a system that include sensitive data in the database.

3.4 Security Tools:

The section discuss some of tools that are available to the planner.

Secure Transport Stacks:

- The internet was the transport control protocol TCP/IP as the primary network protocol.
- The IP packet consists of a 32 bit source and destination address.
- Most users access the internet via a graphical interface.
- Web browser such or Netscape Navigator spyglass enhance mosaic (or) Microsoft explore communicate with a web server by means of HTTP.

Two most prominent

Secure sockets layer

Secure HTTP (S-HTTPS)

Kerberos

- Kerberos provides an authentication means in an open (Un protected) network.
- Service by using conventional (Shared secret key) Cryptography
- It is developed as a part of the Institute of technology project. A distributed system service running on the running on the computer network.

Design principles of Kerberos:

1. Both one way and two way authentication supported.
2. Transmitting when encrypted password (clear text) over a Network.
3. No Unencrypted password should be stared in the data's.

4. Memory for the shared time possible the length of the users current login session.

Kerberos Authentication Process

Client sends a request to the authentication server requesting Credentials for a given server.

The credentials consists of the following.

A ticket for the server

A temporary encryption key (often called a session key).

Secure transaction user the internet:

It is a need for worked secure transaction mechanism for transaction processing access the internet.

Use public key encryption well as RSA cryptography techniques.

Unix Security

Unix provides various built in security features. Such as user password file access directory access, file encryption and security on password files.

Web support (or) more generally for FTP (or) related support.

Eight character passwords for user. User password are generally encrypted using the DES algorithm.

Password Security

Password and password information's files are often the target for many attackers.

Login attempts should be limited to their as less tires.

Password security is only as good as the password itself.

One time password

This is accomplished via an authentication scheme.

There are several ways to implement one time password.

Smart Cards:

A smart card is a portable device that contains some non-volatile memory & a micro processor.

Some smart cards allow users to enter personal identification number (PIN) code 45.

Electronic mail

E-mail is one of most widely used forms of communication over to the internet.

It is a simple mail transfer protocol(SMTP).

Provides inter-machine e-mail transfer services

The content of the message itself is usually in plain text format

There is a multi of encryption system available.

It is privacy enhanced electronic mail (PEM).

Anonyms remailers provide a service that forwards a user's mail message onto the destination address but without disclosing the return address of the sender.

Example

hh@pmaintis.berkely.edu

nc@mailes@rehma.mn.org

Privacy Enhanced Mail:

Used to send e-mail and how it automatically encrypted.

PEM supports confidentiality original authentication, message integrity and non repudiation of origins

MIC-Message Integrity Code

MIC only.

Pretty Good Privacy (PGP).

PGP is an actual program that has become the de facts standard on the internet for electronic mail.

Multipurpose Internet mail Extensions

Textual massager exchanged on the internet.

Many types of recognizable non ASCII data.

MIME – enclosed messages.

There is a potential for the download object to be distributed to a users PC once executed.

Server security:

Many of the web browser allow user to save the HTML source code used to create the web pages that are viewed.

File name of respective graphics, video programs and hyperlinks that would be executed clicking on the web page items.

Trusting Binaries:

Security does not end with the various files well and browser security products available.

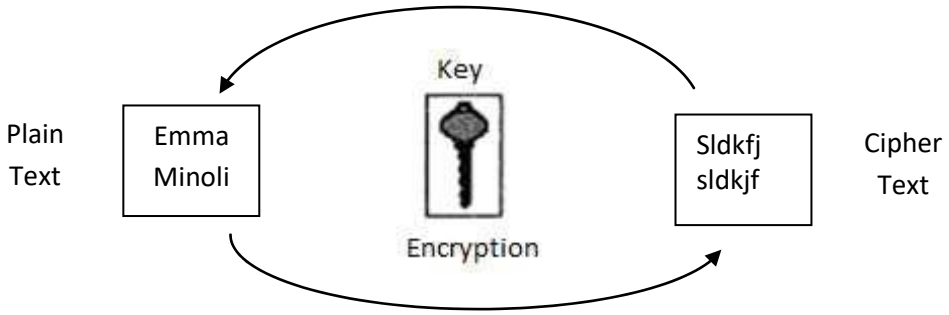
Account the issue of trusting executable.

Binaries at both ends must be secure as well.

