SYLLABUS
Class – B.Com, B-COM [Hons] & BBA
E – Commerce

UNIT – I	**Introduction to E-Commerce** Concepts and significance of E-commerce; Driving forces of E- commerce. E-commerce business models Key elements of a business model and categories: Design and launch of E-commerce website Decisions regarding Selection of hardware and software; Outsourcing V's in-house development of a website; Functions of E-Commerce; Types of E-Commerce: E-Commerce Systems and Prerequisites, Scope of E-Commerce.
UNIT – II	**E-Commerce Activities and Operations** Various E-Commerce activities; Various manpower associated with e- commerce activities; Types of E-Commerce Providers and Vendors; Modes of operations associated with E-Commerce: E-commerce applications in various industries (banking, insurance, payment of utility bills and others), e-marketing, e-tailing, online services, e-auctions. online portal, online learning, e-publishing and e-entertainment, online shopping.
UNIT – III	**E-payment System** E-payment Methods- Debit card, Credit card, Smart cards, E-Money, E- Wallets; Digital signatures- procedures and legal position; Payment gateways; Online banking- concepts, importance: Electronic fund transfer: Automated Clearing House. Automated Ledger Posting. Emerging modes and systems of E-payment (M-Paisa, PayPal and other digital currency). UPI Apps, Aadhar Enabled Payment Systems, BHIM App E-payments risks.
Unit – IV	**Security and Legal Aspects of E-commerce** E-commerce security meaning and issues. Security threats in the E- commerce environment- security intrusions and breaches, attacking methods like hacking, sniffing, cyber-vandalism etc.: Technology solutions- encryption, security channels of communication, protecting networks, servers and clients. Overview of Information Technology Act, 2000-provisions related to secure electronic records.

UNIT – I

Introduction to E-Commerce

The vast, global internet of today had rather humble origins when it initiated. In 1969, the Department of Defense Advanced Research Projects Agency (ARPA) developed an experimental network called ARPAnet to link together four supercomputing centers for military research. This network had the many and difficult design requirements that it had to be fast, reliable, and capable of withstanding a nuclear bomb destroying any one computer center on the network. From those original four computers, this network evolved into the sprawling network of millions of computers we know today as the internet.

The internet itself is really a massive "network of networks." There is no central "Internet, Inc," to which you can connect. Essentially, it is a collection of Internet service providers (ISPs) who each operate their own networks, with their own clients, and agree to interconnect with each other and exchange packets. Many of the large ISPs sell connections to their network to smaller ISPs, some of whom again sell connections to other ISPs.
Ultimately, these ISPs at all levels sell connections to individuals and corporations, who then merge their networks (or individual computers) into this larger network called the internet.

While there is no exact governance of the Internet, communication standards and coordination of ISP actions are overseen by a nonprofit organization called the Internet Society.
An affiliated organization, the Internet Engineering Task Force (IETF) coordinates the work of numerous committees that define Internet communication standards and research methods of explaining and improving Internet communication. The actual communication standards are referred to as RFCs (Requests for Comments) and are voluntarily adhered to by all ISPs.

Internet uses can be simply categorized as publishing and getting information on various subjects like marketing, management, science, new technologies, training materials, jobs, higher education, mathematics, music, games, software, etc. and E-Commerce and the kind of information available in the internet can also be listed as text documents, graphic files, sound and video files, downloadable games and software, demo games and software, etc.
At the speed the internet has been evolving, many predictions can be made about the internet in the future, like main communication method coming with functions of being translated automatically into the language preferred by the receiver, finding a tune through humming into the microphone, virtual tours of a house, car, etc. could become common thing.
This is what the Internet has become today, starting from its modest birth in 1969, to become an indispensable service for the human race at present and will remain the same in the future

INTERNET AND ITS USE.

Internet has become a necessity to a large portion of the world population today, with no disparity between age, race, color, religion, nationality or gender; but what really they are all using it for are for different requirements based on their needs, area of study and work.

The internet has become a God sent blessing to many to do research work and find general information about a subject instantly without much effort or expense. The internet has become the best largest and most useful encyclopedia of information. In fact the web is far better then a encyclopedia which gives only one perspective on a subject while the internet is sure to have different perspectives on a single topic giving a individual the opportunity to be well read on the particular topic.

Have you ever had to pay tons of money or go through lots of trouble to find information about very rare topics? Well that was in the good old days. The internet will have information on even the rarest topic you could think of.

The internet is vastly used for communication. Whether at home or at work, emails, chats, video conferencing, voice calls, etc. have become the most convenient, cost effective and fastest methods to communicate with your friends, family, colleagues and even strangers. In fact the internet has become a great source to meet new people, and build new friendships and relationships.

Discussion forums available on the internet are useful to users to find individuals with the same interest and discuss as much as you like about the topic. You will never feel like you have no one to talk to on a particular topic, if you are lucky enough to find a discussion forum which gives you a forum for it.

It has become a whole lot easier to shop with the internet, sitting in your seat and being able to select the best cost at its best bargain.

If you ask many people what their hobbies are, some may reply as to 'browsing the internet'. In fact the internet is the best device for fun. Whether it is games, songs, movies, community groups, etc. There is plenty to keep you occupied in your spare time. Many use the internet to download free versions of softwares and cracks, to read news and learn.

And so continues the many uses of the internet to all human beings, young and old.

INTERNET – IMPORTANT TERMS/FACTS :-

Internet Based Services:

Some of the basic services available to Internet users are:

Email: A fast, easy, and inexpensive way to communicate with other Internet users around the world.

Telnet: Allows a user to log into a remote computer as though it were a local system.

FTP: Allows a user to transfer virtually every kind of file that can be stored on a computer from one Internet-connected computer to another.

Usenet news: A distributed bulletin board that offers a combination news and discussion service on thousands of topics.

World Wide Web (WWW): A hypertext interface to Internet information resources.

1. WWW- This stands for World Wide Web. A technical definition of the World Wide Web is : all the resources and users on the Internet that are using the Hypertext Transfer Protocol (HTTP).A broader definition comes from the organization that Web inventor Tim Berners-Lee helped found, the World Wide Web Consortium (W3C):

The World Wide Web is the universe of network-accessible information, an embodiment of human knowledge.In simple terms, The World Wide Web is a way of exchanging information between computers on the Internet, tying them together into a vast collection of interactive multimedia resources.

2.HTTP - This stands for HyperText Transfer Protocol. This is the protocol being used to transfer hypertext documents thats makes the World World Wide possible.A standard web address such as http://www.yahoo.com/ is called a URL and here the prefix http indicates its protocol

3.URL- URL stands for Uniform Resource Locator, and is used to specify addresses on the World Wide Web. A URL is the fundamental network identification for any resource connected to the web (e.g., hypertext pages, images, and sound files).

A URL will have the following format: protocol://hostname/other_information

The protocol specifies how information from the link is transferred. The protocol used for web resources is Hypertext Transfer Protocol (HTTP). Other protocols compatible with most web browsers include FTP, telnet, newsgroups, and Gopher. The protocol is followed by a colon, two slashes, and then the domain name. The domain name is the computer on which the resource is located.

Links to particular files or subdirectories may be further specified after the domain name. The directory names are separated by single forward slashes.

4.WEBSITE - Currently you are on our website http://www.tutorialspoint.com which is a collection of various pages written in HTML markup language. This is a location on the web where people can find tutorials on latest technologies. Similar way there are millions of websites available on the web.

Each page available on the Website is called a web page and first page of any web site is called home page for that site.

5. WEB SERVER - Every Web site sits on a computer known as a Web server. This server is always connected to the internet. Every Web server that is connected to the Internet is given a unique address made up of a series of four numbers between 0 and 256 separated by periods.for example, 68.178.157.132 to 68.122.35.127.

When you register a Web address, also known as a domain name, such as tutorialspoint.com you have to specify the IP address of the Web server that will host the site.

6.WEB BROWSER - Web Browsers are software installed on your PC. To access the Web you need a web browsers, such as Netscape Navigator, Microsoft Internet Explorer or Mozilla Firefox.

Currently you must be using any sort of Web browser while you are naviating through my site tutorialspoint.com. On the Web, when you navigate through pages of information this is commonly known as browsing or surfing.

7.SMTP SERVER - This stands for Simple Mail Transfer Protocol Server. This server takes care of delivering emails from one server to another server. When you send an email to an email address, it is delivered to its recipient by a SMTP Server.

8.ISP - This stands for Internet Service Provider. They are the companies who provide you service in terms of internet connection to connect to the internet.You will buy space on a Web Server from any Internet Service Provider. This space will be used to host your Web site.

9.HTML - This stands for HyperText Markup Language. This is the language in which we write web pages for any Website. Even the page you are reading right now is written in HTML.This is a subset of Standard Generalized Mark-Up Language (SGML) for electronic publishing, the specific standard used for the World Wide Web.

10. HYPERLINK - A hyperlink or simply a link is a selectable element in an electronic document that serves as an access point to other electronic resources. Typically, you click the hyperlink to access the linked resource. Familiar hyperlinks include buttons, icons, image maps, and clickable text links.

11.DNS - DNS stands for Domain Name System. When someone types in your domain name, www.example.com, your browser will ask the Domain Name System to find the IP that hosts your site. When you register your domain name, your IP address should be put in a DNS along with your domain name. Without doing it your domain name will not be functioning properly.