3.5 Encryption

Encryption involves the scrambling of data by use of the mathematical algorithm. The term cryptography comes from the two creak words. Krupto and graph, that mean secret and writing.

There are three kinds of cryptography functions:



- Hash functions (involves the use of no keys)
- Secret key functions (involves the use of one key)
- Public key function (involves the use of two keys)

Conventional Environment:

A original message, referred to as plain text, is converted into apparently random nonsense referred to as cipher text.

Public key encryption:

Public key encryption, first proposed in 1976, does not require key distribution.

Public key encryption solves the distribution problem because there are no key distributed.

A public key cryptography is sometimes called in asymmetric cryptography.

Application of Encryption: Private key encryption to function the two communicating partics must have same key, and that key must be protected from access by others.

Session Key: When two end system want to communicate, they establish a logical connection for they duration of that logical connection, all user data in encrypted with a one time session key. At they conclusion of the session (or) connection, the session key is destroyed.

Permanent Key: A permanent key is used between entities two distributed session keys. Access Control centre: A Access control centre determines which system can communicate with each other.

Key distribution centre: The network interface centre unit performs end-to-end encryption and obtains session key on behalf of its host terminals.

Breaking an encryption scheme:

For every measure there is a countermeasure, and the counter measure for cryptography is crypto analysis, which is the art of undoing what the cryptography did.

There are three basic attacks; there are known as cipher text only, known plain text and chosen plain text.

The Data encryption standard:

DIS is the result of the request for proposal for a national cipher standard.

DES has flourished in recent years and its widely used, especially in financial applications.

Commercial communications Security endorsement Program:

The most likely replacement is a family algorithm developed under the NSA commercial COMSEC (Communications Security Endorsement Program) CCEP is the joint NSA and industry effort is produce a new generation of encryption devices that are more secure then DES algorithm.

Government Security Events:

The US department of defense has defined seven levels of computer operating system security in a document known as the trusted computer standard Evaluations Criteria. The feature has capabilities of a secure operating system secure significant amount of processing power and disk space.

The clipper ship:

In 1993 and 1994, the FBI proposed the clipped chip, the clipped chip uses key escrow which is a type of private key encryption that allows of two parties to hold the secret key. The encryption algorithm is based on the NSA's skipjack algorithm.

Commercial Outlook on encryption:-

Security experts recommend layering security because no single layer of encryption is sufficient. So many early users of encryption have deployed the technology at multiple layers, such as at the fire wall and web server.

3.6 Enterprise Networking & Access to the Internet

Access to the internet is accomplished in a number of ways, Access can be attained via(1) a companies LAN – resident internet gateway (or) 2. By using a modem corrections.

Approaches for enterprise level security:

A firewall is a security device that allows limited access out of end into one's network from the internet.

So a firewall is a price of hardware that is connected to a network to protect it from agents reaching resource on the network via public open networks.

Firewall

Application
Presentation
Session
Transport
Network
Data Link
Physical

A firewalls are classified into three main categories:

- Packet filters
- Applications level gateways
- Proxy Servers

Packet filtering

A packet filtering at the network layer can be used a first defense.

Application level gateways: An Application level gateway provides a mechanism for filtering traffic far various applications.

Proxy Server: A proxy server terminals a users connections (by Applications) and set up a new connections to the ultimate destination on behalf of the user proxying for the users.

Variations and Combinations: This sections describes some variants of the basic firewalls categories described in the previous sections.

Dual Homed Host: In TCP/IP networks, the term multihomed host describes a host that has multiple network Interface connections.

Dual homed gateways: The dual homed gateways in an alternative to packet filtering routers.

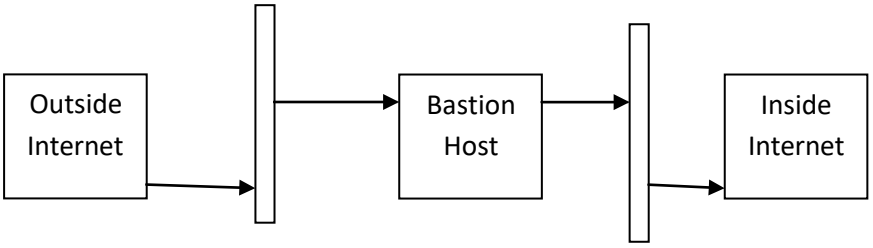
Screened Host firewall

The screened host firewall is more flexible the dual home gateway however the flexibility is achieved with same cost to security.