12.W3C - This stands for World Wide Web Consortium which is an international consortium of companies involved with the Internet and the Web.The W3C was founded in 1994 by Tim Berners-Lee, the original architect of the World Wide Web. The organization's purpose is to develop open standards so that the Web evolves in a single direction rather than being splintered among competing factions. The W3C is the chief standards body for HTTP and HTML

USES OF INTERNET

Internet is today one of the most important part of our daily life. There are large numbers of things that can be done using the internet and so it is very important. You can say that with the progress in the internet we are progressing in every sphere of life as it not only makes our tasks easier but also saves a lot of time. Today internet is used for different purposes depending upon the requirement. Here in this very article we have mentioned then ten best uses of the internet. Here goes the list.

1. Communication - Communication is the most important gift that the internet has given to the common man. Email, social networking sites are some of the prime example of it. This is one such gift of the internet which is cherished by everyone and has made our life easier to much extent.

2. Research - Now the point that has been placed next is research. In order to do research you need to go through hundreds of books as well as the references and that was one of the most difficult jobs to do earlier. Since the internet came into life, everything is available just a click away. And since internet is here to make your research public, you can then benefit a large amount of people from the research work that you have done.

3. Education - The next point that we have in this list is education. Yes you read it right. Education is one of the best things that the internet can provide. There are a number of books, reference books, online help centres, expert's views and other study oriented material on the internet that can make the learning process very easier as well as a fun learning experience. There are lots and lots of websites which are related to different topic.

4. Financial Transaction - Now you don't need to stand in the queue at the branch of your particular bank rather you can just log in on to the bank website with the credential that has been provided to you by the bank and then can do any transaction related to finance at your will.

5. Real Time Updates - Real time updates have been placed at the number fifth position here.. There are various websites on the internet which provides you with the real time updates in every field be it in business, sports, finance, politics, entertainment and others.

6. Leisure -Leisure is the option that we have next in the list. Yes you heard it right. Right from watching your favorite videos to listening songs, watching movies, playing games, chatting with the loved ones has been possible due to internet..

7. Online Booking - Not only the online booking process is easier as well as less tedious but is also reliable. There is no need to visit the booking counters to book tickets or to contact the agents that might ask for more money in order to process your request. You can do all these things sitting at home, using internet.

8. Job Search - Job search is one such thing which required updates from every corner as well the patience from the person searching for it. Using internet, this has become an easier task. Job search has been placed at the number eighth place. There are endless amount of websites on the internet that provided with the news about the vacancy in various companies.

9. Blogging - There are many people who are very much interested in writing blogs and for them internet is the best place. There is huge number of websites over the internet which allows you to write blogs. You just need to get yourself registered as per their procedure and then start writing.

10. Shopping - Shopping has now become one of the most pleasing things to do using the internet. Whenever you find time, just visit the concerned websites and order the items that you need from there.Those items will be delivered to you in best possible time.

E-COMMERCE

The term commerce is define as trading of good & services or if 'e' for 'electronic' is added to this, the definition of e – commerce is defined as trading of goods, services, information or anything else of value between two entities over the internet.

Following are some definitions of e – commerce:-

1. It is the ability to conduct business electronically over the internet.
2. It means managing transactions using networking and electronic means.
3. It is a platform for selling products & services via internet.

Characteristics of e – commerce:-

1. Establishment of B to B relationship.
2. Electronic payment.
3. e – distribution of products & services.
4. Exchange of information.
5. Pre and post – sales support.
6. Customer relationship management.

Advantage of e – commerce:-

1. **Facilitates the globalization of business:-**e – commerce facilitates the globalization of business by providing some economical access to distant markets and by supporting new opportunities for firms to increase economies by distributing their products internationally.
2. **Provides increased purchasing opportunities for the buyer:-**As e – commerce increases sales opportunities for the seller, it also increases purchasing opportunities for buyer.
3. **Lowering staffing cost:-** As in e – commerce, the selling & purchasing process is outline, the amount of interaction with staff is minimized.
4. **Market based expansion:-** An e – commerce is open to entirely new group of users, which include employees, customers, suppliers & business partners.
5. **Increased profits:-**With e – commerce, companies reach more & more customers where physical commerce cannot reached, thus increasing profits.
6. **Increased customer service & loyality:-** e – commerce enables a company to be open for business wherever a customer needs it.
7. **Increase speed & accuracy:-** E – commerce see the speed and accuracy with which business can exchange information, which reduces cost on both sides of transactions. It is available 24 hours a day & 7 days a weak.
8. **Reduction of paper storage.**

9. Increased response times:- In e – commerce, the interaction with the system take place in real time & therefore allows customer or bidder to respond more quickly & thus reduces the time of discussion between then as in traditional commerce.

Limitations of e-commerce-

1. Security:- the security risk in e – commerce can be-
- Client / server risk
- Data transfer and transaction risk
- Virus risk

2. High start up cost:-

The various components of cost involved with e – commerce are:-
- Connection:- connection cost to the internet.
- Hardware / software:- this includes cost of sophisticated computer, moduer, routers, etc.
- Maintenance:- this include cost invole in traning of employees and maintenance of web-pages.

3. Legal issues:- these issues arises when the customer data is fall in the hands of strangers.

4. Lack of skilled personnel:- there is difficulty in finding skilled www developers and knowledgeable professionals to manage and a maintain customer on line.

5. Loss of contact with customers:-Sometimes customers feels that they doesnot have received sufficient personal attention.

6. Uncertainty and lack of information:- most of the companies has never used any electronic means of communication with its customers as the internet is an unknown mode for them.

7. Some business process may never be available to e – commerce:-Some items such as foods, high cost items such as jewelry may be impossible to be available on the internet.

TYPES OF E – COMMERCE:-

1. Business to customer (B to C):-It means the consumer is motivated by business.

B to C working

1. visiting the virtual mall- customer visits the mall by browsing the outline catalogue.
2. customer registers- customer has to register to become part of the site's shopper registry.
   Customer identifies a need Searches for the product or services to satisfy the need Gets service & warranty claims Select a vendor and negotiates a price Receives the product or service Makes payment
3. customer buys product.
4. merchant processes the order- the merchant then processes the order that is received from the previous stage & fills up the necessary forms.
5. credit card is processed:- credit card of the customer is authenticated thorugh a payment gateway or a bank.
6. shipment & delivery:- the product is then shipped to customer.
7. customer receives:- the product is received by customer and is verified.
   8. After sales service:- after sale, the firm wants to maintains a good relationship with its customers. It is called CRM customer relationship management.

2. Business to business (B to B):- this is called as a business motivated by another business.

B2B is classified as:-

1. Market place:- a digital electronic market place where suppliers and commercial purchasers can conduct transactions.
2. e – distributors:- a company that suppliers products and services directly to individual business.
3. B2B service provider:- it is a company that aells access to internet based software application to another companies.
4. infomediary:- a company whose business model is premised upon gathering information about customers & selling it to other businesses.

3. Consumer to business (C to B):- a business motivated by a customer.
The various C2B classified into:-

1. Idea collectors:- consumers generally have a great idea about how to improve the existing products and what new features can be added to new products. E.g. ideas.com
2. Reverse auctions:- it allow prospective airline travelers to visit the website and name their price for traval between only pair of city. If an airline is willing to issue a ticket at there price, the passenger is obligated to buy.

4. Consumer to consumer (C to C):-

In this type, a consumer is motivated by another consumer. Consumers sells directly to other consumers via online classified ads and auctions, or by selling personal services or expertise online. E.g. ebay.com.

TRADITIONAL COMMERCE & E-COMMERCE

1. Customer can easily identify & authenticate a merchant by seeing directly to him.
2. Customers can directly talk 2. Customer can only see to merchant. Communication the representation & can only see the web pages is not in the hands of a third party.
3. Customers can interact with other customers and gain feedback about
4. It is not available all the time.
5. It is slow method.

Whereas in e-commerce .....

1. It is not easy in this case.
2. Customer can only see to merchant. Communication the representation & can only see the web pages is not in the hands of a third party.
3. Customer cannot interact merchant from other customers. with other customers.
4. It is always available 24* 7*365 hours.
5. It is fast method.
6. Customer have to give their merchant & there is no need to personal information to give their name or address. Purchase the product. So there is no worry about personal information.

E- COMMERCE –CLASSIFICATION BY APPLICATION TYPE

It can be classified by application type:

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

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 fortransactions with their suppliers

3. 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.

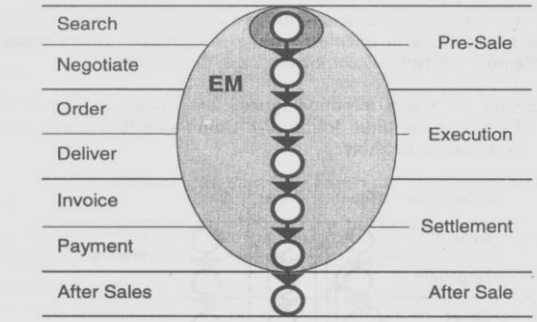
Example: The purchase of goods that are then delivered by post or the booking of tickets that can be picked up by the clients when they arrive at the event .

ELECTRONIC COMMERCE AND THE TRADE CYCLE:

• It can be applied to all, or to different phases of the trade cycle
• The trade cycle various depending on the nature of the organizations Frequency of trade between the patterns to the exchange
•The nature of goods and services being exchanged
•Trade cycle support
1Finding goods and services (referred to as a search & negotiation)
2. Placing the order, taking delivery & making payment (execution and settlement)
3. after sales activities such as warrantee, services etc.