Screened Subnet firewall: It is a variations of the dual – homed gateway and the screened host firewall.

Bastion Host: A bastion host is any host subject to critical security requirements.

Design Considerations : Deployment approach, Packet filtering can be used to implement a variety of network security policies.



The consequence of restricted access for clients

A blanket prohibition on protocol data units arriving for an unknown protocol port seems to solves many potential security problems by preventing outside from accessing server in a organizations.

Bastion deployment Approach:

The implementation of the firewall concept is straight forward.

Monitoring and logging:

Monitoring is one of the most implement aspects of firewall designs.

Antivirus Programs:

Virus : A virus is a program that can effect other programs by modifying them the modified program includes a copy of virus program, which can then go on to infect other programs.

Worms : A Worm is a program that make use of networking software to replicate itself and move from system to system.

The nature of viruses: A virus can do anything that other programs do; the only difference is that it attaches itself to another program & executes secretly every time the host program is run.

A simple virus that does anything more then infect programs might work some thing like this.

- Find to the first program instructions.
- Replace it with a jump to the memory locations following the last instruction in the program.
- Insert a copy of the virus code at the locations.
- Have to the virus simulate the instruction replaced by the jump.
- Jump back to the 2nd instructions of the host programs.
- Finishing the executing the host programs.

Countering the threat of virus: The best solution for the threat of viruses in prevention do not allow a virus to get into the system in the first place.

The next best approach is do the following.

Detection: After the infection has occurred, determine that it has occurred and locate the virus.

Purging: Remove the virus from all infect system so, that the discuss cannot secured further.

Recovery: Recover any lost data (or) program

Security teams

The issue of network and internet security have become increasingly more important as more and more business and people go on line a term of people have been formed to assist in solving hacker attacks and do disseminate information on security attacks and how to prevent then two such teams are

- Computer emergency response team
- Forum of incident response & security team (FIRST)

Computer emergency response team (CERT)

The computer emergency response team(CERT) exists as a point of contact for suspected security problems related to the internet.

A CERT can help determine the secope of the threat and recommend an appropriate response.

Forum of incident response and security teems: (FIRST)

Security threats are a problems that effect computers and networks around the world.

FIRST is made up of a variety of computer emergency response teams including teams from government, business and academic sectors.

UNIT – III

PART - A

1. The growth of electronic commerce has created the potential for new risks and Abuses. Justify by explaining why e-commerce security important
2. All e-commerce sites will eventually be disrupted. Accordingly, e- commerce Entrepreneurs must be prepared. Justify this statement by explaining the common disruptions to website stability
3. Predict the resources provide more information about e-commerce
4. Point out the steps to prepare for e-commerce security work?
5. Most small e-businesses rely on established Internet transaction providers for their payment and security systems. Support this statement by pointing out the two common e-commerce security protocols
6. A firewall is usually a specialized computer running firewall software that prevents unauthorized communications from flowing between the Internet and an intranet. Justify this statement

PART – B

1. The theft of customer information can destroy the credibility of an e- business E-theft of customer information can destroy the credibility of an e-business. Analyze this statement by explaining types of hacker attacks?
2. Analyze the statement “External security threats originate from outside the organization, usually in the form of a hacker breaking into a system.”
3. Analyze the statement “Internal security threats come from inside an organization and External security threats originate from outside the organization, usually in the form of a hacker breaking into a system.” by distinguishing the internal and external threats
4. Prove that in the modern age of sophisticated cyber-attacks and digital innovation, it is vital for businesses to understand the threats they face and what their security defenses protect them from. This is especially the case with firewalls, as web application firewalls and network firewalls protect organizations from different types of attacks
5. Predict the factors motivating the hackers
6. Analyze the statement “External security threats originate from outside the organization, usually in the form of a hacker breaking into a system.”

REFERENCES

1. Elias. M. Awad, " Electronic Commerce", Prentice-Hall of India Pvt Ltd.
   RaviKalakota, Andrew B. Whinston, "Electronic Commerce-A Manager's guide", Addison-Wesley.
2. Efraim Turban, Jae Lee, David King, H.Michael Chung, “Electronic Commerce–A Managerial Perspective",
3. Addison-Wesley. rd 4. Elias M Award, “Electronic Commerce from Vision to Fulfilment”, 3 Edition, PHI, Judy Strauss, Adel El-Ansary, Raymond Frost, “E-Marketing”, 3RDEdition, Pearson Education

SATHYABAMA
INSTITUTE OF SCIENCE AND TECHNOLOGY
(DEEMED TO BE UNIVERSITY)
Accredited "A" Grade by NAAC | 12B Status by UGC | Approved by AICTE
www.sathyabama.ac.in

SCHOOL OF MANAGEMENT STUDIES

UNIT – IV ISSUES IN ECOMMERCE– SBAA3008

CHAPTER 5

LEGAL AND ETHICAL ISSUES IN E-COMMERCE

Transaction security has become very important in e-commerce since more and more number of merchants doing their business online. At the same time merchants are facing threats against security of their valuable documents transacted over Internet. Consumers are not prepared to provide credit card payment due to lack of security. There are many different transactions that make security difficult. In order to succeed in the highly competitive e- commerce environment, business organizations must become fully aware of Internet security threats, so that they can take advantage of the technology that overcomes them, and thereby win customer's trust. The merchants who can win the confidence of the customers will gain their loyalty and it opens up vast opportunity for expanding market share.

Security Issues in E-commerce

The major security issues with e-commerce include the following:-

1. Spoofing

The low cost of web site creation and the ease of copying existing pages makes it all too easy to create illegitimate sites that appear to be published by established organizations. In fact, unscrupulous artists have illegally obtained credit card numbers by setting up professional looking storefronts that resembles legitimate businesses.

2. Snooping the shopper's computer

The software and hardware vendors sell their products with security features disabled. Most users may not have adequate knowledge of enabling these security features. This provides a best opportunity for attackers. A popular technique for gaining entry into the shopper's system is to use a tool such as SATAN, to perform port scans on a computer that detect entry points into the machine. Based on the opened ports found, the attacker can use various techniques to gain entry into the user's system. Upon entry, they scan the file system for personal information, such as passwords.

3. Sniffing the network

Attacker monitors the data between the shopper's computer and the server. He collects data about the shopper or steals personal information, such as credit card numbers A request from the client to the server computer is broken up into small pieces known as packets as it leaves the client's computer and is reconstructed at the server. The packets of a request are sent through different routes. The attacker cannot access all the packets of a request and cannot decode the message sent. A more practical location for this attack is near the shopper's computer or the server. Wireless hubs make attacks on the shopper's computer network the better choice because most wireless hubs are shipped with security features disabled. This allows an attacker to easily scan unencrypted traffic from the user's computer.

4. Guessing passwords.

This style of attack is manual or automated. Manual attacks are difficult and only successful if the attacker knows something about the shopper. Automated attacks have a higher likelihood of success because the probability of guessing a user ID/ password becomes more significant as the number of tries increases. There are tools which can be used to test all the
words in the dictionary to know the user ID/ password combinations, or that attack popular user ID/ password combinations. The attacker can automate to go against multiple sites at one time.

5. Unauthorised Disclosure

When information about transactions is transmitted in a transparent way, hackers can catch the transmissions to obtain customers sensitive information.

6. Unauthorised action

A competitor or unhappy customer can alter a Web site so that it refuses service to potential clients or malfunctions.

7. Eavesdropping

The private content of a transaction, if unprotected, can be intercepted when it go through the route over the Internet.

8. Data alteration

The content of a transaction may not only be intercepted, but also altered, either maliciously or accidently. User names, credit card numbers, and dollar amounts sent are all vulnerable to such alteration.

Types of Threats and sources of threats

The different types of factors behind the threats are as follows:-

1. Email attachments – opening an attachment could unleash a virus and they can propagate themselves even without a user double- clicking on them.

2. VPN tunnel vulnerabilities – a hacker who works his way into the VPN has free and easy access to the network

3. Blended attacks – Worms and viruses are becoming more complicated, and now a single one may be able to execute itself or even attack more than one platform.

4. Diversionary tactics – hackers may strike a set of servers in a target company and then when security administrators are busy securing that, they slip in and attack another part of the network.

5. Downloading Tactics - Workers frequently misuse their Internet access in the workplace, downloading games, movies and music and even porn. It opens the network up to attack and sucks up valuable bandwidth.

6. Supply chain partners Added to the Network – An administrator may grant access to the network for a partner company and then forget to close that access point when the job is over.