ELECTRONIC MARKETS:

• It increases the efficiency of the market
• It reduces the search cost for the buyer & makes it more likely that buyer will continue the search until the best buy is found .
• It exist in commodity, financial markets & they are also used in airline booking system
• It is irregular transaction trade.



Electronic Markets and Trade Cycle.

ELECTRONIC DATA INTERCHANGE:

- Applications are sending test results from the pathology laboratory to the hospital or dispatching exam results from exam boards to school.
- It is used trade exchanges Users are vehicle assemblers, ordering components for the supermarkets.
- It is used for regular repeat transactions.

- It takes quite lot of work to set up systems.
- It is part of schemes for just-in-manufacture and quick response supply.
- Mature use of EDI allows for a change in the nature of the product or service.
- Mass Customization is such an example.

INTERNET COMMERCE: STAGE WISE

The first stage

- Advertising appropriate goods and services
- Internet sites offer only information & any further steps down the trade cycle are conducted on the telephone

The Second stage

- An increasing no. of sites offer facilities to execute & settle the transaction
- Delivery may be electronic or by home delivery depending on the goods and services

The final stage

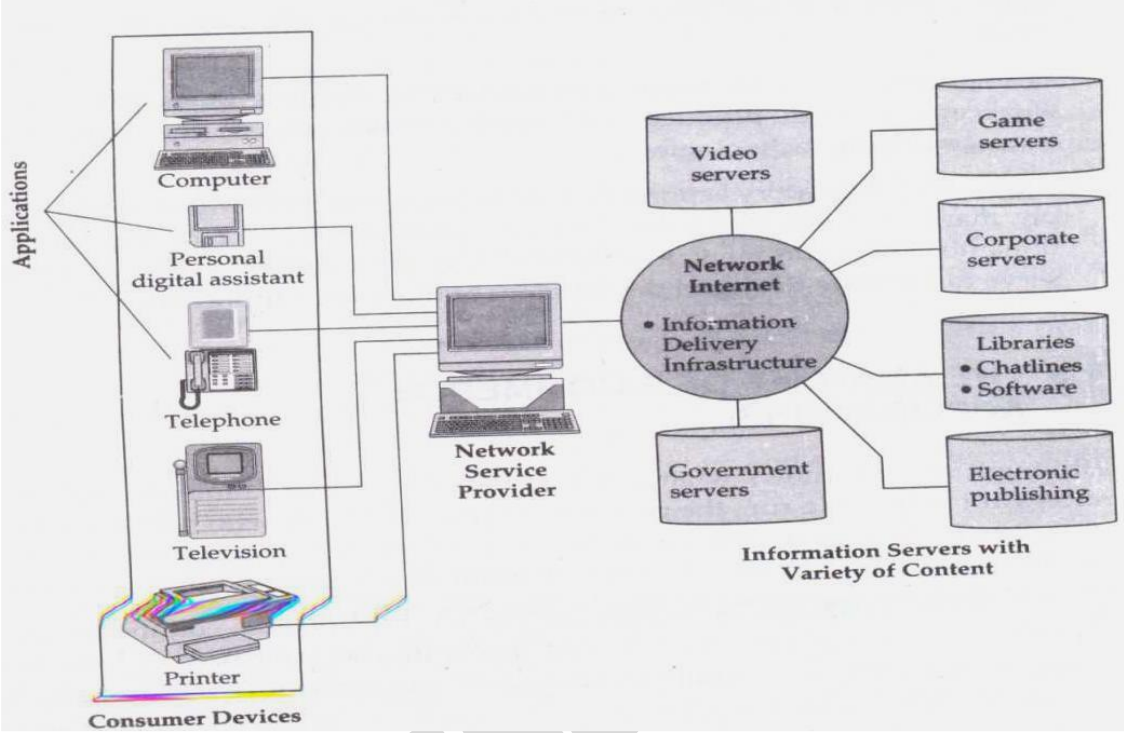
- After-sales service
- On-line support & On-Line services.

ELECTRONIC COMMERCE FRAMEWORK

- E-Commerce application will be built on the existing technology infrastructure
  - A myriad of computers
  - Communication networks
  - Communication software
- Common business services for facilitating the buying and selling process
- Messaging & information distribution as a means of sending and retrieving information
- Multimedia content & network publishing, for creating a product & a means to communicate about it
- The information superhighway- the very foundation-for providing the high way system along which all e-commerce must travel
- The two pillars supporting all e-commerce applications & infrastructure
- Any successful e-commerce will require the I-way infrastructure in the same way that regular commerce needs
- I-way will be a mesh of interconnected data highways of many forms
  - Telephone, wires, cable TV wire
  - Radio-based wireless-cellular & satellite
- Movies=video + audio.
- Digital games=music + video + software
- Electronic books=text + data + graphics + music + photographs + video
- In the electronic 'highway system' multimedia content is stores in the form of electronic documents.
- These are often digitized
- On the I-way messaging software fulfills the role, in any no. of forms: e-mail, EDI, or Point-to-point file transfers.
- Encryption & authentication methods to ensure security.

- Electronic payment schemes developed to handle complex transactions.
- These logistics issues are difficult in long-established transportation.

ANATOMY OF E-COMMERCE APPLICATIONS



HTML –HYPERTEXT MARK UP LANGUAGE

Introduction - Hypertext Markup Language (HTML) is a syntax used to format a text document on the web. These documents are interpreted by web browsers such as Internet Explorer and Netscape Navigator.

HTML can be created as standard ASCII text with "tags" included to pass on extra information about character formatting and page layout to a web browser. The fact that HTML is, in essence, ASCII text is what makes it so universally compatible. This fact also makes it easy to edit: almost all computers are equipped with a text editor that can be used to edit HTML

HTML – CREATION OF PAGE(S) ...-HTML pages can be created in a number of ways. An HTML page is essentially a text document. You can create one in the simplest of text editors such as Microsoft Notepad in Windows, SimpleText in Mac OS, or Pico in Unix. Using these tools, you will need to edit the HTML code and insert HTML tags where necessary. You can also create pages using WYSIWYG (What You See Is What You Get) editors which do most of the work of coding for you. With WYSIWYG editors, such as Macromedia Dreamweaver and Adobe GoLive, you can type in a page as you would in a word processor, and the software adds formatting tags where necessary. You can then look into the code for fine-tuning.

To save a file as HTML, open the text you wish to edit or type it into Notepad, and choose "File...Save As..." from the menu bar. Under "File name" give your file a name and change its extension from ".txt"

to ".html." Under "Save as type" switch to "All Files" then click "OK." Notepad will save your file as ASCII text, and the ".html" or ".htm" extension will allow your browser to recognize it as an HTML file. (Hint - When naming an HTML file, it is a good idea to use a name without any spaces or uppercase letters. So, if you wanted to name a file Test page, some options would be testpage or test_page.)
To open your file in Netscape, choose "File...Open Page..." from Netscape's menu bar, and click "Choose File." Navigate to the drive and directory in which you saved your HTML, and double click on the file.
To edit your HTML, go back to Notepad, make your changes, and choose "File...Save" from the menu bar. Then go back to Netscape, and click the "Reload" button to bring in your latest changes
HTML- TAGS - Tags are what we use to structure an HTML page. Tags start with a '<', then the command, and end with a '>'. For example, the center tag is ' '. To stop centering something, we need an ending, or closing tag. Closing tags look exactly like opening tags, except after the first '<' there is a '/'. In other words, the closing tag for center is ' '.
[For More Details....click on - http://www.quackit.com/html/tutorial/introduction.cfm]

WEB TECHNOLOGIES

The contribution of WEB Technologies in E-Commerce can be seen with integration of Microsoft Office 2000, which give developers like us a host of new features we can use to create custom solutions that take full advantage of Web Based Information sharing and collaboration. We can think and feel that MS-Office 2000as an easily accessible set of web publishing tools that enable users to manage information instead of documents.
With feature of Microsoft Script editing ,HTML[Dynamic hyper text markup language] and other tools user can easily create the web pages and VB[Visual Basic] Script code.
[For more details- refer E-Commerce/V.K.Gupta/RBD publication/ page no.38,39,41,&42]

UNIT-II
E-Commerce Activity and Operation

KEY POINTS OF UNIT II & III

- **Role of web – site in b2c e-commerce**
- **Web-site design principles**
- **Push and pull strategies**
- **Types of e-commerce to communicate with customers**
- **Multi – Media & E-commerce**

ROLE OF WEB – SITE IN B2C E-COMMERCE

B2C is a shortened term for business to consumer marketing where consumer is buyer of products which are not related to business like goods and services like food, clothes, cars, house, phone services and credit repair services etc.This ecommerce marketing strategy includes purchasing and selling of products and services that take place on website. Generally we can say that B2C ecommerce solution is somewhat similar with B2B ecommerce solution because of some same functionality that both hold.

B2C ecommerce solution has intended to make customers shopping experience safe-secure and hassle free. By obtaining this marketing strategy a single business owners can reach their business on high-level of success. This solutions comes with amazing feature called 'live chat option' through customers can talk directly to store owners to negotiate at some level to place an order of their desired things. Even this solutions increase the trust value of store which is most important to make store a 'Brand'.