7. Renaming documents – A employee could save business critical information in a different file, give it a random , unrelated name and email the information to her home computer, a friend or even a corporate competitor.

8. Peer to peer applications – Here, there is implied trust between servers. That means if a user has access to one server, he automatically has access to another server if the servers share trust.

9. Music and Video Browsers – These are browsers that automatically will connect the user with related web sites – all without the user's permission.

Security tools

1. Encryption

Implementation of technology solutions to secure information that travel over public channels can be protected using cryptographic techniques. Cryptography is the process of making information unintelligible to the unauthorized reader. But decryption is a reverse process of encryption, to make the information readable once again. Cryptography techniques make use of secret codes or key to encrypt information. The same secret key is used by the receiver to decrypt the information; A key is a very large number, a string of zeros and ones.

2. Digital Signatures

They are used to verify the authenticity of the message and claimed identity of the sender but also to verify message integrity. A message is encrypted with the sender's private key to generate the signature. The message is then sent to the destination along with the signature. The recipient decrypts the signature using the sender's public key and if result matches with the copy of the message received, the recipient can ensure that the message was sent by the claimed originator.

A digital signature performs the similar function to a written signature. A recipient of data such as e-mail message can also verify the signed data and that the data was not modified after being signed. In order to digitally sign a document, a use combines his private key and the document and performs a computation on the composite in order to generate a unique number called the digital signature.

3. Digital Certificates

A digital certificate is an electronic file that uniquely identifies individuals and web sites on the Internet and enables secure, confidential communications. The security of transactions can be further strengthened by the use of digital certificates. Certification Authorities issues digital certificates to users who wish to engage in secure communication. Once sender has provided proof of his identity, the certification authority creates a message containing sender's name and his public key. This message is known as a certificate, is digitally signed by the certification authority. To get the maximum benefit, the public key of the certifying authority should be known to as many people as possible. The public key of certification authority can be accepted as a trusted third party way of establishing authenticity for conducting e-commerce.

Regulatory framework of E-commerce

Traditional legal systems have a great difficulty in keeping pace with rapid growth of the Internet and its impact throughout the world. Growth of e-commerce gave rise to a variety of legal issues, often related to intellectual property concerns, copyright, trademark, privacy etc. Cyber law governs the legal issues of cyberspace. The term cyberspace is not restricted to the Internet. It is a very wide term that includes computers, computer networks, the Internet, data software etc.

The various cyber laws include:-

1. **Electronic and Digital signature Laws** – Comprehensive laws are required so that uniform standards and procedures can be established. These laws relating to Electronic Signatures e.g. the electronic Signatures in Global and national Commerce Act of USA are part of cyber law.

2. **Computer Crime Law** – some countries have enacted legislations that specifically deal with computers crime and yet other has adapted their existing laws to make computer crime an offence under existing states.

3. **Intellectual Property Law** – It includes copyright law in relation to computer software, computer source code etc. Trademark law in relation to domain names, Semiconductor law which relates to the protection of Semiconductor Design and Layouts and Patent law in relation to computer hardware and software.

4.**Data protection and Privacy Laws** – It is pertinent to note that due to the nature of the Internet and the amount of information that may be accessed through it, such legislation is critical to protect the fundamental rights of privacy of an individual. These laws would probably play a vital role, as the dependence on insecure networks such as the Internet grows further.

5. **Telecommunication Laws** – telecommunication systems also fall within the purview of cyberspace and therefore would form an integral part of cyber laws. The word cyber and its relative dot.com are probably the most commo0nly used terminologies of the modern era. In the information age the rapid development of computers, telecommunications and other technologies has led to the evolution of new forms of transnational crimes known as cyber crimes. Cyber crimes have virtually no boundaries and may affect every country in the world.

Cyber crime may be defined as any crime with the help of computer and communication technology with the purpose of influencing the functioning of computer or computer systems. The extent of loss involved worldwide of cyber crimes is tremendous as it is estimated that 500 million people who use the Internet can be affected by the emergence of cyber crimes.

India is a signatory to the Model Law and is under an obligation to revise its laws. Keeping in view the urgent need to bring suitable amendment in the existing laws to facilitate electronic commerce and with a view to facilitates Electronic Governance, the Information Technology Bill [IT Bill] passed by Indian Parliament on May 17 , 2000.The Information Technology Act [IT Act] came into effect on 17th October 2000.

Information Technology Act-2000

The main objective of the Act is to provide legal recognition for transactions carried out by means of electronic data interchange and other means of electronic communication and storage of information to facilitate electronic filing of documents with the government agencies. It also involves legal provisions relating to piracy, defamation, advertising, taxation, digital signatures, copyrights and trade secrets in the cyber world. Some of the major provisions contained in the IT Act are as follows:-

1. Electronic contracts will be legally valid
2. Legal recognition of digital signatures
3. Security procedure for electronic records and digital signature

   Appointment of certifying authorities and controller of certifying authorities including recognition of foreign certifying authorities.
4. Various types of computer crimes defined and stringent penalties provided under the Act.
5. Establishment of Cyber Appellate Tribunal under the Act.
6. Act to apply for offences or contraventions committed outside India.
7. Power of police officers and other officers to enter into any public place and search and arrest without warrant
8. Constitution of Cyber Regulations Advisory committee who will advice the Central Government and Controller.

Information Technology [Amendment] Act, 2008

Rapid increase in the use of computer and Internet has given rise to new forms of crimes like, sending offensive emails and multimedia messages, child pornography, cyber terrorism, publishing sexually explicit materials in electronic form, video voyeurism, breach of confidentiality and leakage of data by intermediary, e-commerce frauds like cheating by personation – commonly known as phishing, identity theft, frauds on online auction sites, etc. So, penal provisions were required to the included in the Information Technology Act, 2000. Also, the Act needed to be technology neutral to provide alternative technology of electronic signature for bringing harmonization with Model Law on electronic Signatures adopted by United Nations Commission on International Trade Law [UNICITRAL]

Keeping in view the above, Government had introduced the Information Technology [Amendment] Bill, 2006 in the Loka Saba on 15th December 2006.. Both Houses of Parliament passed the Bill on 23rd December 2008.Subsequently the Information Technology [Amendment] Act, 2008 received the assent of President on 5th February 2009 and was notified in the Gazette of India..

The Amendment provides for eight different types of offences, which range from using computer resource code or communication device to disseminating and composing information which is false, offensive or menacing in nature, fraudulent, dishonest use of electronic signatures, password or other identification features to any computer source or communication device in capturing, publishing or transmitting any form of obscene images and visuals, as being crimes affecting individuals or other persons. Cyber cafes have been brought in the net, increasing accountability of intermediaries, thereby including search engines, service providers, online markets, without clarity on how to trap the fox. These provisions structured in a diffused manner, with unrelated aspects such as cyber terrorism clauses juxtaposed in between.

MAJOR LEGAL AND ETHICAL ISSUES IN ELECTRONIC COMMERCE

- Privacy
- Intellectual Property
- Free Speech
- Taxation
- Computer Crimes
- Consumer Protection

LEGALITY VS. ETHICS

Illegal acts break the law while unethical acts may not be illegal

- Ethics
    - Branch of philosophy that deals with what is considered right or wrong
    - Right and wrong not always clear
    - Consider
        Company sells profiles of customers with information collected through cookies
        Company allows personal use of Web but secretly monitors activity
        Company knowingly sells tax software with bugs

PRIVACY ISSUES

- Information privacy: claim of individuals, groups, or organizations to determine when and to what extent information about them is disseminated.
- Right to privacy is not absolute
- Public's right to know superceded individuals right to privacy

HOW IS PRIVATE INFORMATION COLLECTED?

- Reading your newsgroup postings
- Finding you in an Internet Directory
- Making your browser collect information about you
- Recording what your browser says about you
- Reading your email

Most common methods are cookies and site registration

FIVE PRINCIPLES OF PRIVACY PROTECTION

- Notice/Awareness
  - Notice of collection practices prior to collecting information
- Choice/consent
  - Consumers to be made aware of options and give consent
- Access/participation
  - Must be able to access and challenge information
- Integrity/Security
  - Must be assured data is secure
- Enforcement/Redress

PRINCIPLES OF SAFE HARBOR

- Companies must tell consumers how and why personal data is collected and who it's shared with
- Consumers must be able to request their data not be shared
- Companies must provide notice and choice before data is given to third parties
- Consumers must have access to data about them and have the ability to correct mistakes
- Companies must take reasonable measures to protect data
- Personal data must be relevant to its intended purpose
- Procedures must be in place to settle complaints and resolve disputes