This solution is design to save customers time and money, in the sense of they don't have to travel anywhere else and don't need to pay for traveling. As well as through this solution, customers will also get online purchased products at their doorstep. B2C ecommerce solution has made shopping procedure and check-out procedure easier than before.It is important for business owners to analyze how they can carry out their ecommerce store that meets the customer's requirements.

Business owners should follow to run a successful ecommerce store online with B2C ecommerce solutions:

- Make online purchasing experience hassle free.
- Update your store day by day and put some attractive offer on your store.
- Use tested and trusted payment method.
- Create mobile and tablet compatible e-store.

Advantages to E-commerce Websites

- Catalog flexibility and Online fast updating
- Shrinks the Competition Gap
- Unlimited Market Place and Business Access Which Extend Customer Base
- A 24 Hour Store Reduced Sale Cycle
- Lower Cost of Doing Business
- Eliminate Middlemen
- Easier Business Administration
- Frees Your Staff
- Customers will love it

- More Efficient Business Relationships
- Secure Payment Systems

WEBSITE DESIGN PRINCIPLES FOR E-COMMERCE WEBSITES

- ✓ The design of the site will determine its organizational framework.
- ✓ The fundamental organizing principle in website design is meeting user's needs.
- ✓ In e-commerce sites the crucial design parameters are ***efficient navigation***, ***search***, along with ***speed*** and ***technically simple and basics*** e.g. **Amazon, Yahoo!, and eBay.**
- ✓ Fast loading web site designs.
- ✓ Neat and Easy Navigation.
- ✓ Minimize the use of images.
- ✓ Cross Browser Compatible.
- ✓ Ensure Web site scalability.
- ✓ Clean Layout Design.
- ✓ Readable and professional looking fonts.
- ✓ Program using pure CSS.
- ✓ Maintain a consistent look and feel throughout your site.
- ✓ Don't load your website with a lot of high tech clutter.
- ✓ Don't use unnecessary words or phrases on your site.
- ✓ Don't make the mistake that everyone will totally understand your website message.
- ✓ Don't write your strongest point or benefit only once.
- ✓ Don't push all your words together on your website.
- ✓ Don't use site content your target audience isn't interested in.
- ✓ Don't use 50 different content formats all over your website.
- ✓ Don't use words your website visitors might not understood.
- ✓ Don't let selling words and phrases go unnoticed.
- ✓ Don't forget to use words that create emotions.

PUSH AND PULL APPROACHES

Let's begin by defining both: **Push Marketing** is when you actively push your product toward a targeted audience. In some cases, you literally create a market for your product. For **example**, you have launched a website featuring your own custom made and designed baby clothes….then you advertise this clothing and your website with PPC, display ads, etc. In this case, you are creating a market for your product and pushing consumers toward it.

Push marketing is usually geared directly to the buyer. Pull marketing involves creating a demand for your product. A good **example** of this would be the infamous Tickle Me Elmo a few years ago, or the Zhu Zhu pets this past holiday season. Kids saw these toys on TV and wanted them. Usually, you sink a considerable sum of money in pull marketing because you must actively build a demand a desire for the product, which generally takes a lot of advertising!

Pull: You create an online community associated with your online business. As more members join and participate in the forum, they become involved with your website and your product/s. In this way, interest is translated into buying, and buying into customer loyalty.

Pull: Start a blog for your business and consistently post good quality, well written and informative articles relevant to your industry in some way. By delivering information that is of value to readers, you attract attention to your business and products through people who read your blog.

Push: e Mail marketing is a prime **example** of push marketing. Sending out email newsletters and emails telling subscribers about sales, specials, promotions, contests or other noteworthy happenings on your website that might benefit the reader is a great way to use push marketing without spending much money.
Push: Paid advertising such as pay Per Click and banner display ads is an **example** of push marketing, although not inexpensive.
You can use push and pull marketing to build and grow your online business!

E-COMMERCE BUSINESS MODELS TO COMMUNICATE CUSTOMERS

A **business model** is a set of planned activities (business process) designed to result in a profit in a marketplace.
A **business plan** is a document that describes a firm's business model.
An **e-commerce business model** aims to use and leverage the unique qualities of the **Internet and web.**

EIGHT KEY ELEMENTS OF A E-Commerce BUSINESS MODEL

If you hope to develop a successful business model in any arena, not just e-commerce, you must make sure that the model effectively addresses the eight elements.

1. Customer Value Proposition	**2.** Revenue Model
3. Market Opportunity	**4.** Competitive Environment
5. Competitive Advantage	**6.** Market Strategy
7. Organizational Development	**8.** Management Team

1. CUSTOMER VALUE PROPOSITION(Why should customer buy from you?)

A **value proposition** defines **how a company's product or service fulfills the needs of customers.** To develop and analyze a firm's a firm's value proposition, you need to understand why customers will choose to business with the firm instead of another company and what the firm provides that other firms do not and cannot. From the consumer point of view, successful e-commerce value propositions include

- Personalization of Products
- Customization of Products
- Reduction of Product Search Costs
- Reduction of Price Discovery Cost
- Facilitation of transactions by Managing Product Delivery

Examples: **Pizzahut Value Proposition** - delivery of Pizza within 17 and half min.
Fresh Direct Value Proposition (Convenience and save time) – Offering customers the freshest food in New York, direct from the growers and manufacturers, at the lowest price, delivered to their homes at day/night.
Amazon Value Proposition – (**Unparalleled Selection and Convenience**) Amazon makes it possible for book lovers to shop for virtually any book in print from the comfort of their home or office, 24 hours a day and to know immediately whether a book is in stock or not.

2. **REVENUE MODEL (How will you earn money?)**
   A firms **revenue model** describes how the firm will earn revenue, generate profits and produce a superior return on invested capital we use the terms revenue model and financial model interchangeable. The function of business organizations is both to generate profits and to produce returns on invested capital that exceed alternative investments.
   Profits alone are not sufficient to make a company successful. In order to be considered successful, a firm must produce returns greater than alternative investments. Firms that fail this test go out of existence.
   Retailers, for **example**, sell a product, such as a personal computer, to a customer who pays for the computer using cash or a credit card. This produces revenue. The merchants typically charge more for the computer than it pays out in operating expenses, producing a profit.
   Although there are many different e-commerce revenue models that have been developed, most companies rely on one, or some combination, of the following major revenue models:
   - **Advertising Revenue Model**
   - **Subscription Revenue Model**
   - **Transaction Fee Revenue Model**
   - **Sales Revenue Model**
   - **Affiliate Revenue Model**

   - **Advertising Revenue Model**: A Web site that offers its users content, services, and /or products also provides a forum for advertisements and receives fees from advertisers. Those web sites that are able to attract the greatest viewership or that have a highly specialized and are able to retain user attention are able to charge higher advertising rates. Yahoo, AOL, MSN for instance, derives a significant amount of revenue from search engine and other forms of online advertising.
   - **Subscription Revenue Model**: A website that offers its users content or services charges a subscription fee for access to some or all of its offerings. Yahoo, for instance, has broadened its business model to include a number of different types of premium subscription services, such as yahoo! Real Time Quote, and Yahoo! Finance.
   - **Transaction Fee Revenue Model**: A company receives a fee for enabling or executing a transaction. For **example**, ***eBay*** provides an online auction marketplace and receives a small transaction fee from a seller if the seller is successful in selling the item. ***E* Trade***, an online stockbroker, receives transaction fees each time it executes a stock transaction on behalf of a customer.
   - **Sales Revenue Model**: companies derive revenue by selling goods, information, or services to customers. Companies such as amazon (which sells books, music, and other products), LLBean.com, and Gap.com all have sales revenue models. Other **example**s are: Dell.com, Acer.com, Sony.com, Freshdirect.com, Webvan.com etc.
   - **Affiliate Revenue Model**: Sites that steer business to an "affiliate" receive a referral fee or percentage of the revenue from any resulting sales. For **example**, **Mypoints.com** makes money by connecting companies with potential customers by offering special deals to its members. When they take advantage of an offer and make a purchase, members earn "points" they can redeem for freebies, and **MyPoints.com** receives a fee. Community feedback sites such as **Opinions** and **About.com** receive much of their revenue from steering (guiding) potential customers to web sites where they make a purchase.

3. **Market Opportunity (What marketspace do you intend to serve, and what is its size?)-** The term market opportunity refers to the company's intended marketspace(i.e. an area of actual or potential commercial value) and the overall potential financial/revenue opportunities available to the firm in that marketspace. The market opportunity is usually divided into

smaller market niches(segments) **The realistic market opportunity** is defined by the revenue potential in each of the market segments where you hope to compete.

There are further market niches within each of those major market segments, such as the **Fortune 500 computer-based training** market and **the small business computer-based training** market. Because the firm is a **startup firm**, it cannot compete effectively in the large business; **computer based training market** (about **$15 billion**.) Large brand-name training firms dominate this niche(Segment). The Startup firm's **real market opportunity** is to sell to the thousands of small business firms who spend about **$6 billion** on **computer-based software training** and who desperately need a cost-effective training solution. This is the size of the firm's **realistic market opportunity**.

4. **COMPETITIVE ENVIRONMENT(Who else occupies your intended market space)**

A firm's **competitive environment** refers to the other companies selling ***similar products*** and ***operating in the same market space***. It also refers to the presence of substitute products and potential new entrants to the market, as well as the power of customers and suppliers over your business. The competitive environment for a company is influenced by several factors:

- *how many competitors are active*
- *competitor how profitable these firms are*
- *the market share of each competitor*
- *how large their operations are*
- *how they price their products*

Firms typically have both **direct** and **indirect** competitors. **Direct competitors** are those companies that sell products and services that are very similar and into the same market segment. **For example,** *Priceline* and *Travelociy*, both of whom sell discount airline tickets online, are direct competitors because both companies sell identical products – cheap tickets. **Indirect competitors** are companies that may be in **different industries** but still **compete indirectly** because their products can **substitute** for one another. For instance, automobile manufacturers and airline companies operate in different industries, but they still compete indirectly because they offer consumers alternative means of transportation.

5. **COMPETITIVE ADVANTAGE (What special advantages does your firm bring to the marketplace?)**

Firms achieve a **competitive advantage** when they can produce a superior product and / or bring the product to market at a lower price than most, or all, of their competitors. Firms also compete on scope(**Regional/National/Global**). Some firms can develop *global market*, while other firms can only develop a *national or regional* market . Firms that can provide ***superior products at lowest cost*** on a global basis are truly advantaged.

Firms achieve competitive advantages because they have somehow been able to obtain differential access to the **factors of production** that are denied to their competitors – at least in the short term. Perhaps the firm has been able to obtain very favorable terms from **suppliers**, **shippers**, or **sources of labor**. Or perhaps the firm has more **experienced**, **knowledgeable**, and **loyal employees** than any competitors. Maybe the firm has a **patent** on a product that others cannot **imitate**, or access to **investment capital** through a network of former business colleagues or a **brand name** and **popular image** that other firms cannot duplicate.

An **asymmetry** exists whenever one participant in a market has more resources – **financial backing**, **knowledge**, information, and / or power – than other participants. Asymmetries lead

to some firms having an edge over others, permitting them to come to market with **better products**, **faster than competitors**, and sometimes at **lower cost**.

Some **competitive advantages** are called "**unfair**." An unfair competitive advantage occurs when one firm develops an advantage based on a factor that other firms cannot purchase. For instance, a **brand name** cannot be purchased and is in that sense an "unfair" advantage. Brands are built upon **loyalty**, **trust**, **reliability**, and **quality**. Once obtained(brand) they are difficult to copy or imitate, and they permit firms to charge premium prices for their products.

6. **MARKET STRATEGY (How do you plan to promote your products or services to attract your target audience?)**

No matter how tremendous a firm's qualities, its **marketing strategy** and **execution** are often just as important. The best business concept, or idea, will fail if it is not properly marketed to potential customers .

Everything you do to promote your company's products and services to potential customers is known as marketing. Market strategy is the **plan** you put together that details exactly how you intend to enter a new market and attract new customers.

Part of FreshDirect's strategy , for instance, is to develop close supply chain partnerships with **growers** and **manufacturers** so it purchases goods at lower prices directly from the source . This helps FreshDirect lower its prices for consumers. By partnering with suppliers that could benefit from FreshDirect's access to consumers, FreshDirect is attempting to extend its competitive advantage.

Other companies, such as **Yahoo**, have used a different marketing strategy. They invest heavily in advertising(on tv, Newspaper etc.) to get the word out about their site. **AOL** used sampling of millions of free cd-roms to attract new users. AOL enclosed cd with free trail offers in magazines and newspapers across the country.

7. **ORGANIZATIONAL DEVELOPMENT (What types of organizational structures within the firm are necessary to Cary out the business plan)**

Although any entrepreneurial ventures are started by one visionary individual, it is rare that one person alone can grow an idea into a multi-million dollar company. In most cases, fast-growth companies – especially e-commerce businesses – need **employees** and a **set of business procedures**. In short, all firms–new ones in particular – need an **organization** to efficiently implement their business plans and strategies. Many e-commerce firms and many traditional firms who attempt an e-commerce strategy have failed because they lacked the organizational structures and **supportive cultural** values required to support new forms of commerce.

Companies that hope to grow and succeed need to have a plan for organizational development that describes how the company will organize the work that needs to be accomplished. Typically, work is divided into functional departments, such as **production**, **shipping**, **marketing**, **customer support**, and **finance**. Jobs within these functional areas are defined, and then **recruitment** begins for specific job titles and responsibilities. Typically, in the beginning, generalists who can perform **multiple tasks** are hired.

For instance, eBay founder Pierre Omidyar started an online auction site, according to some sources, to help his friend trade PEZ dispensers with other collectors, but within a few months the volume of business had far exceeded what he **alone** could handle. So he began hiring people with more business experience to help out. Soon the company had many **employees**, **departments**, and **managers** who were responsible for overseeing the various aspects of the **organization**.

8. **MANAGEMENT TEAM (What kinds of experiences and background are important for the company's leaders to have?)**
   The single most important element of a business model is the **management team** responsible for making the model work. A strong management team gives a model instant credibility to outside investors, **market** – specific **knowledge**, and **experience** in implementing business **plan**. A strong management team may not be able to save a weak business model, but the team should be able to change the model and redefine the business as it becomes necessary.
   Eventually, most companies get to the point of having several senior executives or managers.. The challenge is to find people who have both the **experience** and the **ability** to apply that experience to new situations.
   To be able to identify good managers for a business startup, first consider ***the kinds of experiences that would be helpful to manager joining your company.*** **What kind of technical background is desirable?** ***What kind of supervisory experience is necessary?*** **How many years in a particular function should be required?**

MAJOR BUSINESS-TO-CONSUMER(B2C) BUSINESS MODELS

Business-to-consumer (B2C) e-commerce, in which online business seek to reach individual consumers, is the most well-known and familiar type of e-commerce.

1. Portal
2. E-Tailers
3. Content Provider
4. Transaction Broker
5. Market Creator
6. Service Provider
7. Community Provider

1. PORTAL

- Portals such as Yahoo, MSN/Windows Live , and AOL offer users powerful web search tools as well as an integrated package of content and services, such as news, email, instant messaging, calendars, shopping, music downloads, video streaming and more, all in one place.
- portals sought to be viewed as "gateways" to the Internet. Today, however, the portal business model is to be a destination site. They are marketed as places where consumers will want to start their web searching and hopefully stay a long time to read news, find entertainment, and meet other people.
- **Portals do not sell** anything directly. The market opportunity is very large.
- Portals generate revenue primarily by charging **advertisers for ad placement**, **collecting referral fees** for steering customers to other sites and charging for **premium services**.
- portals are also **Internet Service Providers** (ISP's) that provide access to the Internet and the Web – add an additional revenue stream: *monthly subscription fees for access.*

2. **E-Tailer -** Online retail stores, often called e-tailers, come in all sizes, from giant **Amazon** to tiny local stores that have web sites. **E-tailers** are similar to the typical **bricks- and – mortar** storefront except that customers only have to connect to the Internet to check their inventory and place an order. Some e-tailers, which are referred to as "**bricks-and-clicks**," are subsidiaries or divisions of existing physical stores and carry the same products. **JSPenney**, **Barnes** & **Noble**, **Wal-Mart**, and **Staples** are four **example**s of companies with complementary online stores. Others, however, operate only in the **virtual**(Click - and-Click) world, without any ties to physical locations. **Amazon**, **BlueNile.com**, and **Drugstore.com** are **example**s of

this type of **e-tailers**. Several other **variations** of e-tailers – such as online versions of **direct mail catalogs**, **online malls**, and **manufacturer-direct online** sales also exist.

3. **CONTENT PROVIDER -** Although there are many different ways the internet can be useful, "information content," which can be defined broadly to include all forms of intellectual property, is one of the largest types of internet usage. **Intellectual property** refers to all forms of human expression that can be put into a tangible medium such as text, CD'S or the web. Content Providers distribute information content, such as digital video, music, photos, text, and artwork, over the web.
   Content providers make money by charging a **subscription** fee. For instance in the case of WSJ.COM , Harvard Business Review, and many others, charge customers for content downloads in addition to or in place of a subscription fee. **Micropayment systems** technology provides content providers with a cost-effective method for processing high volumes of very small monetary transactions (anywhere from $.25 to $5.00 per transaction).
4. **TRANSACTION BROKER -** Sites that process transitions for consumers normally handled in person, by phone, or by mail are transition brokers. The largest industries using this model are **financial services**, **travel services**, and **job placement services**. The online transaction broker's primary value propositions are savings of money and time. In addition, most transaction brokers provide timely information and opinions. Sites such as **Monster**.com offer job searchers a national marketplace for their talents and employers a national resource for that talent. Both employers and job seekers are attracted by the convenience and currency of information. **Online stock brokers** charge commissions that are considerably less than traditional brokers, with many offering substantial deals, such as cash and a certain number of free trades, to lure new customers.
5. **MARKET CREATOR -** Market creators build a digital environment in which buyers and sellers can meet, display products, search for products, and establish prices. A prime **example** is **Priceline**, which allows consumers to set the price they are willing to pay for various travel accommodations and other products (some times referred to as a reverse auction) and **eBay**, the online auction site utilized by both businesses and consumers.
6. **SERVICE PROVIDER -** While e-tailers sell products online, service providers offer services online. There's been an explosion in online services that is often unrecognized. Web 2.0 applications such as photo sharing, video sharing, and user-generated content (in **blogs** and **social** networking sites) are all services provided to customers.
   Service providers use a variety of revenue models. Some charge a fee, or monthly subscriptions, while others generate revenue from other sources, such as through advertising and by collecting personal information that is useful in direct marketing.
   Some services are free but are not complete. For instance, Google app basic edition is free, but a "Premier" model with virtual conference rooms and advanced tools costs $**50** per employee a **year**. Much like retailers who trade products for cash, service, providers trade **knowledge**, **expertise**, and **capabilities**, for revenue.
7. **COMMUNITY PROVIDER -** Community providers are sites that create a digital online environment where people with similar interests can transact (buy and sell goods); share interests, photos, videos; communicate with like-minded people; receive interest-related information; and even play out fantasies by adopting online personalities called avatars. The social networking sites myspace, facebook, friendster, and hundreds of other smaller, niche sites such as doostang, twitter, and google buzz, all offer users community building tools and services.