Government legislation or legal remedies

****

Latest Model question paper 2014

Part-B

Section A

Short answer type questions,answer all the questions(9*1=9 weightage)

1. What is E- Commerce?
2. Explain EDI
3. What is B2E?
4. What do you mean by Trojan horse?
5. What is VoIP?
6. Define E-Cash?
7. What is SOA?
8. What do you under stand by HTTP?
9. Define Switching hub

Section B

Paragraph questions.Answer five questions (5*2=10 weightage)

10. Explain the importance and challenges of E- Commerce
11. Explain the weakness in internet advertising
12. What are the different types of biometrics?
13. Decribe the history of E-Commerce
14. What are the components of website in E-Commerce?
15. Explain the solutions to security issues in E- Commerce
16. Describe the influencing factors of sucessful E-Commerce

Section C

Essay type.Answer any two questions (2*4=8 weightage)

17. Describe the legal and ethical issues in E-commerce
18. Explain Online payment Systems in E-Commerce
19. What are the marketing stratergies in E-Commerce?

****

Model question paper 2012

Part-B

Section A

Short answer type questions,answer all the questions(9*1=9 weightage)

1.Define EDI
2.What is telnet?
3.What is SOA?
4.What is a web serive?
5.What is C2C E-Commerce?
6.What is Electronic Purse?
7.What is Electronic Tokens?
8.What are EDI standards?
9.Explain Advertorials & E-zines

Section B

Paragraph questions.Answer five questions (5*2=10 weightage)

10.What are the problems and challenges of E-Commerce?
11. State the benefits of EDI
12.Explain the important web service protocols and technologies
13.State the benefits of B2C E-Commerce?
14.What are the factors to be considered for making E-Commerce Successful?
15.Discuss the need for the web site for E-Commerce
16. Discuss the benefits of internet advertising

Section C

Essay type.Answer any two questions (2*4=8 weightage)

17. Explain different types of electronic payment systems
18.Explain different models of internet advertising
19.What do you mean by security risk in E-Commerce?Explain the important security tools used to protect information pertaining to E-Commerce

****

UNIT – V

PART - A

1. Define digital cash or e-cash. Elucidate with example how an online Banking system works.
2. The major ethical, social, and political issues that have developed around e commerce over the past seven to eight years Analyze this statement by explaining dimensions of ecommerce
3. Predict the main characteristics of cash payment in contrast with cheque payment? Why are governments not sympathetic to large cash transactions in E-Commerce?
4. Elucidate how cash transactions take place in E-Commerce. What special precautions should be taken by a bank to ensure that a customer does not Double spend the same electronic coins issued to him/her?
5. Most small e-businesses rely on established Internet transaction providers for their payment and security systems. Support this statement by pointing out the two common e-commerce security protocols
6. Prove that in the Both in-store and online businesses collect customer data for a variety of reasons and collecting customer data allow a company to enhance a customer's s=hopping experience, making the customer more satisfied and increasing the company's revenue.

PART – B

1. Justify the statement A computer virus is program code that has been designed to copy itself into other such codes or computer files.
2. Ethics is at the heart of social and political debates about the Internet. Ethics is the study of principles that individuals and organizations can use to determine right and wrong courses of action. Analyze this statement by explaining four Basic Ethical Concepts
3. Analyze the statement "Intellectual Property Rights (IPR) is about creations of the mind, they are granted to creators of IP, for ideas which are new and original, by the respective governments."
4. Analyze the statement "External security threats originate from outside the organization, usually in the form of a hacker breaking into a system."
5. Prove that IP is protected in law by, for example, patents, copyright and trademarks, which enable people to earn recognition or financial benefit from what they invent or create
6. Most small e-businesses rely on established Internet transaction providers for their payment and security systems. Support this statement by pointing out the two common e-commerce security protocols

REFERENCES

1. Elias. M. Awad, " Electronic Commerce", Prentice-Hall of India Pvt Ltd.
   RaviKalakota, Andrew B. Whinston, "Electronic Commerce-A Manager's guide", Addison-Wesley.
2. Efraim Turban, Jae Lee, David King, H.Michael Chung, “Electronic Commerce–A Managerial Perspective",
3. Addison-Wesley. rd 4. Elias M Award, “Electronic Commerce from Vision to Fulfilment”, 3 Edition, PHI, Judy Strauss, Adel El-Ansary, Raymond Frost, “E-Marketing”, 3RDEdition, Pearson Education