Facebook is rapidly gaining on its rival MySpace by encouraging users to build their own revenue producing applications that run on their profiles and even take in advertising and affiliate revenues.
Online communities tend to reflect offline relationships when your friends say they have a profile on Facebook and ask you to visit; you are encouraged to build your own online profile.

MAJOR BUSINESS-TO-BUSINESS(B2B) BUSINESS MODELS

Business to Business e-commerce , in which businesses sell to other businesses, is more than ten times the size of Business to Customer e-commerce, even through most of the public attention has focused on B2C.

1. **E-Distributor**
2. **E-Procurement**
3. **Exchange**
4. **Industry Consortium**
5. **Private Industrial Networks**

1. **E-Distributor -** Companies that supply products and services directly to individual businesses are e-distributors. W.w.Grainger, for **example**, is the largest distributor of maintenance, repair, and operations (MRO) supplies are thought of as indirect input to the production process – as opposed to direct inputs. In the past, Grainger relied on catalog sales and physical distribution centers in metropolitan areas. Its catalog of equipment went online in 1995 at Grainger.com, giving businesses access to more than 220,000 items. Company purchasing agents can search by type of product, such as motors, HVAC, or fluids, or by specific brand name.
   E-distributors are owned by one company seeking to serve many customers. However, as with exchanges, critical mass is a factor . With e-distributors, the more products and services a company makes available on its site, the more attractive that site is to potential customers. One stop shopping is always preferable to having to visit numerous sites to locate a particular part or products.
2. **E-Procurement -** Just as e-distributors provide products to other companies , e-procurement firms create and sell access to digital electronic markets. Firms such as Ariba, for instance, have created software that helps large firms organize their procurement process by creating mini-digital markets for a single firm. Ariba creates custom integrated online catalogs (where supplier firms can list their offerings) for purchasing firms. On the sell side, Ariba helps vendors sell to large purchasers by providing software to handle catalog creation shipping, insurance, and finance. Both the buy and sell side software is referred to generically as "value chain management" software.
3. **Exchange -** In theory, exchanges make it significantly less expensive and time-consuming to identify potential suppliers, customers and partners, and to do business with each other. As a result, they can lower transaction costs – the cost of making a sale or purchase. Exchanges can also lower product costs and inventory carrying costs (the cost of keeping a product on hand in a warehouse.). In reality B2B exchanges have had a difficult time convincing thousands of suppliers to move into singular digital markets where they face powerful price competition, and an equally difficult time convincing businesses to change their purchasing behavior away from trusted long-term trading partners. As a result, the number of exchanges has fallen to less than 200, down from over 1500 in 2002 , although the surviving have experienced some success.

4. **Industry Consortium -** Industry consortia are industry – owned vertical marketplaces that serve specific industries, such as the automobile, aerospace, chemical, floral, or logging industries. In contrast, horizontal marketplaces sell specific products and services to a wide range of companies. for **example** , EXOSTAR is an online trading exchange for the aerospace and defense industry, founded by BAE Systems, Boeing , Lockheed Martin, Raytheon, and Rolls-Royce in 2000. Exostar connects with over 300 procurement systems in 20 different countries and has registered more than 24, 000 trading partners worldwide.
5. **Private Industrial Networks -** Private industrial networks (some times referred to as private trading exchanges or PTXs) constitute about 75% of all B2B expenditures by large firms and far exceed the expenditures for all forms of net marketplaces. Private industrial networks are digital networks(often but not always internet-based networks) designed to coordinate the flow of communications among firms engaged in business together. B2B e-commerce relies overwhelmingly on a technology called electronic data interchange (EDI). EDI is not designed for these types of relationships. There are two types of private industrial networks:

a. **Single Firm -** Single firm private industrial networks are the most common form of private industrial network. These single – firm networks are owned by a single large purchasing firm, such as Wal-Mart or Procter & Gamble.
b. **Industry-wide -** Industry wide private industrial networks often evolve out of industry associations. These networks are usually owned by a consortium of the large firms in an industry and have the following goals: providing a neutral set of standards of or commercial communications over the internet ; having shared and open technology platforms for solving industry problems; and in some cases, providing operating networks that allow members of an entire industry to closely collaborate.

BUSINESS MODELS IN EMERGING E-COMMERCE AREAS

When we think about a business, we typically think of a business firm that produces a product or good and then sells it to a customer. But the web has forced us to recognize new forms of business, such as -

1. **CONSUMER TO CONSUMER (C2C) BUSINESS MODELS -** C2C ventures provide a way for consumers to sell to each other, with the help of an online business. The first and best **example** of this type of business is eBay, utilizing a market creator business model.
   Before eBay, individual consumers used garage sales, flea markets, and thrift shops to both dispose of and acquire used merchandise.
2. **PEER – TO – PEER(P2P) BUSINESS MODEL -** Like the C2C models, P2P business models link users, enabling them to share files and computer resources without a common server. The focus in P2P companies is on helping individuals make information available for anyone's use by connecting users on the web. Historically, peer-to-peer software technology has been used to allow the sharing of copyrighted music files in violation of digital copyright law. The challenge for P2P ventures is to develop viable , legal business models that will enable them to make money. Difficulties faced by Kazaa, one of the most prominent **example**s of a P2P business model in action.
3. **M-COMMERCE(MOBILE COMMERCE) BUSINESS MODELS -** M-commerce, short for mobile commerce, takes traditional e-commerce models and leverages emerging new wireless technologies to permit mobile access to the web. Wireless web technology will be used to enable the extension of existing web business models to service the mobile work force and consumer of the future.

With the introduction of the iPhone, mobile search applications are likely to become more popular. Consumer applications are also beginning to appear in high volume personal transaction areas, such as eBay's anywhere system, and mobile payment platforms such as Paypal's Mobile checkout. M-commerce business models that hope to rely on push advertising.

UNIT-III

E-PAYMENT SYSTEM

Multimedia: the use of digital data in more than one format, such as the combination of text, audio and image data in a computer file.

The theory behind multimedia is digitizing traditional media likewords, sounds, motion and mixing them together with elements of database.

Multimedia data compression:
Data compression attempts to pack as much information as possible into a given amount of storage. The range of compression is 2:1 to 200:

Compression Methods:

- **Sector-oriented disk compression** (integrated into the operating system, this compression is invisible to end user)
- **Backup or archive-oriented compression**(Compress file before they are downloaded over telephone lines)
- **Graphic & video-oriented compression**(Compress graphics & video file before they are downloaded)
- **Compression of data being transmitted over low-speed network**(tech used in modems, routers)

Multimedia content can be considered both fuel and traffic for E-commerce applications. The technical definition of Multimedia is the use of digital data in more than one format, such as the combination of text, audio, video and graphics in a computer file/document. Its purpose is to combine the interactivity of a user-friendly interface with multiple forms of content. The success of E-commerce applications also depends on the variety and innovativeness of multimedia content and packaging. E-commerce requires robust servers to store and distribute large amounts of digital content to consumers. These multimedia storage servers are large information warehouses capable of handling various content. Theses servers must handle large-scale distribution, guarantee security and complete reliability.
Multimedia technology is a powerful tool for companies engaging in e-commerce. First, it allowed marketers to show and describe products on the Web or CD-ROM with static text and pictures. However, it also allowed them to create more exciting promotional efforts that incorporated video and sound. For example, a hotel chain could allow potential visitors to take virtual tours that included previews of rooms, restaurants, and entertainment offerings at different properties. An online music store could provide sample songs from CDs prior to purchase. Multimedia technology also made inroads in the area of e-mail marketing.

WHY MULTIMEDIA IS REQUIRED IN E-COMMERCE

1. ***Retrieval and Indexing***- Hardly any available retrieval technique can answer a question like “give me all video sequences, showing an episode on YOUTUBE”. Still more difficult is a question like “give me all video sequences, showing an episode on YOUTUBE of Star plus”. Video indexing schemes, based on similarity tests relying on low-level color and texture information, can be only the first step for really useful retrieval techniques.

2. *Storage, Communication, and Performance* - Multimedia data (especially video) has several orders of magnitudes higher storage and network bandwidth requirements than text (or even images). Compression techniques have achieved a mature level and have been standardized in various communities, e.g., the ISO/IEC Moving Picture Experts Group (MPEG) (http://www.cselt.it/mpeg/). Nevertheless, the adaptation of the digitally-stored representation of the multimedia data to different applications, to different network bandwidths, and to different presentation devices is an open issue. This is, however, the key to achieve a level of performance that enables satisfactory usage of e-business applications including multimedia contents.

3. *Streaming and Resource Scheduling* - Continuous data (as audio and video are) needs continuous transport over the network and continuous presentation to the user. This urgently demands resource scheduling techniques providing guaranteed quality of service (QoS). In reality, neither current network technology nor operating systems provide such techniques.

4. *Authoring-* Authoring is a mostly unsolved problem. There are some tools for special applications, such as video cutting – even these have not reached a mature status yet. There are no general tools for creating complex scenarios, such as an advertisement containing text, images, animated and natural video, and sound.

5. *Presentation* -Similarly to authoring, presentation of complex scenarios not just consisting of all types of data, but also requiring a set of spatial and temporal constraints on their presentation, is an open issue. In an ad, e.g., we could require to present first background and music, than show a video clip which is subsequently enhanced by an animation and some blinking text etc. Especially interesting is the mapping of complex presentations onto widely differing devices ranging from mobile phones to high-performance workstations.

6. *Engineering* - Last but not least, a discipline "Multimedia Engineering", analogous to or maybe as a part of "Web Engineering" must emerge. This must be a combination of software engineering, content composition, interface design, and performance tuning. Future multimedia systems must be scalable, portable, flexible, and high-performance – all nice buzzwords, calling actually for a new wing of science.

UNIT – IV

SECURITY AND LEGAL ASPECTS OF E-COMMERCE

- Electronic payment systems are proliferating in banking, retail, health care, on-line markets, and even government—in fact, anywhere money needs to change hands.
- Organizations are motivated by the need to deliver products and services more cost effectively and to provide a higher quality of service to customers.
- The emerging electronic payment technology labeled electronic funds transfer (EFT).
- EFT is defined as "any transfer of funds initiated through an electronic terminal, telephonic instrument, or computer or magnetic tape so as to order, instruct, or authorize a financial institution

EFT can be segmented into three broad categories:

1. Banking and financial payments
- Large-scale or wholesale payments (e.g., bank-to-bank transfer)
- Small-scale or retail payments (e.g., automated teller machines)
- Home banking (e.g., bill payment)

2. Retailing payments

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

3. On-line electronic commerce payments

3.1. Token-based payment systems

- Electronic cash (e.g., DigiCash)
- Electronic checks (e.g., NetCheque)
- Smart cards or debit cards (e.g., Mondex Electronic Currency Card))

3.2. Credit card-based payments systems

- Encrypted Credit Cards (e.g., World Wide Web form-based encryption)
- Third-party authorization numbers (e.g., First Virtual)

3.1) DIGITAL TOKEN-BASED ELECTRONIC PAYMENT SYSTEMS

Electronic tokens are three types:

1. Cash or Real-time
- Transactions are settled with exchange of electronic currency.
- Ex: on-line currency exchange is electronic cash (e-cash).

2. Debit or Prepaid
- Users pay in advance for the privilege of getting information.
- Ex: prepaid payment mechanisms are stored in smart cards and electronic purses

that store electronic money.

3. Credit or Postpaid

- The server authenticates the customers and verifies with the bank that funds are adequate before purchase.

- Ex: postpaid mechanisms are *credit/debit cards* and *electronic checks*.

4. Properties of Electronic Cash:

- There are many ways that exist for implementing an e-cash system, all must incorporate a few common features.
- Specifically, e-cash must have the following four properties:

1. Monetary value
2. Interoperability
3. Retrievability
4. Security

Electronic Cash in Action

- Electronic Cash is based on cryptographic systems called "digital signatures".
- This method involves a pair of numeric keys: one for locking (encoding) and the other for unlocking (decoding). (Through public key and private key).

Purchasing E-cash from Currency Servers

The purchase of e-cash from an on-line currency server (or bank) involves two steps:

- Establishment of an account and maintaining enough money in the account to bank the purchase. Some customers might prefer to purchase e-cash with paper currency, either to maintain anonymity or because they don't have a bank account.

Using the Digital Currency

- Once the tokens are purchased, the e-cash software on the customer's PC stores digital money undersigned by a bank.
- The users can spend the digital money at any shop accepting e-cash, without having to open an account there or having to transmit credit card numbers.
- As soon as the customer wants to make a payment, the software collects the necessary amount from the stored tokens.

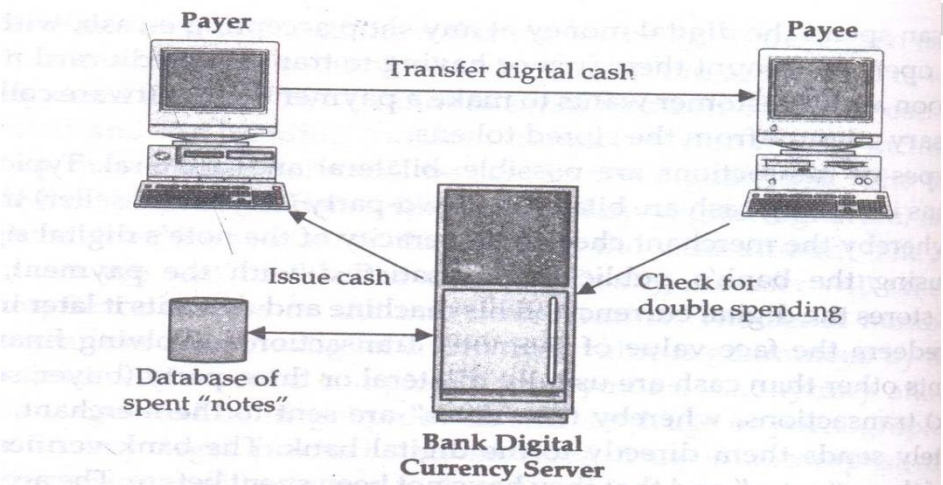


Figure 8.1 Detection of double spending

Electronic Checks

- It is another form of electronic tokens.
- In the given model shown in fig, buyers must register with third-party account server before they are able to write electronic checks.
- The account server acts as a billing service.
- The advantages are:

1. They work in the same way as traditional checks.
2. These are suited for clearing micropayments
3. They create float & availability of float is an important for commerce
4. Financial risk is assumed by the accounting server & may result in easier acceptance

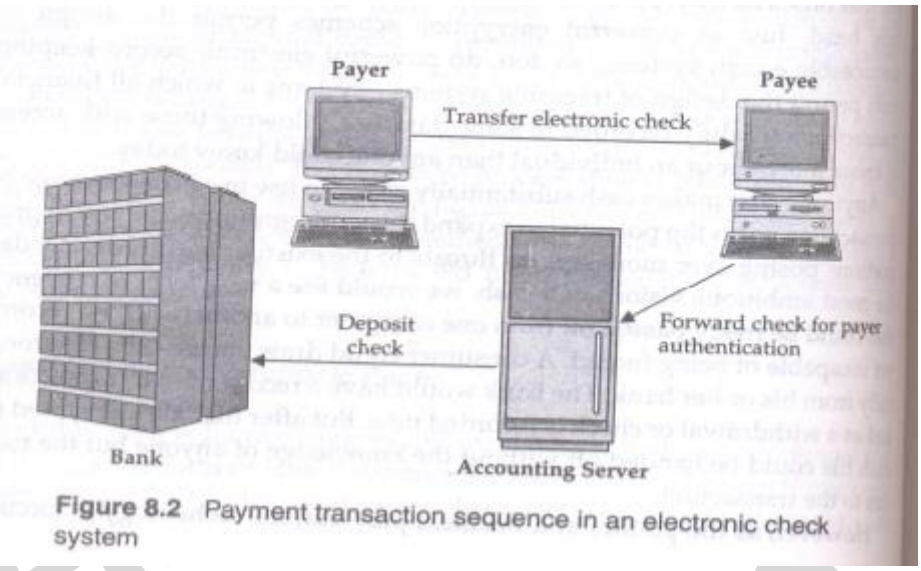


Figure 8.2 Payment transaction sequence in an electronic check system

Smart Cards & Electronic Payment Systems

- Smart cards have been in existence since the early 1980s and hold promise for secure transactions using existing infrastructure.
- Smart cards are credit and debit cards and other card products enhanced with microprocessors capable of holding more information than the traditional magnetic stripe.
- The smart card technology is widely used in countries such as France, Germany, Japan, and Singapore to pay for public phone calls, transportation, and shopper loyalty programs.

Smart cards are basically two types:

- Relationship-Based Smart Credit Cards
- Electronic Purses, which replace money, are also known as debit cards and electronic money.

Relationship-Based Smart Credit Cards

- It is an enhancement of existing cards services &/ or the addition of new services that a financial institution delivers to its customers via a chip-based card or other device
- These services include access to multiple financial accounts, value-added marketing programs, or other information card holders may want to store on their card
- It includes access to multiple accounts, such as debit, credit, cash access, bill payment & multiple access options at multiple locations

Electronic Purses

- To replace cash and place a financial instrument are racing to introduce "electronic purses", wallet-sized smart cards embedded with programmable microchips that store sums of money for people to use instead of cash for everything
- The electronic purse works in the following manner:

1. After purse is loaded with money at an ATM, it can be used to pay for candy in a vending

machine with a card reader.

2. It verifies card is authentic & it has enough money, the value is deducted from balance on the card & added to an e-cash & remaining balance is displayed by the vending machine.

3. 2) CREDIT CARD-BASED ELECTRONIC PAYMENT SYSTEMS

Payment cards are all types of plastic cards that consumers use to make purchases:

- Credit cards
  - Such as a Visa or a MasterCard, has a preset spending limit based on the user's credit limit.
- Debit cards
  - Removes the amount of the charge from the cardholder's account and transfers it to the seller's bank.
- Charge cards
  - Such as one from American Express, carries no preset spending limit.

Advantages:

- Payment cards provide fraud protection.
- They have worldwide acceptance (nearly!).
- They are good for online transactions.

Disadvantages:

- Payment card service companies charge merchants per-transaction fees and monthly processing fees.

Payment Acceptance and Processing

- Open loop (such as VISA) and closed loop (such as American Express) systems will accept and process payment cards.
- A merchant bank or acquiring bank is a bank that does business with merchants who want to accept payment cards.
- Software packaged with your electronic commerce software can handle payment card processing automatically.

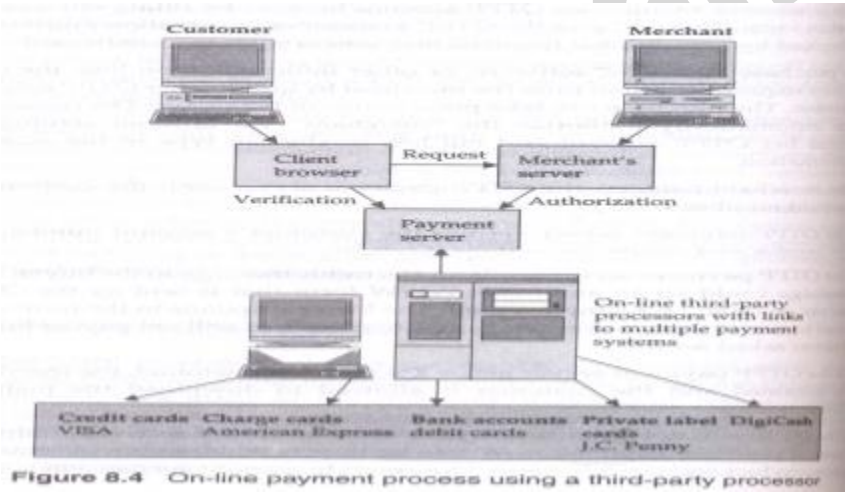


Figure 8.4 On-line payment process using a third-party processor

- Electronic cash is a general term that describes the attempts of several companies to create value storage and exchange system that operates online in much the same way that government-issued currency operates in the physical world.
- Concerns about electronic payment methods include:

- Privacy
- Security
- Independence
- Portability
- Convenience

Electronic Cash Issues

- Primary advantage is with purchase of items less than £5
  - Credit card transaction fees make small purchases unprofitable
  - Facilitates Micropayments – eg for items costing less than £1
  - Must be anonymous, just like regular currency
- Safeguards must be in place to prevent counterfeiting
- Must be independent and freely transferable regardless of nationality or storage mechanism

Electronic Cash Storage

· Two methods

– On-line

· Individual does not have possession personally of electronic cash
· Trusted third party, e.g. e-banking, bank holds customers' cash accounts

– Off-line

· Customer holds cash on smart card or electronic wallet
· Fraud and double spending require tamper-proof encryption

Risks in Electronic Payment systems

- Customer's risks
  - Stolen credentials or password
  - Dishonest merchant
  - Disputes over transaction
  - Inappropriate use of transaction details
- Merchant's risk
  - Forged or copied instruments
  - Disputed charges
  - Insufficient funds in customer's account
  - Unauthorized redistribution of purchased items
- Main issue: Secure payment scheme

Electronic payments Issues

- Secure transfer across internet
- High reliability: no single failure point
- Atomic transactions
- Anonymity of buyer
- Economic and computational efficiency: allow micropayments
- Scalability in number of servers and users

Designing Electronic Payment systems

It includes several factors:

- **Privacy**. A user expects to trust in a secure system; just as a telephone is a safe
- **Security.** A secure system verifies the identity of two-party transactions through "user authentication" & reserves flexibility to restrict information/services through access control
- **Intuitive interfaces**. The payment interface must be as easy to use as a telephone.
- **Database integration**. With home banking, for ex, a customer wants to play with all his accounts.
- **Brokers.** A "network banker"-someone to broker goods & services, settle conflicts, & 'financial transactions electronically-must be in place
- **Pricing.** One fundamental issue is how to price payment system services. For e.g., from cash to bank payments, from paper-based to e-cash. The problem is potential waste of resources.
- **Standards.** Without standards, the welding of different payment users into different networks & different systems is impossible.

Electronic security

To understand electronic security let us study a case. Sameer receives apparently an official mail from yahoo or sify.com. in this e-mail he has been warned about a virus and is given a link to deal with this. And he has advised to click on the link. Sameer clicks on that link and downloads the file and closed it by thinking that now his computer system is secure. By doing this he does not feel that a software programme named Trojan has already made inroads to his computer system and his computer is now being accessed only by a few people.

Hackers, virus, logic bomb, e-mail bomb, Trojans, web jacking IP spoofing, e-mail spoofing are the negative aspects of the Internet and are some examples of security threats.

Security measures on Internet

When you are working on internet keep the following important tips in your mind

Develop culture of Security

Many professionals do not make internet security as a part of their daily routine work. For this, the trade organizations should adopt key security measures and also appraise their employees about these including directions to follow the policy of internet security. This is required since, sometimes you or your employee may forget to log off, or change a password and ignore to down load and install he software patches.

Install anti-virus and keep it updated

The main reason for the spread of virus is e-mail attachments that are infected programme from website or to use infected floppy disc or CD is to invite virus in your system. Some of the viruses are programmed in such a way that they remain inactive for sometimes. Bu installing antivirus software, you can secure your computer from virus such as worm and Trojans.

Following are the measures to secure your computers from the virus, worms and Trojan's infection.

- Install firewall and antivirus software both in your computer.
- Install up dated antivirus soft ware in your computer.

- For application software and working system of the network, update security patches.
- Be careful while dealing with the files received from unknown sources.
- Do not open an e-mail attachment sent by a sender whom you do not know.
- Scan the e-mail attachment by anti-virus software before opening.
- Download files from the trusted internet sites and be cautions while exchanging files between your friends.
- Do not click the hyperlink of e-mail received from unknown sources.

Install a firewall to block unauthorized access to your computer –

Firewall acts as a security guard to protects computer. Firewall blocks the unauthorized access and downloads from internet. Firewall users can set the firewall access rules in such a way that it can be ascertained the connection that is to be accepted or rejected. Without firewall, the computer is like a building without a security guard meaning thereby that there is no check on the incoming and outgoing traffic. You are to get the appropriate firewall if you want to use it effectively.

Protect yourself from harmful emails

E-mail is the fastest and easiest medium to communicate through internet. In addition to this, it also distributes harmful electronic virus, worm and Trojan through malicious code that may be dangerous hidden commands in attachment.

Minimize Spam

Spam is an internet alternative of junk mail in your letterbox. Spam e-mails are professional electronic message that re sent to you without seeking your consent. The senders through spam attempt to sell, purchase and advertise their products, services, properties, land, and investment. Spam unnecessarily fill sup your inbox with useless and unexpected message and wastes your time in deleting. Consequently besides waste of time money loss too occurs. Further, in spam virus, worms and Trojans remain present. There is software in the market that minimizes the incoming of such spam.

Keep Backing up your Data

1. After ascertaining the level of risk develop a disaster recovery Plan
2. Ascertain that the Backup process is tested and do not forget to test the actual data and restoration of data process.
3. Ascertain that copies of backup are away from your computer and from untowards situations.
4. Include your financial and pay roll system in your back up process.
5. All third party software may be copied before its use.
6. Do not use master copy for ordinary business activities and keep it secured for only recovery purposes.

Develop your system with Secure Passwords

A password is a collection of letters and numerals that identifies you. When you log on a computer system and access a website or other computers on internet. If you do not use the password or use such passwords that can be guessed or easily cracked in that case someone may steal vital information and personal details from your computer and laptop. Following tips may help you in making a effective/ powerful password –

1. Do not make such passwords that can easily be guessed that is your name, date of birth, or name of a member of your family.
2. Use letter, numeral and special characters in the password.
3. Remember your password and take care that you do not write your password near your computer so that it may be easily located.
4. When you change the password, make a complete change and do not use your earlier password again.

Make sure your on line Banking is Secured

To organize the online bank accounts the internet users are provided with a easy method. If you do online, banking you should remain alert against the fraud that operate on a large scale and try to steal your credentials by using messages. These messages though appear to be legal yet, you should be careful that

they should not befool you and get the information of your account number, password and credit card number. Phishing is such a technique that is used to steal your personal information. Phishing e-mails may present powerful logic to elicit your personal details to safe guard from phishing and frauds on online banking consider the following measures.

- Always type your banks URL in your browser.
- Do not connect your bank through some other link.
- Beware of such males that instigate you for urgency.
- To make a secure password, follow the instructions given earlier.
- Follow the tips given earlier on virus security, firewall and harmful e-mails.
- Work according to the security suggestion given by your bank or financial institution.

Develop a Security Policy and maintain it

- Estimate your business needs and accordingly decide appropriate security measures.
- Prepare a security policy and train your employees to maintain it.
- Establish security measures in all your new computers.